## Introduction to Financial Accounting (AC 101)



By Professor Khloud Kourani

Passaic County Community College

Textbook excerpts were modified by Professor Khloud Kourani for AC101 at Passaic County Community College under copyright privilege extended by the creators under Creative Commons licensing.

This excerpt is a modification of the following textbooks:
Introduction to Financial Accounting by Henry Dauderis and David Annand edited by Athabasca University

CC BY-NC-SA 3.0
https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=215

Accounting Principles: A Business Perspective by James Don Edwards, University of Georgia \& Roger H. Hermanson, Georgia State University. Provided by: Endeavour International Corporation. Project: The Global Text Project http://solr.bccampus.ca:8001/bcc/file/fa667d22-26c7-487e-8d750e57ef8eece7/1/Accounting\ Principles\ A\ Business\ Perspective.p df

The following Creative Commons license is extended for original content authored by Khloud Kourani


## Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)

Formatting and editing completed by Annemarie Roscello, Associate Professor, Bergen Community College
(C) (i)

Link to Original Link to Original

## Table of Contents

1. Introduction to Financial Accounting ..... 1
A. Accounting Defined ..... 3
B. Business Organizations ..... 3
C. Ethics in financial reporting ..... 5
D. Generally Accepted Accounting Principles ..... 5
E. Financial Statements ..... 9
F. Transactions Analysis and Double-entry Accounting ..... 13
Concept Self-check ..... 20
Comprehension Problems ..... 21
Problems ..... 25
2. The Accounting Process ..... 29
A. Accounts ..... 30
B. Transactions Analysis Using Accounts ..... 34
C. The Trial Balance ..... 43
D. Using Formal Accounting Records ..... 44
Concept Self-check ..... 49
Comprehension Problems ..... 50
Problems ..... 61
3. Financial Accounting and the Use of Adjusting Entries ..... 65
A. Revenue Recognition Principle ..... 66
B. Adjusting Entries ..... 71
C. The Adjusted Trial Balance ..... 84
D. Using the Adjusted Trial Balance to Prepare Financial Statements ..... 85
Summary of Chapter 3 Learning Objectives ..... 88
Concept Self-check ..... 90
Comprehension Problems ..... 91
Problems ..... 98
A. The Accounting Cycle 107
B. The Closing Process 109
C. Financial Statement Disclosure Decisions 114
D. Classified Balance Sheet 115

Summary of Chapter 4 Learning Objectives 121
Concept Self-check 124
Comprehension Problems 125
Problems 126
5. Accounting for the Sale of Goods 130
A. The Basics of Merchandizing 131
B. The Purchase and Payment of Merchandizing Using the
$\quad$ Perpetual Inventory Method 133
$\begin{array}{ll}\text { C. Merchandize Inventory: Sales and Collections Using the } \\ \text { Perpetual Inventory Method } & 137\end{array}$
D. Adjustments to Merchandize Inventory Using the Perpetual
$\left.\quad \begin{array}{ll}\text { Inventory Method } & 141\end{array}\right)$
E. Merchandizing Income Statement 144
$\begin{array}{ll}\text { F. Closing Entries for a Merchandizer Using the Perpetual } \\ \text { Inventory Method } & 146\end{array}$
Appendix: The Periodic Inventory System 149
Concept Self-check 152
Comprehension Problems 153
Problems 159
6. Assigning Costs to Merchandise 163
A. Inventory Cost Flow Assumptions 164
B. Financial Statement Impact of Different Inventory Cost Flows 177
C. Lower of Cost and Net Realizable Value (LCNRV) 180
D. Estimating the Balance in Merchandize Inventory 181

Concept Self-check 188
Comprehension Problems 189
Problems 200
8. Internal Control and Cash ..... 213
A. Internal Control ..... 214
B. Petty Cash ..... 216
C. Cash Collections and Payments ..... 218
Concept Self-check ..... 238
Comprehension Problems ..... 239
Problems ..... 242
9. Receivables ..... 246
A. Types of Receivable ..... 247
B. Notes Receivable ..... 259
Concept Self-check ..... 261
Comprehension Problems ..... 262
Problems ..... 265
10. Long-lived Assets ..... 274
A. Establishing Cost of Property, Plant, and Equipment (PPE) ..... 275
B. Depreciation ..... 278
E. Impairment of Long-lived Assets ..... 284
F. Derecognition of Property, Plant, and Equipment ..... 285
G. Intangible Assets ..... 289
H. Goodwill ..... 291
I. Disclosure ..... 292
Summary of Chapter 8 Learning Objectives ..... 293
Concept Self-check ..... 297
Comprehension Problems ..... 299
Problems ..... 307
11. Current and Non-Current Liabilities ..... 312
A. Current versus Non-Current Liabilities ..... 314
B. Known Current Liabilities ..... 314
C. Estimated Current Liabilities ..... 322
D. Non-current Liabilities ..... 324
Concept Self-check ..... 331
Comprehension Problems ..... 331
Problems ..... 336

## CHAPTER 1

## Introduction to Financial Accounting I

## CHAPTER ONE

## Introduction to Financial Accounting

## Chapter 1 Learning Objectives

L01 - Define accounting.
LO2 - Identify and describe the forms of business organizations.
LO3 - Identify and explain generally accepted accounting principles (GAAP).

L04 - Identify and explain the uses of the four financial statements.
LO5 - Analyse transactions using the accounting equation.

## A. Accounting Defined

LO1 - Define accounting.

Accounting is often called the language of business because it uses a unique vocabulary to communicate information to decision makers. In this chapter, we will discuss what financial accounting is and briefly introduce how financial information is communicated through financial statements. Then we will study how financial transactions are analyzed and reported on financial statements.

Accounting is the process of identifying, measuring, recording, and communicating an organization's economic activities to users. Users need information for decision making. Internal users of accounting information work for the organization and are responsible for planning, organizing, and operating the entity. The area of accounting known as managerial accounting serves the decisionmaking needs of internal users. External users do not work for the organization and include investors, creditors, labour unions, and customers. Financial accounting is the area of accounting that presents financial information of interest to external users. This book deals with financial accounting.

## B. Business Organizations

LO2 - Identify and describe the forms of business organizations.

An organization is a group of individuals who come together to pursue a common set of goals and objectives. There are typically two types of organizations: business and non-business. A business organization sells products or services for profit. A non-business organization, such as a charity or hospital, exists to meet various societal needs and does not have profit as a goal. All organizations record, report, and, most importantly, use accounting information for making decisions.

This book focuses on business organizations. There are three common forms of business organizations-a proprietorship, a partnership, and a corporation.

## Proprietorship

A proprietorship is a business owned by one person. It is not a separate legal entity, which means that the business and the owner are considered to be the same. For example, the profits of a proprietorship are reported on the owner's personal income tax return. Proprietorship accounting is covered in a later chapter.

## Partnership

A partnership is a business owned by two or more individuals. Like the proprietorship, it is not a separate legal entity. Partnership accounting is also covered in a later chapter.

## Corporation

A corporation is a business owned by one or more owners. ${ }^{1}$ The owners are known as shareholders. A shareholder owns shares of the corporation. Shares are units of ownership in a corporation. For example, if a corporation has 1,000 shares, there may be three shareholders who own 700 shares, 200 shares, and 100 shares respectively. The number of shares held by a shareholder represents how much of the corporation they own. The first shareholder who owns 700 shares owns $70 \%$ of the corporation ( $700 / 1,000=70 \%$ ). A corporation can have different types of shares; this topic is discussed in a later chapter.

A corporation's shares can be privately held or available for public sale. A corporation that sells its shares publicly typically does so on a stock exchange. It is called a publicly accountable enterprise. It may have thousands or millions of shareholders. A corporation that holds its shares privately is known as a private enterprise. Its shares are often held by only one or a few shareholders.

Unlike the proprietorship and partnership, a corporation is a separate legal entity. This means, for example, that from an income tax perspective, a corporation files its own tax return. The owners or shareholders of a corporation are not responsible for the corporation's debts so have limited liability meaning that the most they can lose is the amount they invested in the corporation. They are not responsible for all the debts of an organization.

In larger corporations, there can be many shareholders. In these cases, shareholders do not manage a corporation but participate indirectly through the election of a Board of Directors. The Board of Directors does not participate in the day-to-day management of the corporation but delegates this responsibility to the officers of the corporation.

[^0]
## C. Ethics in financial reporting:

Financial reporting depends heavily on some ethical behaviour.
Ethics is the standards of conduct that judges ones actions as right or wrong, honest or dishonest and fair or unfair.

The following illustration shows the necessary steps applied when analysing various ethics cases and also in personal experiences.

| 1. Recognize an unethical situation and the involved ethical issues This involves using your personal ethics to identify unethical situations and issues. Some business organizations utilize a written code of ethics to guide them in some business situations. | 2. Identify and analyse the principle elements in the situation. <br> This involves identifying individuals or participants that can be harmed or benefited by the situation and then identify their responsibilities and obligations. | 3. Identify the alternatives and weigh the impact of each to the involved stakeholders. Consider all the consequences and then select the most ethical alternative. It involves a thorough evaluation of the alternatives because in some cases there is one right solution while in other cases there is more than one solution |
| :---: | :---: | :---: |

## D. Generally Accepted Accounting Principles (GAAP)

LO3 - Identify and explain generally accepted
accounting principles (GAAP).

The goal of accounting is to ensure information provided to decision makers is useful. To be useful, information must be relevant and faithfully represent a business's economic activities. This requires ethics, beliefs that help us differentiate right from wrong, in the application of underlying accounting concepts or principles. These underlying accounting concepts or principles are known as generally accepted accounting principles (GAAP).

GAAP are undergirded by qualitative characteristics and principles that inform how and when financial information is presented. Financial information should possess characteristics of:

- relevance - the ability to make a difference in the decisionmaking process;
- faithful representation - provision of information that is complete, neutral, and free from error;
- comparability - reporting similar information across similar entities in a similar manner;
- verifiability - the ability of an independent observer to reproduce the same financial information given the same input data and assumptions;
- timeliness - the provision of new information to decision makers while it is still useful; and
- understandability - presentation of information in a manner that is clear and concise.

In practice, these characteristics are demonstrated through the following accounting conventions:

Accounting convention

## Accrual accounting

Business entity

Consistency

Historical Cost

Full disclosure

Going concern

## Explanation

Recognizes revenues when earned and expenses when incurred regardless of when cash is exchanged.

Example: Repair services are performed on January 15 for $\$ 2,000$. Revenue is recorded at this date, even if the customer will not pay in cash until February.

Example: Supplies are purchased for $\$ 700$ on credit and used immediately. They are reported as expenses even though the $\$ 700$ will not paid in cash until February.

Requires that each economic entity maintain separate records

Example: An owner of an unincorporated business keeps one set of accounting records for business transactions and one for personal transactions.

Requires that a business use the same accounting policies and procedures from period to period.

Example: A business records a sale when goods are shipped to a customer, even if cash may not have been received yet. In the future, it cannot change the way in which it accounts for sales (by recognizing sales when cash is received, for instance).

Requires that each economic transaction be based on original cost.

Example: A business purchased a piece of land for $\$ 70,000$ ten years ago. Even though the land can be now sold for more than this, it is not revalued in the financial statements. It remains recorded at \$70,000.

Requires that accounting information communicate sufficient information to allow users to make knowledgeable decisions.

Example: A business is being sued for $\$ 20,000,000$ and management is certain that it will lose. The financial statements must disclose the lawsuit even though no damages have been finalized.

Assumes that a business has the resources needed to continue to operate indefinitely into the future.

Example: A bakery does not expense an item like a delivery truck in the year in which it is purchased. Rather, it writes-off the purchase price of the truck gradually over the estimated number of years it will provide useful service into the future.

Accounting convention
Matching
Materiality
Stable monetary
unit

Revenue recognition

Explanation
Requires that expenses be reported in the period in which they are incurred or related revenues are earned, not when cash is paid. Though IFRS does not mention the matching concept, it still underlies the practice of accrual accounting.

Example: Merchandise purchased for resale is not recorded as an expense until it is sold and the related sales revenue is recognized.

Allows another accounting principle to be violated if the effect on the financial statements is so small that users will not be misled.

Example: A business purchases a desk for $\$ 100$ that will last ten years. Technically, cost of the desk should be written off gradually over ten years. However for accounting convenience, the business will usually record the $\$ 100$ as an expense in the current year instead of gradually reducing the "book value" of the desk each year. Expensing it immediately will not affect the financial results enough to mislead financial statement readers.
Requires that financial information be communicated in unchanging units of money.

Example: Goods are purchased for $\$ 10,000$ in 2018 that will be sold to customers in 2019. In early 2019, the same amount and type of goods are purchased for $\$ 10,100$. The cost has increased due to inflation. If the goods purchased in 2018 are still unsold, they are not revalued to reflect the inflationary effect.

Requires that sale of goods or provision of services should be recognized when the process is substantially complete. This is accomplished through accrual accounting.

Example: A product is sold on March 5. The customer receives the product on March 5 but agrees to pay for it on April 5. The corporation recognizes the revenue from the sale on March 5 when the sale occurred even though the cash will not be received until a later date.

## E. Financial Statements

LO4 - Identify and explain the uses of the four financial statements.

Recall that financial accounting focuses on communicating information to external users. That information is communicated using financial statements. There are four financial statements: the income statement, statement of owners' equity, balance sheet, and statement of cash flows. Each of these is briefly introduced in the following sections using an example based on an organization called Big Dog Carworks.

## The Income Statement

An income statement or statement of profit and loss communicates information about a business's financial performance by summarizing revenues less expenses over a period of time. Revenues are created when a business provides products or services to a customer in exchange for assets. Assets are resources resulting from past events and from which future economic benefits are expected to result. Examples of assets include cash, equipment, and supplies. Assets will be discussed in more detail later in this chapter. Expenses are the assets that have been used up or the obligations incurred in the course of earning revenues. When revenues are greater than expenses, the difference is called net income or profit. When expenses are greater than revenue, a net loss results.

Consider the following income statement of Big Dog Carworks (BDC). This business was started on January 1, 2017 by Bob "Big Dog" Baldwin in order to repair automobiles. The business owner is Bob.

At January 31, the income statement shows total revenues of $\$ 10,000$ and various expenses totalling $\$ 7,800$. Net income, the difference between $\$ 10,000$ of revenues and $\$ 7,800$ of expenses, equals $\$ 2,200$.

Big Dog Carworks Income Statement
For the Month Ended January 31, 2017

The heading shows the name of the company, the type of financial statement, and the period in time to date

| Revenues |  | $\$ 10,000$ |
| :--- | ---: | ---: |
| $\quad$ Repairs |  |  |
| Expenses |  |  |
| $\quad$ Rent | $\$ 1,600$ |  |
| Salaries | 4,000 |  |
| $\quad$ Supplies | 1,500 |  |
| TGas | 700 |  |
| h Total expenses |  | $\underline{\$ 2,800}$ |
| net income |  |  |

The net income is transferred to the statement of owners' equity.

## Statement of Owners' Equity

The statement of owners' equity provides information about how the equity balance change during the period.

In the statement of owner equity shown below, the owners' capital balance at January 1 is zero because the firm started the business on that date. During January, owner capital is $\$ 9,800$.

The heading shows the name of the entity, the type of financial statement, and in this case, the period-in-time date.

| Opening balance | $\$ \quad-0-$ |  |
| :--- | ---: | :--- |
| Investment | 9,800 |  |
| Net income | 2,200 |  |
| Drawing |  | This total is transferred to <br> the Balance Sheet at January |
| Ending balance | $\$ 12,000$ | $31,2017$. |

## The Balance Sheet

The balance sheet shows a business's assets, liabilities, and equity at a point in time. The Balance Sheet of Big Dog Carworks. at January 31, 2017 is shown below.

The heading shows the name of the entity, the type of financial statement and the point-in-time date.

Assets
Cash
Accounts receivable
Prepaid insurance
Equipment
Truck
Total assets

Big Dog Carworks
Balance Sheet
At January 31, 2017

## Liabilities

| $\$ 6,200$ | Note payable | $\$ 9,000$ |
| ---: | :--- | ---: |
| 2,500 | Accounts payable | 700 |

2,400 Unearned revenue $\underline{400}$
3,000 Total liabilities \$10,100
8,000
Owners' Equity
Owner capital $\$ 12,00$
12,000


Total assets $(\$ 22,100)$
always equal total
liabilities $(\$ 10,100)$
plus Owners' equity
(\$12,000).

## What Is an Asset?

Assets are economic resources that provide future benefits to the business. Examples include cash, accounts receivable, prepaid expenses, equipment, and trucks. Cash is coins and currency, usually held in a bank account, and is a financial resource with future benefit because of its purchasing power. Accounts receivable represent amounts to be collected in cash in the future for goods sold or services provided to customers on credit. Prepaid expenses are assets that are paid in cash in advance and have benefits that apply over future periods. For example, a one-year insurance policy purchased for cash on January 1, 2017 will provide a benefit until December 31, 2017 so is a prepaid asset when purchased. The equipment and truck were purchased on January 1, 2017 and will provide benefits for 2017 and beyond so are assets.

## What Is a Liability?

A liability is an obligation to pay an asset in the future. It is also known as debt. For example, Big Dog's bank loan represents an obligation to repay cash in the future to the bank. Accounts payable are obligations to pay a creditor for goods purchased or services rendered. A creditor owns the right to receive payment from an individual or business. Unearned revenue represents an advance payment of cash from a customer for Big Dog's services or products to be provided in the future. For example, Big Dog collected cash from a customer in advance for a repair to be done in the future.

## What Is Owners' Equity?

Owners' equity The owner's claim on total assets, It represents the net assets owned by the owner. Net assets are assets minus liabilities. For example, in Big Dog's January 31 balance sheet, net assets are $\$ 12,000$, calculated as total assets of $\$ 22,100$ minus total liabilities of $\$ 10,100$. This means that although there are $\$ 22,100$ of assets, only $\$ 12,000$ are owned by the owner and the balance, $\$ 10,100$, are financed by debt. Notice that net assets and total owners' equity are the same value; both are $\$ 12,000$.

In summary, the balance sheet is represented by the equation:
Assets = Liabilities + Owners' equity

## The Statement of Cash Flows (SCF)

The fourth financial statement is the statement of cash flows. The SCF explains the sources (inflows) and uses (outflows) of cash over a period of time. The preparation and interpretation of the SCF will be covered in a later chapter.

## F. Transaction Analysis and Double-entry Accounting

LO5 - Analyze
transactions
using the accounting equation.

The accounting equation is foundational to accounting. It shows that the total assets of a business must always equal the total claims against those assets by creditors and owners. The equation is expressed as:

| ASSETS <br> (economic <br> resources | $=$ | LIABILITIES <br> (creditors' claims on | + |
| :--- | :---: | :---: | :---: | | OWNERS' EQUITY |
| :---: |
| (owners' claims on assets) |
| owned by an entity) |

When financial transactions are recorded, combined effects on assets, liabilities, and owners' equity are always exactly offsetting. This is the reason that the balance sheet always balances.

Each economic exchange is referred to as a financial transactionfor example, when an organization exchanges cash for land and buildings. Incurring a liability in return for an asset is also a financial transaction. Instead of paying cash for land and buildings, an organization may borrow money from a financial institution. The company must repay this with cash payments in the future. The accounting equation provides a system for processing and summarizing these sorts of transactions.

Accountants view financial transactions as economic events that change components within the accounting equation. These changes are usually triggered by information contained in source documents (such as sales invoices and bills from creditors) that can be verified for accuracy.

The accounting equation can be expanded to include all the items listed on the balance sheet of Big Dog at January 31, 2017, as follows:


If one item within the accounting equation is changed, then another item must also be changed to balance it. In this way, the equality of the equation is maintained. For example, if there is an increase in an asset account, then there must be a decrease in another asset or a corresponding increase in a liability or owners' equity account. This equality is the essence of double-entry accounting. The equation itself always remains in balance after each transaction. The operation of double-entry accounting is illustrated in the following section, which shows 10 transactions of Big Dog Carworks for January 2017.

| Transaction <br> number | Date |
| :---: | :---: | :--- |


| $\begin{gathered} \text { Transactio } \\ \text { n } \\ \text { Number } \\ \hline \end{gathered}$ | Date | Description of transaction | Effect on the accounting equation |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | ASSETS | $=$ | LIABILITIES | + | S/H EQUITY |
| 5 | Jan. 5 | Big Dog Carworks paid \$2,400 for a one-year insurance policy, effective January 1. <br> Here the asset Prepaid Insurance is increased and the asset Cash is decreased. The impact on the equation is: <br> PREPAID INSURANCE <br> CASH <br> Since the one-year period will not be fully used at January 31 when financial statements are prepared, the insurance cost is considered to be an asset at the payment date. The transaction does not affect liabilities or owners' equity. | $\begin{gathered} \text { 个 } \\ +2,400 \\ -2,400 \end{gathered}$ |  |  |  |  |
| 6 | Jan. 10 | The corporation paid $\$ 2,000$ cash to the bank to reduce what the business borrowed on a note. The asset Cash is decreased and there is a decrease in the liability Bank Loan. The impact on the equation is: <br> Note payable <br> CASH |  |  | $\begin{aligned} & \square \\ & -2,000 \end{aligned}$ |  |  |
| 7 | Jan. 15 | The corporation received $\$ 400$ as an advance payment from a customer for services to be performed over the next two months. <br> The asset Cash is increased by $\$ 400$ and a liability, Unearned Revenue, is also increased since the revenue will not be earned by the end of January. It will be earned when the work is performed in later months. At January 31, these amounts are repayable to customers if the work is not done (and thus recorded as a liability). The impact on the equation is: <br> CASH <br> UNEARNED REVENUE | $\begin{gathered} \uparrow \\ +400 \end{gathered}$ |  | $+400$ |  |  |
| 8 | Jan. 31 | Automobile repairs of $\$ 10,000$ were made for customers; $\$ 7,500$ of repairs was paid in cash and $\$ 2,500$ of repairs will be paid in the future by customers. <br> Cash and Accounts Receivable assets of the corporation increase. The repairs are a revenue; revenue causes an increase in net income and an increase in net income causes an increase in Owners' equity. The impact on the equation is: CASH <br> ACCOUNTS RECEIVABLE REPAIR REVENUE | $\begin{gathered} 1 \\ +7,500 \\ +2,500 \end{gathered}$ |  |  |  |  |


| Transactio n Number | Date | Description of transaction | Effect on the accounting equatio |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | ASSETS | $=$ | LIABILITIES | + | EQUITY |
| 9 | Jan. 31 | The corporation incurred some expenses for the month as follows: $\$ 1,600$ for rent; $\$ 4,000$ for salaries; and $\$ 1,500$ for supplies expense. These were paid in cash. $\$ 700$ for gas expense was incurred. This will be paid in the future. |  |  |  |  |  |
|  |  | There is a $\$ 7,100$ decrease in the asset Cash. There is a $\$ 700$ increase in the liability Accounts Payable. Expenses cause net income to decrease. A decrease in net income causes owners' equity to decrease. The impact on the equation is: |  |  |  |  |  |
|  |  | RENT EXPENSE |  |  |  |  | -1,600 |
|  |  | SALARIES EXPENSE |  |  |  |  | - 4,000 |
|  |  | SUPPLIES EXPENSE |  |  |  |  | - 1,500 |
|  |  | GAS EXPENSE |  |  |  |  | - 700 |
|  |  | CASH | -7,100 |  |  |  |  |
|  |  | ACCOUNTS PAYABLE |  |  | +700 |  |  |
| 10 | Jan. 31 | Bob the owner withdrew $\$ 200$ for personal use. A decrease in owners' capital will decrease owners' equity. The impact on the equation is: |  |  |  |  |  |
|  |  | DRAWING | , |  |  |  | -200 |
|  |  | CASH | -200 |  |  |  |  |

These various transactions can be recorded in the expanded accounting equation as shown below:


Figure 1-3a Transactions for January 31, 2017
Transactions summary:

1. Invested $\$ 10,000$ cash in a new business.
2. Borrowed $\$ 4,000$ on a note.
3. Purchased equipment for $\$ 3,000$ cash.
4. Purchased a truck for $\$ 8,000$; paid $\$ 1,000$ cash and the reminder on a note.
5. Paid $\$ 2,400$ for a comprehensive one-year insurance policy effective January 1.
6. Paid $\$ 2,000$ cash to reduce the note.
7. Received $\$ 400$ as an advance payment for repair services to be provided over the next two months.
8. Performed repairs for $\$ 7,500$ cash and $\$ 2,500$ to be paid by customers at a later date.
9. Paid a total of $\$ 7,100$ for expenses incurred during the month; also incurred an expense on account for $\$ 700$.
10. Withdrew $\$ 200$ by the owner for personal use.

The transactions summarized in Figure 1-3a were used to prepare the financial statements described earlier, and reproduced in Figure 1-3b below.


## Accounting Time Periods

Financial statements are prepared at regular intervals-usually monthly or quarterly - and at the end of each 12-month period. This 12 -month period is called the fiscal year. The timing of the financial statements is determined by the needs of management and other users of the financial statements. For instance, financial statements may also be required by outside parties, such as bankers and shareholders if there are many. However, accounting information must possess the qualitative characteristic of timeliness-it must be available to decision makers in time to be useful-which is typically a minimum of once every 12 months.

Accounting reports, called the annual financial statements, are prepared at the end of each 12-month period, which is known as the year-end of the entity. Most companies' year-ends are on December 31 , though this may not always be the case.

## ASSIGNMENTMATERIALS

## Concept Self-check

1. What is the difference between managerial and financial accounting?
2. What is the difference between a business organization and a non-business organization?
3. What are the three types of business organizations?
4. What is a publicly accountable enterprise? a private enterprise?
5. What does the term limited liability mean?
6. Describe what GAAP refers to.
7. Identify and explain the six qualitative characteristics of GAAP.
8. What is the general purpose of financial statements? What are the four types of financial statements?
9. What is the purpose of an income statement? a balance sheet? How do they interrelate?
10. Define the terms "revenue" and "expense".
11. What is net income? What information does it convey?
12. What is the purpose of a statement of owners' equity?
13. What are the three primary components of the balance sheet?
14. What are assets?
15. To what do the terms "liability" and "Owners' equity" refer?
16. What information is provided in the statement of cash flows?
17. What are notes to the financial statements?
18. Illustrate how the double-entry accounting system works.
19. Why are financial statements prepared at regular intervals? Who are the users of these statements?
20. What is the basic accounting equation? How does it work?
21. Explain what is meant by the term "financial transaction". Give an example of a financial transaction.

## Comprehension Problems

## CP 1-1

The following list covers many of the types of financial transactions. Notice that each transaction has an equal and offsetting effect on the accounting equation.

Types of accounting transactions

| ASSETS |  |  |
| :---: | :---: | :---: |
| $(+)$ | LIABILITIES | + |
| $(+)$ | $(+)$ | EQUITY |
| $(+)(-)$ |  | $(+)$ |
| $(-)$ | $(-)$ | $(-)$ |
| $(-)$ | $(+)$ | $(-)$ |
|  | $(-)$ | $(+)$ |
|  | $(+)(-)$ | $(+)(-)$ |

Required: Using the appropriate accounting equation, study the following transactions and identify the effect of each on assets, liabilities and owners' equity, as applicable. Use a $(+)$ to denote an increase and a (-) to denote a decrease, if any.
$A=L+E$
Example:
$\begin{array}{ll}\text { a. }-1 & \text { Invested cash to start a firm } \\ \text { b. — - } \quad \text { Purchased a truck for cash }\end{array}$
c. - _ Purchased supplies on account
d. - - Purchased equipment for cash
e. - - Paid rent for the month
-f.- - Signed a new union contract that provides for increased wages in the future
g._ _ Hired a messenger service to deliver letters during a mail strike
h. _ P Paid the delivery service
i. - - Billed customers for services performed
$\frac{\mathrm{j}}{\mathrm{k}}$ - $\quad$ Made a cash payment on account
ㄷ. —— - Received a payment of cash from a customer previously billed.
I. - - Collected cash from a customer for services rendered the same day
$\frac{\mathrm{m}}{\mathrm{n}}$ _ - Paid cash for gas expense
n. - - Withdrew cash.

CP 1-3
Required: Calculate the missing amounts for companies A to E .
Cash
Equipment
Accounts payable
Owners' capital

| $A$ | $B$ | $C$ | $D$ | $E$ |
| :---: | :---: | :---: | ---: | ---: |
| $\$ 3,000$ | $\$ 1,000$ | $\$$ | $?$ | $\$ 6,000$ |
| 8,000 | 6,000 | 4,000 | 7,000 | $?$ |
| 4,000 | $?$ | 1,500 | 3,000 | 4,500 |
| $?$ | 4,000 | 3,500 | $?$ | 1,500 |

## CP 1-5

Required: Indicate whether each of the following is an asset (A), liability (L), or owners' equity (E) item.

1. Accounts payable
2. Accounts receivable
3. Note payable
4. Cash
5. Equipment
6. Insurance expense
7. Taxes payable
8. Prepaid insurance
9. Rent expense
10. Repair revenue
11. Owner capital
12. Gas expense
13. office supplies
14. Drawing

The following accounts are taken from the records of Jasper Inc. at January 31, 2017, its first month of operations.

| Cash | $\$ 33,000$ |
| :--- | ---: |
| Accounts receivable | 82,000 |
| Supplies | 2,000 |
| Land | 25,000 |
| Building | 70,000 |
| Equipment | 30,000 |
| Notes payable | 15,000 |
| Accounts payable | 27,000 |
| Owner capital | $?$ |

## Required:

1. Calculate the amount of total assets.
2. Calculate the amount of total liabilities.
3. Calculate the amount of owners' capital.

## CP 1-7

Required: A company has been in business for one month. From the financial information at January 31 shown below, complete an income statement, statement of owners' equity, and balance sheet.

| Accounts receivable | $\$ 4,000$ |
| :--- | ---: |
| Accounts payable | 5,000 |
| Cash | 1,000 |
| Owners' capital | 4,000 |
| Equipment | 8,000 |
| Insurance expense | 1,500 |
| Miscellaneous expense | 2,500 |
| Rent expense | 1,000 |
| Service revenue | 20,000 |
| Wages expense | 9,000 |
| Drawing | 2,000 |

## CP 1-8

A junior bookkeeper of Adams Ltd. prepared the following financial statements at January 31, 2017, the end of its first month of operations.

Adams Ltd.
Income Statement
For the Month Ended January 31, 2017

| Revenue |  | $\$ 3,335$ |
| :--- | ---: | ---: |
| Expenses |  |  |
| $\quad$ Accounts payable | $\$ 300$ |  |
| Land | 1,000 |  |
| Drawing | 500 |  |
| Miscellaneous expenses | 335 |  |
| Net income |  | $\$ 1,200$ |

## Balance Sheet

|  | Liabilities and Owner's Equity |  |  |
| :--- | ---: | :--- | ---: |
| Assets |  |  |  |
| Cash | $\$ 1,000$ | Rent expense | $\$ 300$ |
| Repairs expense | 500 | Owners' capital | 3,000 |
| Salaries expense | 1,000 |  |  |
| Building | 2,000 |  | $-\$ 4,500$ |
|  | $\$ 4,500$ |  |  |

Required: Prepare a revised income statement, a statement of Owners' equity, and a balance sheet.

## Problems

## P 1-1

The following balances appeared on the transactions of Hill Chairs company on April 1, 2017.
ASSETS

| Accounts |
| :--- |
| $\frac{\text { Cash }}{1,400}+\frac{\text { Prepaid }}{3,600}+\frac{\text { RIABILITY }}{\text { Receivable }}+\frac{\text { EQuplies }}{1,000}+\frac{\text { Accounts }}{150}$ |$+\frac{\text { Payable }}{2,000}+\frac{\text { Capital }}{4,350}-\frac{\text { Drawing }}{}$

The following transactions occurred during April:
a. Collected $\$ 2,000$ cash in satisfaction of an amount owed by a customer
b. Billed $\$ 3,000$ to customers for chairs rented to date
c. Paid the following expenses: advertising, $\$ 300$; salaries, $\$ 2,000$; telephone, \$100
d. Paid half of the accounts payable
e. Received a $\$ 500$ bill for April gas expense
f. Collected $\$ 2,500$ in satisfaction of an amount owed by a customer
g. Billed $\$ 1,500$ to customers for chairs rented to date
h. Paid $\$ 500$ cash for advertising for the month
j. Made an additional investment of $\$ 1,000$ cash
k. Withdraw $\$ 200$ cash.

Required: Record the opening balances and the above transactions on a transactions worksheet and calculate the total of each column at the end of April. (Use the headings above on your worksheet.)

## P 1-3

Following are the asset, liability, and owners' equity balances of Dumont Inc. at January 31, 2017 after its first month of operations.

| ASSETS |  | LIABILITIES |  | OWNERS' EQUITY |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Cash | \$1,500 | Note payable | \$8,000 | Owners' capital | \$2,000 |
| Accounts rec. | 2,400 | Accounts pay. | 1,000 | Service revenue | 7,500 |
| Prepaid exp. | 550 |  |  | Advertising expense | 500 |
| Supplies | 650 |  |  | Commissions expense | 720 |
| Truck | 9,000 |  |  | Insurance expense | 50 |
|  |  |  |  | Interest expense | 80 |
|  |  |  |  | Rent expense | 400 |
|  |  |  |  | Telephone expense | 150 |
|  |  |  |  | Wages expense | 2,300 |
|  |  |  |  | Drawing | 200 |

## Required:

1. Prepare an income statement and statement of owners' equity for the month ending January 31, 2017.
2. Prepare the balance sheet at January 31.

## P 1-4

The following is an alphabetical list of data from the records of Kenyon Services Corporation at March 31, 2017.

| Accounts payable | $\$ 9,000$ | Rent expense | $\$ 500$ |
| :--- | ---: | :--- | ---: |
| Accounts receivable | 3,900 | Fees earned | 4,500 |
| Advertising expense | 300 | Insurance expense | 400 |
| Cash | 3,100 | Interest expense | 100 |
| Owners' capital | 2,000 | Gas expense | 700 |
| Equipment | 5,000 | Wages expense | 1,500 |

## Required:

1. Prepare an income statement and statement of owners' equity for the month ended March 31, 2017.
2. Prepare the balance sheet at March 31.

## P 1-6

The following transactions took place in McIntyre Builders Corporation during June 2017, its first month of operations.

Jun. 1 Invested \$8,000 cash in a new business
1 Purchased \$5,000 equipment on credit
2 Collected $\$ 600$ cash for services performed
3 Paid \$20 for Gas
4 Purchased $\$ 1,000$ supplies on credit
5 Billed customers $\$ 2,500$ for renovations completed
8 Collected $\$ 500$ of the amount billed June 5
10 Paid half of the amount owing for equipment purchased June 1
18 Paid $\$ 600$ to the landlord for June and July rent (record as prepaid expense)

20 Received a bill and paid a $\$ 100$ for electricity (record as utilities expense)
23 Signed a union contract
25 Collected \$1,000 of the amount billed June 5
27 Paid the following expenses: advertising, \$150; telephone, \$50; Gas and repair, \$1,000; wages, \$2,500
28 Paid for the supplies purchased June 4
30 Withdrew \$30 cash.

## Required:

1. Record the above transactions on a transactions worksheet and calculate the total of each column at the end of June. Use the following headings on your worksheet.

2. Prepare an income statement and statement of owners' equity for the one-month period ended June 30, 2017 and the balance sheet at June 30.

## CHAPTER 2

The Accounting Process

## CHAPTER TWO

## The Accounting Process

Chapter 2 looks more closely at asset, liability, and owner's equity accounts and how they are affected by double-entry accounting. The transactions introduced in Chapter 1 for Big Dog Carworks are used to explain "debit" and "credit" analysis. The preparation of a trial balance will be introduced. Additionally, this chapter will demonstrate how transactions are recorded in a general journal and posted to a general ledger.

## Chapter 2 Learning Objectives

L01 - Describe asset, liability, and equity accounts, identifying the effect of debits and credits on each.

LO2 - Analyse transactions using double-entry accounting.
LO3 - Prepare a trial balance, and explain its use.
L04 - Record transactions in a general journal and post them to a general ledger.

## A. Accounts

LO1 - Describe asset, liability, and equity accounts, identifying the effect of debits and credits on each

Chapter 1 reviewed the analysis of financial transactions and the resulting impact on the accounting equation. We now expand that discussion by introducing the way transaction is recorded in an account. An account accumulates detailed information regarding the increases and decreases in a specific asset, liability, or owners' equity item. Accounts are maintained in a general ledger. We now review and expand our understanding of asset, liability, and owners' equity accounts.

## Asset Accounts

Recall that assets are resources that have future economic benefits for the business. The primary purpose of assets is that they be used in day-to-day operating activities in order to generate revenue either directly or indirectly. A separate account is established for each asset. Examples of asset accounts are reviewed below.

- Cash has future purchasing power. Coins, currency, and bank account balances are examples of cash.
- Accounts receivable occur when products or services are sold on account (or "on credit"). When a sale occurs on account or on credit, the customer has not paid cash but promises to pay in the future.
- Notes receivable are formal promises to pay accounts receivable on a specific future date along with a predetermined amount of interest.
- Supplies are things like paper, staples, and other business stock to be used in the future. If the supplies are used before the end of the accounting period or immaterial in amounts, they are considered an expense of the period rather than an asset.
- Merchandize inventory are items to be sold in the future.
- Prepaid insurance represents an amount paid in advance for insurance. The prepaid insurance will be used in the future.
- Prepaid rent represents an amount paid in advance for rent. The prepaid rent will be used in the future.
- Buildings indirectly help a business generate revenue over future accounting periods since they provide space for day-to-day operating activities.
- Land cost must be in a separate account from any building that might be on the land. Land usually has an indefinite useful life.


## Liability Accounts

As explained in Chapter 1, a liability is an obligation settled in time through the transfer of economic benefits like cash. One purpose of liabilities is to finance the purchase of assets like land, buildings, and equipment. Liabilities are also used to finance day-to-day operating activities. Examples of liability accounts are reviewed below.

- Accounts payable are debts owed to suppliers for goods purchased or services received as a result of day-to-day operating activities. An example of a service received on credit might be a plumber billing the business for a repair.
- Wages payable are wages owed to employees for work performed but not paid at the balance sheet.
- Unearned revenues are payments received in advance of the product or service being provided. If a customer pays $\$ 1,000$ for an automobile repair to be done in the next accounting period, this is recorded as a liability.


## Owners' Equity Accounts

Chapter 1 explained that owners' equity represents the net assets owned by the owners of a corporation. There are four different types of owners' equity accounts: owner capital, drawing, revenues, and expenses. Owners' capital represents the investments made by owners into the business and causes owners' equity to increase. Revenues, cause owners' equity to increase. Expenses and drawing cause owners' equity to decrease. Figure 2-1 summarizes owners' equity accounts.


## Figure 2-1 Composition of Owners' Equity

## T-accounts

A simplified account, called a T-account, is often used as a learning tool to show increases and decreases in an account. It is called a Taccount because it resembles the letter $T$. As shown in the $T$ account below, the left side records debit entries and the right side records credit entries.

| Account Name |  |
| :---: | :---: |
| Debit <br> (always on left) |  |
| Credit <br> (always on right) |  |
| Debit $=$ Credit |  |

The type of account determines whether an increase or a decrease in a particular transaction is represented by a debit or credit. For financial transactions that affect assets, drawing, and expenses, increases are recorded by debits and decreases by credits. This guideline is shown in the following T-account.

+ Assets, Drawing, Expenses -


For financial transactions that affect liabilities, owners' capital, and revenues, increases are recorded by credits and decreases by debits, as follows:

- Liabilities, Revenues, Owners' Capital +

| Debits are always | Credits are always |
| :--- | :--- | decreases

increases
$\uparrow$

| Increases are recorded as: | $\frac{\text { Assets }}{\text { Debits }}=\frac{\text { Liabilities }}{\text { Credits }}+\frac{\text { Equity }}{\text { Credits* }}$ |  |
| :--- | :--- | :--- |
| Decreases are recorded as: | Credits | Debits |
|  | $*$ Revenue and owners' capital transactions cause |  |
| owners' equity to increase, so they are recorded <br> as credits. |  |  |
|  | $* *$ Expense and drawing transactions cause owners' |  |
| equity to decrease, so they are recorded as |  |  |
| debits. |  |  |

The following summary shows how debits and credits are used to record increases and decreases in various types of accounts.

Assets
Drawing
Expenses
Increases are DEBITED Decreases are CREDITED

Liabilities
Owner Capital
Increases are CREDITED
Decreases are DEBITED

This summary will be used in a later section to illustrate the recording of debits and credits regarding the transactions of Big Dog Carworks introduced in Chapter 1.

The account balance is determined by adding and subtracting the increases and decreases in an account as shown below:

| Cash |  |
| ---: | ---: |
| Debit | Credit |
| 10,000 | 4,000 |
| 3,000 | 2,000 |
| 400 | 2,400 |
| Balance 5,000 |  |


| Accounts Payable |  |
| :---: | :---: |
| Debit | Credit |
| 700 | 5,000 |
| Balance | 4,300 |

The $\$ 5,000$ debit balance in the Cash account was calculated by adding all the debits and subtracting the credits $(10,000+3,000+$ $400-4,000-2,000-2,400)$. The $\$ 5,000$ is recorded on the debit side of the T -account because the debits are greater than the
credits. In Accounts Payable, the balance is a $\$ 4,300$ credit calculated by subtracting the debits from the credits (5,000-700).

Notice that Cash shows a debit balance while Accounts Payable shows a credit balance. The Cash account is an asset so its normal balance is a debit. A normal balance is the side on which increases occur. Accounts Payable is a liability and because liabilities increase with credits, the normal balance in Accounts Payable is a credit as shown in the T -account above.

## Chart of Accounts

A business will create a list of accounts called a chart of accounts where each account is assigned both a name and a number. A common practice is to have the accounts arranged in a manner that is compatible with the order of their use in financial statements. For instance, Asset accounts may begin with the digit ' 1 ', liability accounts with the digit ' 2 ', and owners' equity accounts (excluding revenues and expenses) with the digit ' 3 '. Each business will have a unique chart of accounts that corresponds to its specific needs. Assume Big Dog Carworks uses the following numbering system for its accounts:

| $100-199$ | Asset accounts |
| :--- | :--- |
| $200-299$ | Liability accounts |
| $300-399$ | Owner capital, and drawing accounts |
| $400-499$ | Revenue accounts |
| $600-699$ | Expense accounts |

## B. Transaction Analysis Using Accounts

LO2 - Analyse transactions using double-entry accounting.

In Chapter 1, transactions for Big Dog Carworks were analysed to determine the change in each item of the accounting equation. In this next section, these same transactions will be used to demonstrate double-entry accounting. Double-entry accounting means each transaction is recorded in at least two accounts where the total debits always equal the total credits. As a result of doubleentry accounting, the sum of all the debit balance accounts in the ledger must equal the sum of all the credit balance accounts. The rule that debits = credits is rooted in the accounting equation:

ASSETS $=$ LIABILITIES + OWNERS' EQUITY
Debits $=$ Credits + Credits

## Illustrative Problem- <br> Double-Entry Accounting and the Use of Accounts

In this section, the following debit and credit summary will be used to record the transactions of Big Dog Carworks into T-accounts.

ASSETS
DRAWING
EXPENSES
Increases are DEBITED.
Decreases are CREDITED.

LIABILITIES
OWNER CAPITAL
REVENUE
Increases are CREDITED.
Decreases are DEBITED.

## Transaction 1

Jan. 1 - Bob Baldwin invested \$10,000 cash in his new business.
Debit: An asset account, Cash, is increased resulting in a debit.
$\frac{\text { Cash }}{10,000}$

|  | Owner Capital |  |
| :--- | :--- | :--- |
| Owner Capital, a owners' equity account, is <br> increased resulting in a credit. | 10,000 |  |
|  |  |  |

## Transaction 2

Jan. 2 - Borrowed \$4,000 from the bank on a note.


## Transaction 3

Jan. 3 - Equipment was purchased for \$3,000 cash.


## Transaction 4

Jan. 3 - A truck was purchased for \$8,000; Big Dog paid \$1,000 cash and incurred a $\$ 7,000$ on a note for the balance. This transaction involves one debit and two credits.

Debit: An asset account, Truck, is increased by a debit.
$\frac{\text { Truck }}{8,000}$

Credit: An asset account, Cash, is decreased by a credit.


## Transaction 5

Jan. 5 - Big Dog Carworks paid \$2,400 cash for a one-year insurance policy, effective January 1. Because the insurance provides future benefit, it is recorded as an asset until it is used.
$\frac{\text { Prepaid Insurance }}{2,400}$

Debit: An asset account, Prepaid Insurance, is increased by a debit.

| Cash |
| :--- |
| 2,400 |

Transaction 6
Jan. 10 - Bob the owner made a payment of $\$ 2,000$ cash to reduce Note Payable.

Debit: A liability account, Account Payable, is decreased by a debit.
$\frac{\text { Note Payable }}{2,000}$

Credit: An asset account, Cash, is decreased by a credit.


## Transaction 7

Jan. 15 - The business received an advance payment of $\$ 400$ for repair services to be performed in the future. Since the revenue relating to this cash receipt is not earned as of this date, a liability account, Unearned Repair Revenue, is created.

Debit: An asset, Cash, is increased at the time the cash is received by a debit.
$\frac{\text { Cash }}{400}$

|  | $\begin{array}{c}\text { Unearned Repair } \\ \text { Revenue }\end{array}$ |  |
| :---: | :---: | :---: |
| $\begin{array}{c}\text { Credit: a liability account, Unearned Repair } \\ \text { Revenue, is credited. }\end{array}$ | 400 |  |

## Transaction 8

Jan. 31 - A total of $\$ 10,000$ of automotive repair services is performed for customers who paid $\$ 7,500$ cash. The remaining $\$ 2,500$ will be paid in 30 days. Two debits are required in this case.

Debit: An asset, Cash, is increased by a debit.
$\frac{\text { Cash }}{7,500}$

Debit: Another asset, Accounts Receivable, is increased by a debit.

Accounts
$\frac{\text { Receivable }}{2,500}$

Repair Revenue
Credit: An Owners' equity account, Repair Revenue, is increased by a credit.

## Transaction 9

Jan. 31 - Expenses of $\$ 7,100$ were paid in cash: rent expense, $\$ 1,600$; salaries expense, $\$ 4,000$; and supplies expense of $\$ 1,500$. $\$ 700$ for gas expenses were incurred on credit. This transaction increases four separate expense accounts.

|  |
| :--- |
| Debit: An expense account, Rent Expense is |
| $\begin{array}{l}\text { increased by a debit. }\end{array}$ |

Debit: An expense account, Salaries Expense is increased by a debit.


Debit: An expense account, Supplies Expense is increased by a debit.
$\frac{\text { Supplies Expense }}{1,500}$

Debit: An expense account, Gas Expense is increased by a debit.


Credit: An asset, Cash, is decreased by a credit.


Credit: A liability, Accounts Payable, is increased by a credit.


## Transaction 10

Jan. 31 - Bob Baldwin withdrew $\$ 200$ cash for personal use. Drawings are a distribution of net income, and reduce owners' equity.

Debit: The Drawing account is increased by a debit.
$\frac{\text { Drawing }}{200}$

Credit: An asset, Cash, is decreased by a credit.


After the January transactions of Big Dog Carworks have been recorded in the T-accounts, each account is totalled and the difference between the debits and credits is calculated, as shown in the following diagram. The numbers in parentheses refer to the transaction numbers used in the preceding section. To prove that the accounting equation is in balance, the account balances for each of assets, liabilities, and owners' equity are added. Notice that total assets of $\$ 22,100$ equal the sum of total liabilities of $\$ 10,100$ plus owners' equity of $\$ 12,000$.

General Journal Page ___

| Date | Account Titles \& Explanation | Ref. | Debits | Credits |
| :---: | :--- | :--- | :--- | :--- |
| Jan. 1 | Cash |  | 10,000 |  |
|  | Owners' Capital |  |  | 10,000 |
| 2 | Cash |  |  |  |
|  | Note Payable |  | 4,000 | 4,000 |
| 3 | Equipment |  |  |  |
|  | Cash |  | 3,000 | 3,000 |
| 3 | TPurrowed money on a note) |  | 8,000 |  |
|  | Cash |  |  | 1,000 |
|  | Note Payable |  |  |  |
|  | (Purchased a Truck with down <br> payment and a note) |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |


| 5 | Prepaid Insurance |  | 2,400 |  |
| :---: | :--- | :--- | :--- | :--- |
|  | Cash |  |  | 2,400 |
|  | (Purchased insurance for one year) |  |  |  |
| 10 | Note Payable |  | 2,000 |  |
|  | Cash |  |  | 2,000 |
|  | (Made a payment on Note) |  |  |  |


| Date | Account Titles \& Explanation | Ref. | Debits | Credits |
| :---: | :--- | :--- | :--- | :--- |
| 15 | Cash |  | 400 |  |
|  | Unearned Repair Rev. |  |  | 400 |
| 31 | Cash |  |  |  |
|  | Account Receivable money for future services) |  | 7,500 | 10,000 |
|  | (Received some cash for performed <br> services and the rest on account) |  |  |  |
| 31 | Rent expense |  | 1,600 |  |
|  | Salaries expense |  | 4,000 |  |
|  | Supplies expense |  | 1,500 | 7,100 |
|  | Cash |  |  |  |
|  | (Paid for business expenses) |  |  |  |
|  |  |  |  |  |


| 31 | Gas expense |  | 700 |  |
| :--- | :--- | :--- | :--- | :--- |
|  | Account Payable |  |  | 700 |
| 31 | (Incurred gas expense on account) |  |  |  |
|  | Drawing |  | 200 | 200 |
|  | Cash |  |  |  |
|  |  |  |  |  |



## C. The Trial Balance

LO3 - Prepare a trial balance, explain its use, and prepare financial

To help prove that the accounting equation is in balance, a trial balance is normally prepared instead of the T -account listing shown in the previous section. A trial balance is an internal document that lists all the account balances at a point in time. The total debits must equal total credits on the trial balance. The form and content of a trial balance is illustrated below, using the account numbers, account names, and account balances of Big Dog Carworks at January 31, 2017. Assume that the account numbers are those assigned by the business.

Big Dog Carworks

Trial Balance

| Acct. |  | Account balances |  |
| :---: | :--- | ---: | ---: |
| No. | Account | Debit | Credit |
| 101 | Cash | $\$ 6,200$ |  |
| 110 | Accounts receivable | 2,500 |  |
| 161 | Prepaid insurance | 2,400 |  |
| 183 | Equipment | 3,000 |  |
| 184 | Truck | 8,000 | $\$ 9,000$ |
| 201 | Note payable |  | 700 |
| 210 | Accounts payable |  | 400 |
| 247 | Unearned repair revenue |  | 10,000 |
| 320 | Owners' capital | 200 | 10,000 |
| 350 | Drawing | 1,600 |  |
| 450 | Repair revenue | 4,000 |  |
| 654 | Rent expense | 1,500 |  |
| 656 | Salaries expense | 700 |  |
| 668 | Supplies expense | $\$ 30,100$ | $\$ 30,100$ |
| 670 | Gas expense |  |  |

Double-entry accounting requires that debits equal credits. The trial balance establishes that this equality exists for Big Dog but it does not ensure that each item has been recorded in the proper account. Neither does the trial balance ensure that all items that should have been entered have been entered. In addition, a transaction may be recorded twice. Any or all of these errors could occur and the trial balance would still balance. Nevertheless, a trial
balance provides a useful mathematical check before preparing financial statements.

## D. Using Formal Accounting Records

LO4 - Record transactions in a general journal and post them to a general ledger.

The preceding analysis of financial transactions used T-accounts to record debits and credits. T-accounts will continue to be used for illustrative purposes throughout this book. In actual practice, financial transactions are recorded in a general journal.

A general journal is a document that is used to chronologically record a business's debit and credit transactions (see Figure 2-2). It is often referred to as the book of original entry. Journalizing is the process of recording a financial transaction in the journal. The resulting debit and credit entry recorded in the journal is called a journal entry.

A general ledger is a record that contains all of a business's accounts. Posting is the process of transferring amounts from the journal to the matching ledger accounts. Because amounts recorded in the journal eventually end up in a ledger account, the ledger is sometimes referred to as a book of final entry.

## Recording Transactions in the General Journal

Each transaction is first recorded in the journal. The January transactions of Big Dog Carworks are recorded in its journal as shown in Figure 2-2. The journalizing procedure follows these steps (refer to Figure 2-2 for corresponding numbers):

1. The year is recorded at the top and the month is entered on the first line of page 1 . This information is repeated only on each new journal page used to record transactions.
2. The date of the first transaction is entered in the second column, on the first line. The day of each transaction is always recorded in this second column.
3. The name of the account to be debited is entered in the description column on the first line. By convention, accounts to be debited are usually recorded before accounts to be credited. The column titled Reference indicates the number given to the account in the General Ledger. For example, the account number for Cash is 101 . The amount of the debit is recorded in the debit column.
4. The name of the account to be credited is on the second line of the description column and is indented about one centimetre into the column. Accounts to be credited are always indented in this way in the journal. The amount of the credit is recorded in the credit column.
5. An explanation of the transaction is entered in the description column on the next line. It is not indented.
6. A line is usually skipped after each journal entry to separate individual journal entries and the date of the next entry recorded. It is unnecessary to repeat the month if it is unchanged from that recorded at the top of the page.



Figure 2-2 January General Journal Transactions for BDC
Most of Big Dog's entries have one debit and credit. An entry can also have more than one debit or credit, in which case it is referred to as a compound entry. The entry dated January 3 is an example of a compound entry.

## Posting Transactions to the General Ledger

The ledger account is a formal variation of the T-account. The ledger accounts shown in Figure 2-3 are similar to what is used in electronic/digital accounting programs. Ledger accounts are kept in the general ledger. Debits and credits recorded in the journal are transferred or "posted" to appropriate ledger accounts so that the details and balance for each account can be found easily. Figure 2-3 uses the first transaction of Big Dog Carworks to illustrate how to post amounts and record other information. The posting procedure follows these steps (refer to Figure 2-3 for corresponding numbers):

1. The date is recorded in the appropriate general ledger account.
2. The general journal page number is recorded in the Reference column of each ledger account as a cross reference. In this case, the posting has been made from general journal page 1 so the reference is recorded as "GJ1".
3. The debit and credit amounts from the general journal are posted to the debit or credit columns in the appropriate general ledger account. Here the entry debiting Cash is posted to the Cash ledger account. The entry crediting owner capital is then posted to the Owners' Capital general ledger account.
4. After posting the entry, a balance is calculated in the Balance column of each general ledger account. A notation is recorded in the column to the left of the Balance column indicating whether the balance is a debit (DR) or credit (CR). A brief description can be entered in the Description column of the account but this is usually not necessary since the journal includes a detailed description for each journal entry.

The general journal

GENERAL JOURNAL
 records each financial transaction in double-entry form. Each side of the entry is posted to a separate ledger account.

The general ledger stores transactions according to account and keeps a running total of each account balance.

# ASSIGNMENTMATERIALS Concept Self-Check 

1. What is an 'account'? How are debits and credits used to record transactions?
2. Why are T-accounts used in accounting?
3. How do debits and credits impact the T-account?
4. What is a chart of accounts?
5. Are increases in owners' equity recorded as a debit or credit?
6. Are decreases in owners' equity recorded as a debit or credit?
7. Summarize the rules for using debits and credits to record assets, expenses, drawing, liabilities, owner capital, and revenues.
8. What is a trial balance? Why is it prepared?
9. A general journal is often called a book of original entry. Why?
10.What is a general ledger? Why is it prepared?
11.Explain the posting process.

## Comprehension Problems

| CP 2-1 |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | The following T-accounts show the relationship of increases (inc.) and decreases (dec.) to debits and credits: |  |  |  |  |  |  |  |  |  |
| Transactio <br> n | Any Asset |  | Any Liability |  | Owners' Capital |  | Any Revenue |  | Any Expense |  |
|  | $\begin{aligned} & \text { Debit } \\ & \text { (inc.) } \end{aligned}$ | Credit (dec.) | Debit <br> (dec.) | Credit (inc.) | $\begin{gathered} \text { Debit } \\ \text { (dec.) } \end{gathered}$ | Credit (inc.) | Debit (dec.) | Credit (inc.) | $\begin{aligned} & \text { Debit } \\ & \text { (inc.) } \end{aligned}$ | Credit (dec.) |
| (1) | X |  |  |  |  | X |  |  |  |  |
| (2) |  |  |  |  |  |  |  |  |  |  |
| (3) |  |  |  |  |  |  |  |  |  |  |
| (4) |  |  |  |  |  |  |  |  |  |  |
| (5) |  |  |  |  |  |  |  |  |  |  |
| (6) |  |  |  |  |  |  |  |  |  |  |
| (7) |  |  |  |  |  |  |  |  |  |  |
| (8) |  |  |  |  |  |  |  |  |  |  |
| (9) |  |  |  |  |  |  |  |  |  |  |
| (10) |  |  |  |  |  |  |  |  |  |  |
| (11) |  |  |  |  |  |  |  |  |  |  |
| (12) |  |  |  |  |  |  |  |  |  |  |
| (13) |  |  |  |  |  |  |  |  |  |  |

Required: For each of the following transactions, indicate in the chart above with an ' X ' which accounts are debited and credited (transaction 1 is done for you):

1. Invest cash in a new business
2. Paid cash for a truck
3. Paid for prepaid insurance
4. Purchased a machine on account
5. Collected cash for services performed
6. Billed customers for services performed last week
7. Made a payment on account
8. Made a deposit for insurance to be used in the future
9. Paid cash for gas expense
10. Purchased supplies on account
11. Made a cash payment to a creditor
12. Received a cash payment from a customer.

## CP 2-3

Required: Record the debit and credit for each of the following transactions (transaction 1 is done for you):

1. Purchased a $\$ 10,000$ truck on credit
2. Purchased supplies for $\$ 2,500$ on account
3. Paid $\$ 2,000$ of the amount owe in cash
4. Paid $\$ 600$ in advance for a one-year insurance policy
5. Received $\$ 500$ in advance from a renter for next month's rental of office space.

| Assets |  | Liabilities |  | Equity |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Debit (inc.) | Credit (dec.) | Debit <br> (dec.) | Credit (inc.) | Debit (dec.) | Credit (inc.) |
| 10,000 |  |  | 10,000 |  |  |

## CP 2-4

Required: Record the debit and credit in the appropriate account for each of the following transactions (transaction 1 is done for you):

1. Invested cash in a new business
2. Purchased equipment on credit
3. Paid for a one-year insurance policy
4. Billed a customer for services performed
5. Paid this month's rent
6. Collected the amount billed in transaction 4 above
7. Collected cash for services performed
8. Paid for the equipment purchased in transaction 2 above
9. Signed a union contract
10. Collected cash from customer for services to be performed next month

## CP 2-5

Required: Post the following transactions to the appropriate accounts:

1. Invest $\$ 5,000$ cash in a new business (posted as an example)
2. Paid $\$ 900$ in advance for three months' rent, $\$ 300$ for each month
3. Billed $\$ 1,500$ to customers for repairs completed today
4. Purchased on credit $\$ 2,000$ of supplies to be used next month
5. Borrowed $\$ 7,500$ from a bank
6. Collected $\$ 500$ for the amount billed in transaction 3
7. Received a $\$ 200$ bill for electricity used to date (the bill will be paid next month)
8. Repaid $\$ 2,500$ of the bank loan
9. Paid $\$ 2,000$ for the supplies purchased in transaction 4
$\frac{\text { Cash }}{\text { (1) } 5,000 \mid} \frac{\text { Bank Loan }}{\text { Owners' Capital }} \frac{\text { Repair Revenue }}{\text { (1) } 5,000} \frac{}{}$


## CP 2-6

Required: Prepare journal entries for each of the following transactions:

1. Invested $\$ 13,000$ cash in a business
2. Purchased $\$ 2,000$ of equipment on credit
3. Paid $\$ 800$ cash for this month's rent
4. Purchased on credit $\$ 4,000$ of supplies
5. Billed $\$ 2,500$ to customers for services performed
6. Paid cash for one-half of the amount owing in transaction 4
7. Collected $\$ 500$ of the amount billed in transaction 5
8. Withdrew $\$ 300$ for personal use.

| Date | Account Titles \& Explanation | Ref. | Debits | Credits |
| :---: | :--- | :--- | :--- | :---: |
| 1. |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## CP 2-7

Required: Prepare the journal entries and likely descriptions of the eleven transactions that were posted to the following general ledger accounts for the month ended January 31, 2017. Do not include amounts. For instance, the first entry would be:

1. Cash

Owners' Capital
To record owner investment.

| Cash |  | Note Payable | Owners' Capital | Repair Revenue |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 11 | 1 | 3 |
| 3 | 5 |  |  | 4 |
| 11 | 10 |  |  |  |

Accounts Receivable

| Accounts Payable |  |  |
| :---: | :--- | :--- |
| 4 |  | 2 |
|  |  | 6 |
|  |  | 7 |

Prepaid Rent
Rent Expense

| 5 |  |
| :--- | :--- |
|  |  |


| Supplies |  |
| :---: | :---: |
| 2 |  |

## CP 2-8

The following trial balance was prepared from the books of Cross Co. at its year-end, December 31, 2017. After the company's bookkeeper left, the office staff was unable to balance the accounts or place them in their proper order. Individual account balances are correct, but debits may be incorrectly recorded as credits and vice-versa.

| Acct. |  | Accounts Balances |  |
| :--- | :--- | ---: | ---: |
| No. | Account | Debits | Credits |
| 101 | Cash | $\$ 120,400$ |  |
| 410 | Commissions Revenue | 5,000 |  |
| 320 | Owner capital |  | $\$ 170,000$ |
| 210 | Accounts payable | 30,000 |  |
| 631 | Insurance expense | 100 |  |
| 180 | Land |  | 8,000 |
| 181 | Building |  | 120,000 |
| 654 | Rent expense |  | 1,000 |
| 110 | Accounts receivable |  | 26,000 |
| 173 | Supplies | 6,000 |  |
| 668 | Utility expense |  | 300 |
| 201 | Note payable |  | 80,000 |
| 656 | Salaries expense |  | 200 |
| 669 | Telephone expense |  |  |
|  | Totals | $\$ 161,700$ | $\$ 408,300$ |
|  |  |  |  |

Required: Prepare a trial balance showing the balances in the correct column. List the accounts in numerical order. Total the columns and ensure total debits equal total credits. Assume all accounts have normal balances.

Link to Original

## CP 2-10

The following trial balance was prepared from the books of McQueen Co. at its year-end, December 31, 2017. The new bookkeeper was unable to balance the accounts or to list them in their proper order. Individual account balances are correct, but debits may be classified as credits and vice-versa.

| Acct. |  | Account Balances |  |
| :---: | :---: | :---: | :---: |
| No. | Account | Debit | Credit |
| 210 | Accounts payable | \$ 13,250 |  |
| 110 | Accounts receivable |  | \$10,000 |
| 181 | Building | 50,000 |  |
| 320 | Owner capital | 75,000 |  |
| 101 | Cash | 15,500 |  |
| 182 | Furniture | 6,000 |  |
| 180 | Land |  | 12,000 |
| 161 | Prepaid insurance |  | 9,600 |
| 201 | Note Payable |  | 28,000 |
| 350 | Drawing | 2,350 |  |
| 162 | Prepaid rent |  | 8,000 |
| 173 | Supplies | 2,800 |  |
|  | Totals | \$164,900 | \$67,600 |

Required: Prepare a corrected trial balance showing the accounts in numerical order and balances in the correct column. Total the columns and ensure total debits equal total credits. Assume all accounts have normal balances.

## CP 2-11

The following general ledger accounts are taken from the books of Collins Company at June 30,2017 , the end of the first month of operation.

| Cash |  | Note Payable | Owners' Capital | Repair Revenue |
| :---: | :---: | :---: | :---: | :---: |
| Jn. 1 25,000 | In. 1500 | Jn. 30 4,000 | Jn. 1 25,000 | Jn. 20 5,000 |
| 20 5,000 | 15 1,000 |  |  | 30 3,000 |
|  | 23 4,000 |  |  |  |
|  | 30 1,000 |  |  |  |
|  | 30 2,000 |  |  |  |
|  | 3016,000 |  |  |  |
|  | 30400 |  |  |  |


$\frac{\text { Prepaid Insurance }}{\text { Jn. } 12,000} \quad$| Accounts Payable |
| :--- |
| Jn. $27 \quad 100$ |


| Rent Expense |  |  |
| :--- | :--- | :---: |
| Jn. 1 | 500 |  |


| Accounts Receivable |  |  |
| :---: | :---: | :---: |
| Jn. $30 \quad 3,000$ |  |  |


| Salaries Expense |  |  |
| :--- | :--- | :---: |
| Jn. 15 | 1,000 |  |
| 30 | 1,000 |  |


| Supplies |  |  |
| :--- | :--- | :---: |
| Jn. 23 | 4,000 |  |


| Advertising Expense |  |  |
| :--- | :---: | :---: |
| Jn. $30 \quad 400$ |  |  |


| Land |  |
| :--- | :--- |
| Jn. 30 | 5,000 |

Telephone Expense
Jn. 27100


Required:

1. Prepare journal entries to record the June transactions, including likely descriptions of the transactions.
2. Total the T-accounts and prepare a trial balance at June 30.

## CP 2-12

The following trial balance has been prepared from the ledger of Sabre Travels Inc.

Sabre Travels Inc.
Trial Balance
January 31, 2017

|  | Account Balances |  |
| :--- | ---: | ---: |
| Debits | Credits |  |
| Cash | $\$ 60$ |  |
| Accounts receivable | 140 |  |
| Supplies | 10 |  |
| Equipment | 300 |  |
| Building | 700 |  |
| Land | 300 |  |
| Note payable |  | $\$ 100$ |
| Accounts payable |  | 20 |
| Owner capital |  | 250 |
| Fees earned |  | 1,875 |
| Advertising expense | 200 |  |
| Repairs expense | 100 |  |
| Supplies expense | 20 |  |
| Telephone expense | 10 |  |
| Utilities expense | 5 |  |
| Wages expense | 400 |  |

## Required:

1. Calculate the total debits and credits.
2. Prepare an income statement and statement of owners' equity for the year ended January 31, 2017, and the balance sheet at January 31.

## CP 2-13

The following journal entries were prepared for Elgert Corporation for its first month of operation, January 2017.


Required:

1. Prepare necessary general ledger T -accounts and post the transactions.
2. Prepare a trial balance at January 31, 2017.

Link to Original

## Problems

## P 2-1

The following account balances are taken from the records of Fox Creek Service Limited at October 31, 2017 after its first year of operation:

| Accounts Payable | $\$ 9,000$ | Insurance Expense | $\$ 500$ |
| :--- | :--- | :--- | :---: |
| Accounts Receivable | 6,000 | Repair Revenue | 19,000 |
| Advertising Expense | 2,200 | Supplies Expense | 800 |
| Notes payable | 5,000 | Telephone Expense | 250 |
| Cash | 1,000 | Truck | 9,000 |
| Owners' Capital | 2,000 | Gas Expense | 1,250 |
| Commissions Exp. | 4,500 | Wages Expense | 4,000 |
| Equipment | 7,000 | Wages Payable | 1,500 |

## Required:

1. Prepare a trial balance at October 31, 2017. General ledger account numbers are not necessary.

## P 2-3

The following trial balance was prepared for Findlay Consultants Co. at January 31, 2017, its first month of operation.

Findlay Consultants Co.
Trial Balance
At January 31, 2017

| Acct. |  | Account Balances |  |
| :--- | :--- | ---: | ---: |
| No. | Account | Debits | Credits |
| 210 | Accounts payable | $\$ 9,000$ |  |
| 110 | Accounts receivable |  |  |
| 610 | Advertising expense | 150 |  |
| 101 | Cash | 2,000 | $\$ 3,625$ |
| 320 | Owner capital |  | 7,000 |
| 183 | Equipment |  | 4,000 |
| 182 | Furniture |  | 1,000 |
| 236 | Utilities payable |  |  |
| 631 | Insurance expense | 300 |  |
| 641 | Maintenance expense | 9,500 |  |
| 160 | Prepaid advertising |  | 400 |
| 420 | Fees earned |  | 2,600 |
| 654 | Rent expense | 350 | 1,500 |
| 656 | Salaries expense | 125 |  |
| 226 | Salaries payable | 9,000 |  |
| 668 | Supplies expense |  | 750 |
| 669 | Telephone expense |  | 1,500 |
| 184 | Truck |  |  |

## Required:

Prepare a corrected trial balance at January 31. List the accounts in numerical order. Record the amounts in their proper debit or credit positions. Re-add total debits and credits and ensure they are equal. Assume all accounts have normal balances.

Link to Original Link to Original

## P 2-5

The following transactions occurred in Thorn Accounting Services Inc. during August 2017, its first month of operation.

Aug. 1 Invested \$13,000 cash in a new business
1 Paid $\$ 8,000$ cash for a used truck
2 Paid $\$ 600$ for a one-year truck insurance policy effective August 1
4 Collected \$2,000 fees in cash from a client for work performed
5 Billed \$5,000 fees to clients for services performed
7 Paid $\$ 250$ for supplies to be used in August
9 Purchased $\$ 500$ of supplies on credit
12 Collected \$1,000 of the amount billed on August 5
15 Paid $\$ 200$ for advertising in The News during the first two weeks of August
16 Paid half of the amount owing for the supplies purchased on August 9
20 Paid cash for the following expenses: rent for August, $\$ 350$; salaries, \$2,150; telephone, \$50; gas, \$250
25 Called clients for payment of the balance owing from August 5

28 Billed \$6,000 of fees to clients for services performed
31 The owner withdrew $\$ 150$ cash.

## Required:

1. Prepare journal entries to record the August transactions
2. Open general ledger T -accounts for the following chart of account (account numbers are indicated in brackets): Cash (101), Accounts Receivable (110), Prepaid Insurance (161), Unused Supplies (173), Truck (184), Accounts Payable (210), Owner Capital (320) Owners' Drawings (340), Fees Earned (420), AdvertisingExpense (610), Insurance Expense (631), Rent Expense (654),Salaries Expense (656), Supplies Expense (668), TelephoneExpense (669), and Gas Expense (670).
3. Post these entries to the T-accounts. Total each account.
4. Prepare a trial balance at August 31, 2017.

## CHAPTER 3

Financial Accounting and the Use of Adjusting Entries

## CHAPTER THREE

## Financial Accounting and the Use of Adjusting Entries

Chapters 1 and 2 described the recording and reporting of accounting transactions in detail. Chapter 3 introduces the concept of adjusting entries and how these satisfy the matching principle. This enables revenues and expenses to be reported in the correct accounting period. The preparation of an adjusted trial balance is discussed, as well as its use in completing financial statements.

## Chapter 3 Learning Objectives

L01 - Explain the matching, and recognition GAAP require the recording of adjusting entries.

LO2 - Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.
LO3 - Prepare an adjusted trial balance and use it to prepare financial statements.

## A. Revenue Recognition Principle

GAAP provide guidance about when financial transactions should be recognized in financial statements. At this point in our studies, a financial transaction is recognized when it meets two criteria:

1. It is probable that any future economic benefit (usually cash) associated with the transaction will be received or paid at some time in the future; and
2. The value of the transaction can be reliably measured.

## Revenue Recognition Illustrated

Revenue recognition is the process of recording revenue in the accounting period in which it was earned; this is not necessarily when cash is received. Most corporations assume that revenue has been earned at a consistent point in the accounting cycle. For instance, it is often convenient to recognize revenue at the point when a sales invoice has been sent to a customer and the related goods have been shipped or services performed. This point can occur before receipt of cash from a customer, creating an asset called Accounts Receivable. This concept was illustrated in Transaction 8 in Chapter 2. The general form of the journal entry is as follows, based on the format for entries in the general journal discussed in the prior chapter:

## 2017

Date
Accounts Receivable XX XX
Revenue

To record revenue earned on credit; cash will be paid at a later date.

| General Journal |  |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |  |
|  | Accounts Receivable $\ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Revenue $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$. <br> To record revenue earned on account. |  | XX | XX |  |

When cash payment is later received, the asset Accounts Receivable is exchanged for the asset Cash and the following entry is made:

2017
Date Cash XX Accounts Receivable

XX
To record cash received from credit customer.

Link to Original


Link to Original

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Cash <br> Accounts Receivable $\qquad$ <br> To record cash received from credit customer. |  | XX | XX |

Revenue is recognized in the first entry (the credit to revenue), prior to the receipt of cash. The second entry has no effect on revenue.

When cash is received at the same time that revenue is recognized, the following entry is made:

2017
Date
Cash
XX
Revenue
XX
To record cash received from customer at time of sale.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Cash . Revenue <br> To record cash received from customer. |  | XX | XX |

When a cash deposit or advance payment is obtained before revenue is earned, a liability called Unearned Revenue is recorded as follows:

2017
Date Cash XX XX
$\quad$ Unearned Revenue
To record cash received from customer for work to be
done in the future.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Cash . <br> Unearned Revenue <br> To record cash received from customer for work to be done in the future. |  | XX | XX |

There is no effect on the income statement at this point. Revenue is recognized only when the services have been performed.

At that time, the following entry is made:
2017
Date
Unearned Repair Revenue Repair Revenue XX XX To record the earned portion of Unearned Revenue.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Unearned Revenue $\ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Revenue $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> To record the earned portion of Unearned <br> Revenue. |  | XX | XX |

This entry reduces the unearned revenue account by the amount of revenue earned. At this point, revenue is recognized in the income statement account called Repair Revenue.

The matching of revenue to a particular time period, regardless of when cash is received, is an example of accrual accounting. Accrual accounting is the process of recognizing revenues when earned and expenses when incurred regardless of when cash is exchanged. Accrual accounting is an important generally accepted accounting principle. It allows revenue and expenses to be matched to the applicable time period, regardless of when cash receipts or outlays occur. Recognition of expenses is discussed in the next section.

## Expense Recognition Illustrated

In a business, costs are incurred continuously. To review, a cost is recorded as an asset if it will be incurred in producing revenue in future accounting periods. A cost is recorded as an expense if it will be used or consumed during the current period to earn revenue. This distinction between types of cost outlays is illustrated in Figure 3-3.



Link to Original

Figure 3-3 The Interrelationship Between Assets and Expenses

In the previous section regarding revenue recognition, journal entries illustrated three scenarios where revenue was recognized before, at the same time as, and after cash was received. Similarly, expenses can be incurred before, at the same time as, or after cash is paid out. An example of when expenses are incurred before cash is paid occurs when the utilities expense for January is not paid until February. In this case, an account payable is created in January as follows:

## 2017

Date
Utilities Expense
XX
Accounts Payable (or Utilities Payable) XX
To record January utilities expense to be paid in February.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Utilities Expense $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Accounts Payable (or Utilities Payable) <br> To record January utilities expense to be <br> paid in February. |  | XX | XX |

The utilities expense is appropriately reported in the January income statement. When the January utilities are paid with cash in February, the following is recorded:

2017
Date Accounts Payable (or Utilities Payable)XX Cash XX
To record payment in February of utilities used in January.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Accounts Payable (or Utilities Payable) Cash. <br> To record payment in February of utilities used in January. |  | XX | XX |

This entry has no effect on expenses reported on the February income statement, since these were reported on the January income statement.

Expenses can also be recorded at the same time that cash is paid. For example, if salaries for January are paid on January 31, the entry on January 31 is:

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Salaries Expense Cash <br> To record payment of January salaries. |  | XX | XX |

As a result of this entry, salaries expense is reported on the January income statement when cash is paid. Transaction 9 in Chapter 2 illustrated these two options.

Finally, a cash payment can be made before the expense is incurred, such as insurance paid in advance. A prepayment of insurance creates an asset Prepaid Insurance and is recorded as:

2017
$\begin{array}{lll}\text { Date } & \begin{array}{l}\text { Prepaid Insurance } \\ \text { Cash }\end{array} & \text { XX } \\ \text { To record payment of insurance in advance. }\end{array}$

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Prepaid Insurance Cash. <br> To record payment of insurance in advance. |  | XX | XX |

As the prepaid insurance benefit is used up, the appropriate expense is reported on the income statement by following entry:

2017
Date Insurance Expense XX
Prepaid Insurance
XX
To record the expiry of Prepaid Insurance.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Insurance Expense $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Prepaid Insurance $\ldots \ldots \ldots \ldots \ldots \ldots$ <br> To record the use of Prepaid Insurance. |  | XX | XX |
|  |  |  |  |  |

Link to Original


Link to Original

The preceding examples illustrate how to match expenses to the appropriate accounting period. The matching principle requires that expenses be reported in the same period as the revenues they helped generate. That is, expenses are reported on the income statement: a) when related revenue is recognized, or b) during the appropriate time period, regardless of when cash is paid.

To ensure the recognition and matching of revenues and expenses to the correct accounting period, account balances must be reviewed and adjusted prior to the preparation of financial statements. This is the topic of the next section.

## B. Adjusting Entries

LO2 - Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.

At the end of an accounting period, before financial statements can be prepared, the accounts must be reviewed for potential adjustments. This review is done by using the unadjusted trial balance. The trial balance of Big Dog Carworks at January 31 was prepared in Chapter 2 and is reproduced in Figure 3-4 below. It is an unadjusted trial balance because the accounts have not yet been updated for accruals and other adjustments. We will use this trial balance to illustrate how adjustments are identified and recorded.

Big Dog Carworks
Unadjusted Trial Balance
At January 31, 2017

| Acct. |  | Balance |  |
| :---: | :---: | :---: | :---: |
| No. | Account | Debit | Credit |
| 101 | Cash | \$6,200 |  |
| 110 | Accounts receivable | 2,500 |  |
| 161 | Prepaid insurance | 2,400 |  |
| 183 | Equipment | 3,000 |  |
| 184 | Truck | 8,000 |  |
| 201 | Note payable |  | \$9,000 |
| 210 | Accounts payable |  | 700 |
| 247 | Unearned revenue |  | 400 |
| 320 | Owners' capital |  | 10,000 |
| 350 | Drawing | 200 |  |
| 450 | Repair revenue |  | 10,000 |
| 654 | Rent expense | 1,600 |  |
| 656 | Salaries expense | 4,000 |  |
| 668 | Supplies expense | 1,500 |  |
| 670 | Depreciation expense | 700 |  |
|  |  | \$30,100 | \$30,100 |

Figure 3-4 Unadjusted Trial Balance of Big Dog Carworks at January 31, 2017

Adjustments are recorded with adjusting entries. Their purpose is to ensure both the balance sheet and the income statement more accurately represent financial information. Adjusting entries help satisfy the matching principle.

There are five types of adjusting entries, each of which will be discussed in the following sections.

1. Adjust prepaid assets;
2. Adjust unearned Revenue;
3. Adjust plant and equipment assets;
4. Adjust accrued revenues; and
5. Adjust accrued expenses

An accrued revenue is income that has been earned but has not yet been collected or recorded.

An accrued expense is an expense that has been incurred but has not yet been paid or recorded.

## Adjusting Prepaid Asset Accounts

An asset or liability account requiring adjustment at the end of an accounting period, it includes both a balance sheet portion and an income statement portion. The income statement portion must be removed from the balance sheet account by an adjusting entry.

Refer to Figure 3-4 which shows an unadjusted balance in prepaid insurance of $\$ 2,400$. Recall from Chapter 2 that Big Dog paid for a 12-month insurance policy that went into effect on January 1 (transaction 5).


At January 31, one month or $\$ 200$ of the policy has expired (been used up) calculated as $\$ 2,400 / 12$ months $=\$ 200$.

The adjusting entry on January 31 to transfer $\$ 200$ out of prepaid insurance and into insurance expense is:

Link to Original


Link to Original

2017
$\begin{array}{ccc}\text { Jan. } 31 \begin{array}{c}\text { Insurance Expense } \\ \text { Prepaid Insurance }\end{array} & 200 \\ & 200\end{array}$
To adjust for the use of one month of Prepaid Insurance.

| General Journal <br> Date$\quad$ Account/Explanation | PR | Debit | Credit |  |
| :---: | :---: | ---: | ---: | ---: |
| Jan 31 | Insurance Expense $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Prepaid Insurance $\ldots \ldots \ldots \ldots \ldots \ldots$ <br> To adjust for the use of one month of Pre- <br> paid Insurance. |  | 200 | 200 |

As shown below, the balance remaining in the Prepaid Insurance account is $\$ 2,200$ after the adjusting entry is posted. The $\$ 2,200$ balance represents the unexpired asset that will benefit future periods, namely, the 11 months from February to December, 2017. The $\$ 200$ transferred out of prepaid insurance is posted as a debit to the Insurance Expense account to show how much insurance has been used during January.


If the adjustment was not recorded, assets on the balance sheet would be overstated by $\$ 200$ and expenses would be understated by the same amount on the income statement.

## Adjusting Unearned Revenue Accounts

Recall from Chapter 2 (Transaction 7) that on January 15, Big Dog received a $\$ 400$ cash payment in advance of services being performed: \$300 for January and \$100 for February.

The unadjusted trial balance shows the following in the Unearned Repair Revenue account:

The receipt of the $\$ 400$ advance payment was recorded as follows:

Unearned Repair
Revenue
400

Cash 400
Unearned Repair Rev. 400

This advance payment was originally recorded as unearned revenue, since the cash was received before repair services were performed. Assume now that at January 31, $\$ 300$ of the $\$ 400$ unearned amount has been earned. Therefore, $\$ 300$ must be transferred from unearned repair revenue into repair revenue.

The adjusting entry at January 31 is:
(b)

2017
Jan. $31 \begin{gathered}\text { Unearned Repair Revenue } \\ \text { Repair Revenue }\end{gathered} \quad 300$ 300
To adjust for repair revenue earned.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanati | PR | Debit | Credit |
| Jan 31 | Unearned Repair Revenue Repair Revenue. <br> To adjust for repair revenue earned. |  | 300 | 300 |

After posting the adjustment, the $\$ 100$ remaining balance in unearned repair revenue ( $\$ 400-\$ 300$ ) represents the amount at the end of January that will be earned in February.

Unearned Repair


If the adjustment was not recorded, unearned repair revenue would be overstated (too high) by $\$ 300$ causing liabilities on the balance sheet to be overstated. Additionally, revenue would be understated (too low) by $\$ 300$ on the income statement.

## Adjusting Plant and Equipment Accounts

Plant and equipment assets, also known as long-lived assets, are expected to generate revenues over the current and future accounting periods because they are used to produce goods, supply services, or used for administrative purposes. The truck and equipment purchased by Big Dog Carworks in January are examples of assets that provide economic benefits for more than one accounting period. Because of this, their costs also must be spread over the same time period, or useful life. Useful life is an estimate of how long the asset will be used to produce benefits for the business. This is done to satisfy the matching principle. For example, the $\$ 100,000$ cost of a machine expected to be used over five years is not expensed entirely in the year of purchase because the benefits it provides will last for several years. Immediately expensing the purchase would cause expenses to be overstated in Year 1 and understated in Years 2, 3, 4, and 5. More appropriately, the $\$ 100,000$ cost should be spread over the asset's five-year useful life.

The process of allocating the cost of a long-lived asset over the period of time it is expected to be used is called depreciation.
Various depreciation methods and considerations are discussed in a later chapter.

For our purposes here, the benefit of plant and equipment that is used up each month will be calculated as its cost divided by its estimated useful life, calculated in months.

The adjusting journal entry to record depreciation is:

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Depreciation Expense . . . . . . . . . <br> Accumulated Depreciation. <br> To adjust for depreciation. |  | XX | XX |

Let's work through two examples to demonstrate depreciation adjustments. Recall that in January, BDC purchased two assets equipment and a truck. Assume that they are considered long-lived asset because they have an estimated useful life greater than one year. The equipment was purchased for $\$ 3,000$ (Transaction 3, Chapter 2). If its actual useful life is 10 years ( 120 months), monthly depreciation expense is $\$ 25$, calculated as:

$$
\frac{\text { Cost }}{\text { Estimated Useful Life }}=\frac{\$ 3,000}{120 \text { months }}=\$ 25 / \text { month }
$$

The following adjusting entry is made in the records of BDC on January 31:

## (c)

2017
Jan. 31 Depreciation Expense - Equipment 25
Accumulated Depreciation - Equipment 25
To record one month of depreciation expense on the equipment (\$3,000/120 months).

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
| Jan 31 | Depreciation Expense, Equipment ....... <br> Accumulated Depreciation, Equipment <br> To adjust for one month of depreciation <br> on the equipment. |  | 25 | 25 |



Link to Original

Notice that the credit side of the entry is not made to the Equipment account. Rather, a contra account called "Accumulated Depreciation - Equipment" is used. A contra account is a general ledger account that is related to another account (in this case, Equipment). It has a credit balance, which is subtracted from the debit balance of its related account on the financial statements.
Accumulated depreciation is a contra account that records the amount of a particular asset's cost that has been expensed since it was put into use. The original cost of the long-lived asset needs to be maintained in the accounting records in case it is sold.
Maintaining a separate accumulated depreciation contra account allows this original cost to be retained in the records.

When this adjusting entry is posted, the accounts appear as follows:

| Equipment | Accumulated Depreciation Equipment | Depreciation Expense Equipment |
| :---: | :---: | :---: |
| 3,000 | $25 \leftarrow$ | $\rightarrow 25$ |
| The Equipment account remains unchanged by the adjusting entry. | A contra account, accumulated depreciation, is increased by $\$ 25$. | Depreciation expense is increased by $\$ 25$, the amount of the equipment's cost that has been allocated to expense. |

For financial statement reporting, the asset and contra asset accounts are combined. This carrying amount or net book value of the equipment on the balance sheet is shown as $\$ 2,975$ (\$3,000$\$ 25$ ) at January 31, like this:

| Equipment | 3,000 |
| :--- | ---: |
| Acc. Dep. - Equip. | $(25)$ <br> Book value |

Recall that BDC also purchased a truck for \$8,000 during January (Transaction 4, Chapter 2). Assume the truck has an estimated useful life of 80 months. At January 31, one month of the truck cost has expired. Depreciation is calculated as:
$\frac{\text { Cost }}{\text { Estimated Useful Life }}=\frac{\$ 8,000}{80 \text { months }}=\$ 100 /$ month
The adjusting entry recorded on January 31 is:
(d)

## Jan. 31 Depreciation Expense, Truck 100

Accumulated Depreciation, Truck
To record one month of depreciation expense on the truck ( $\$ 8,000 / 80$ months).

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
| Jan 31 | Depreciation Expense, Truck ................ <br> Accumulated Depreciation, Truck..... <br> To adjust for one month of depreciation <br> on the truck. |  | 100 | 100 |

When the adjusting entry is posted, the accounts appear as follows:
Accumulated
Depreciation
Depreciation -
Expense - Truck

The Truck account remains unchanged by the adjusting entry.
A contra account,
accumulated
depreciation, is
increased by $\$ 100$.
Depreciation expense is increased by $\$ 100$, the amount of the truck's cost that has been allocated to expense.

The value of the truck on the balance sheet at January 31 is shown as $\$ 7,900(\$ 8,000-\$ 100)$, like this:

| Truck | 8,000 |
| :--- | ---: |
| Acc. Dep. - Truck. | $(100)$ |
| Book value | 7,900 |

Although land is a long-lived asset, it is not depreciated because its benefits do not decrease over time. Therefore, land is often referred to as a non-depreciable asset.

Link to Original

Some revenues and expenses increase as time passes and are therefore said to accrue. Accrued revenues and accrued expenses are items that need to be reported in the income statement for a certain time period. However, they are not recognized by the accounting system until they are received or paid in cash, because there are no source documents like sales invoices or purchase invoices to trigger their recording. Often these types or revenue and expenses need to be recognized earlier in the accounting records. This is done by adjusting entries. Common types of accrued revenues are rent and interest from investments. Common expenses are interest on debt, salaries, and income taxes.

Accrued revenues are revenues that have been earned but not yet collected or recorded.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/ExplanaӨon | PR | Debit | Credit |
|  | Acct. Receivable Revenue <br> To adjust for accrued revenue. |  | XXX | XXX |

Assume that BDC has rented out part of the building in which it operates to another business as of January 1, 2017. The rent is $\$ 400$ per month. If the rent has not been paid to BDC by January 31, and an accrued revenue amount needs to be recorded, as follows:
(e)

2017
Jan. 31 Account Receivable 400
Rent Revenue 400
To record January rent from renter.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
| Jan 31 | Accounts Receivable Repair Revenue To adjust for accrued revenue. |  | 400 | 400 |

When the adjusting entry is posted, the accounts appear as follows:


In this way, rent revenue would be appropriately reported in the January income statement. If the adjustment was not recorded, assets (A/R) on the balance sheet would be understated by $\$ 200$ and revenues would be understated by the same amount on the income statement.

If the rent payment is received on February 3, the entry to record this would be:

## 2017

Feb. 3 Cash 400
Account Receivable 400
To record receipt of January rent from sublet.
Another example of accrued revenue is interest receivable. Assume that cash on deposit with the bank pays interest every three months and that the interest revenue earned on the account is $\$ 25$ at January 31. An accrued revenue amount needs to be recorded at January 31, as follows:

## (f)

2017
Jan. 31 Interest Receivable
25
Interest Revenue
25
To record January accrued revenue on chequing account.
When the adjusting entry is posted, the accounts appear as follows:

Link to Original


Interest Revenue


An income statement account, Interest Revenue, is increased by the $\$ 25$ of accrued revenue.

Accrued expenses are expenses that have been incurred but not yet paid or recorded. Like accrued revenue, these items are not usually recorded in the accounting records because they are not recorded on source documents like a sales invoice or a bill from a supplier. An example of an accrued expense in the case of BDC is interest expense. Interest expense arises when a business borrows money from a financial institution like a bank. Interest accrues (increases) daily but is paid only at certain time, perhaps monthly or every six months for a bank loan but for notes payable, the interest is paid when the note is due.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Expense Payable <br> To adjust for accrued expense. |  | XXX | XXX |

For Big Dog Carworks, the January 31, 2017 unadjusted trial balance shows a $\$ 9,000$ bank loan balance. This consists of a $\$ 4,000$ loan on January 2, an additional \$7,000 loan on January 3, and a repayment of $\$ 2,000$ on January 10 . No interest has been paid on this loan as of January 31. However, interest has been accruing on the loans since they were received. The interest needs to be recorded by means of adjusting entry.

Assume that interest expense amounts to $\$ 18$. BDC's adjusting entry to accrue this expense on January 31 is:
(g)

2017
Jan. 31
Interest Expense 18 Interest Payable
To record January accrued interest on the bank loan.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
| Jan 31 | Interest Expense $\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Interest Payable $\ldots \ldots \ldots \ldots \ldots \ldots \ldots$ |  | 18 | 18 |
|  | To adjust for accrued interest; $\$ 6,000 \times$ <br> $4 \% \times 28 / 365=\$ 18.41$ (rounded to $\$ 18)$ |  |  |  |

This adjusting entry enables BDC to include the interest expense on the January income statement even though interest has not yet been paid. The entry also creates a payable that will be reported as a liability on the balance sheet at January 31.

When the adjusting entry is posted, the accounts appear as:

| Interest Payable | Interest Expense |
| :---: | :---: |
| $18 \leftarrow$ | $\rightarrow 18$ |
| Interest payable (a liability) is established to record the credit. | An expense account is established to record the debit. |

## Accruing Salaries Expense

Transaction 9 in Chapter 2 included a \$4,000 cash payment for salaries expense. ("Wages" are similar expenses, paid to hourly workers.) Let's assume that the payments were for work performed by staff only until January 28 . There are three days of salary that have not been paid to January 31. Assume this amounts to $\$ 150$. This additional accrued expense for work done on January 28, 29, 30 , and 31 needs to be recorded to appropriately match the salaries expense to the month of January. This is the adjusting entry:
(h)

2017
Jan. 31 Salaries Expense 150 Salaries Payable
To accrue salaries for January 29-31.
This entry enables the company to include in expense all salaries earned by employees, even though these amounts will not be paid in cash until the next pay period in February. The entry creates an accrued liability for an expense incurred during one accounting period (January) but paid in another accounting period (February).

When the adjusting entry is posted, the accounts appear as follows:


| Salaries Expense |  |
| :--- | :--- |
| 4,000 |  |
| Bal. 150 |  |
| 4,150 |  |
| An |  | An additional \$150 expense is recorded for the period ended January 31.

Each of the five steps of adjusting entries either debits an expense or credits a revenue.

## C. The Adjusted Trial Balance

LO3 - Prepare an adjusted trial
balance and use it
to prepare
financial
statements.

In the last section, adjusting entries were recorded and posted. As a result, some account balances reported on the January 31, 2017 unadjusted trial balance in Figure 3-4 have changed. Recall that an unadjusted trial balance reports account balances before adjusting entries have been recorded and posted. An adjusted trial balance reports account balances after adjusting entries have been recorded and posted. Figure 3-5 shows the unadjusted trial balance, adjustments a through i discussed above, and the adjusted trial balance for BDC at January 31, 2017. Changes are shown in blue.

|  |  | Big Dog Carworks Adjusted Trial Balance January 31, 2017 |  |  |  |  |  | Adjusted trial balance |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Unadjusted trial balance |  | Adjustments |  |  |  |  |  |
| Acct. | Account | Debit | Credit |  | Debit |  | redit | Debit | Credit |
| No. |  |  |  |  |  |  |  |  |  |
| 101 |  | Cash | \$ 6,200 |  |  |  |  |  | \$6,200 |  |
| 110 | Accounts receivable | 2,500 |  |  |  |  |  | 2,500 |  |
| 116 | Interest receivable |  |  | (f) | 25 |  |  | 25 |  |
| 125 | Rent receivable |  |  |  | (e) |  |  | 400 |  |
|  |  |  |  |  | 400 |  |  |  |  |
| 161 | Prepaid insurance | 2,400 |  |  |  |  | 200 | 2,200 |  |
| 183 | Equipment | 3,000 |  |  |  |  |  | 3,000 |  |
| 184 | Truck | 8,000 |  |  |  |  |  | 8,000 |  |
| 193 | Acc. dep. - equipment |  |  |  |  |  | 25 |  | \$ 25 |
| 194 | Acc. dep. - truck |  |  |  |  |  | 100 |  | 100 |
| 201 | Note payable |  | \$9,000 |  |  |  |  |  | 9,000 |
| 210 | Accounts payable |  | 700 |  |  |  |  |  | 700 |
| 222 | Interest payable |  |  |  |  |  | 18 |  | 18 |
| 226 | Salaries payable |  |  |  |  |  | 150 |  | 150 |
| 247 | Unearned repair revenue |  | 400 |  | ) 300 |  |  |  | 100 |
| 260 | Income taxes payable |  |  |  |  |  | 500 |  | 500 |
| 320 | Owner capital |  | 10,000 |  |  |  |  |  | 10,000 |
| 350 | Drawing | 200 |  |  |  |  |  | 200 |  |
| 430 | Interest earned |  |  |  |  |  | 25 |  | 25 |
| 440 | Rent earned |  |  |  |  |  | 400 |  | 400 |
| 450 | Repair revenue |  | 10,000 |  |  | (b) | 300 |  | 10,300 |
| 623 | Dep. exp. - equipment |  |  | (c) | ) 25 |  |  | 25 |  |
| 624 | Dep. exp. - truck |  |  |  | (d) |  |  | 100 |  |
|  |  |  |  |  | 100 |  |  |  |  |
| 631 | Insurance expense |  |  |  | (a) |  |  | 200 |  |
|  |  |  |  |  | 200 |  |  |  |  |
| 632 | Interest expense |  |  |  | ) 18 |  |  | 18 |  |
| 654 | Rent expense | 1,600 |  |  |  |  |  | 1,600 |  |
| 656 | Salaries expense | 4,000 |  |  | (h) $150$ |  |  | 4,150 |  |
| 668 | Supplies expense | 1,500 |  |  |  |  |  | 1,500 |  |
| 670 | Gas expense | 700 |  |  |  |  |  | 700 |  |
| 830 | Income taxes expense |  |  |  | $\begin{array}{r} \text { (i) } \\ 500 \\ \hline \end{array}$ |  |  | 500 |  |
|  |  | \$30,100 | 30,100 |  | \$1,718 |  | \$1,718 | \$31,318 | \$31,318 |

Figure 3-5 BDCC's January 31, 2017 Adjusted Trial Balance
Financial statements can now be prepared using the adjusted trial balance.

| Acct. |  | Account Balances |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | Account | Debit | Credit |  |  |  |
| 101 | Cash | \$ 6,200 |  |  |  |  |
| 110 | Accounts receivable | 2,500 |  |  |  |  |
| 116 | Interest receivable | 25 |  |  |  |  |
| 125 | Rent receivable | 400 |  |  |  |  |
| 161 | Prepaid insurance | 2,200 |  | The income statement is prepared first, followed by the statement of owners' equity. |  |  |
| 183 | Equipment | 3,000 |  |  |  |  |
| 184 | Truck | 8,000 |  |  |  |  |
| 193 | Acc. dep. - equipment |  | \$ 25 |  |  |  |
| 194 | Acc. dep. - truck |  | 100 |  |  |  |
| 201 | Bank loan | 9,000 |  |  |  |  |
| 210 | Accounts payable | 700 |  |  |  |  |
| 222 | Interest payable |  |  | , |  |  |
| 226 | Salaries payable | 18 |  | Big Dog Carworks |  |  |
| 247 | Unearned repair revenue | 100 |  | Income Statement |  |  |
| 260 | Income taxes payable | 500 |  | For the Month Ended January 31, 2017 |  |  |
| 320 | Owners' capital | 200 | 10,000 |  |  |  |
| 350 | Drawing |  |  | Revenue |  |  |
| 430 | Interest earned |  | $25 \rightarrow$ Interest |  | \$ |  |
|  |  |  |  |  | 25 |  |
| 440 | Rent earned |  | 400 | Rent | 400 |  |
| 450 | Repair revenue |  | 10,300 | Repairs | 10,300 | \$10,725 |
|  |  | Expenses |  |  |  |  |
| 623 | Dep. expense - equipment | $25 \longrightarrow$ Dep. - equip. |  |  | 25 |  |
| 624 | Dep. expense - truck | 100 |  | Dep. - truck | 100 |  |
| 631 | Insurance expense | 200 |  | Insurance | 200 |  |
| 632 | Interest expense | 18 |  | Interest 18 |  |  |
| 654 | Rent expense | 1,600 |  | Rent 1,600 |  |  |
| 656 | Salaries expense | 4,150 |  | Salaries 4,150 |  |  |
| 668 | Supplies expense | 1,500 |  | Supplies 1,500 |  |  |
| 670 | Gas expense | 700 |  | Gas expense 700 |  |  |
| 830 | Income taxes expense | 500 |  | Income taxes $\quad 500$ |  | 8,793 |
|  |  | \$31,318 | $\underline{\underline{\$ 31,318}}$ | Net income |  | \$1,932 |
|  |  |  | Big Dog Carworks Statement of Owners' Equity For the Month Ended January 31, 2017 |  |  |  |
|  |  |  |  |  |  | Total equity |
| $>_{\text {Balance at January 1, } 2017}$ |  |  |  |  |  | \$ -0- |
| Investment |  |  |  |  |  | 10,000 |
| $\rightarrow$ Net income |  |  |  |  |  | 1,932 |
| Drawing |  |  |  |  |  | (200) |
| Balance at January 31,2017 |  |  |  |  |  | \$11,732 |

The balance sheet can be prepared once the statement of owners' equity is complete.

| Big Dog Carworks | Big Dog Carworks |
| :---: | :---: |
| Trial Balance | Balance Sheet |
| At January 31, 2017 | At January 31, 2017 |



## Summary of Chapter 3 Learning Objectives

## LO1 - Explain how adjusting entries match revenues and expenses to the appropriate time period.

Financial statements must be prepared in a timely manner, at minimum, once per fiscal year. For statements to reflect activities accurately, revenues and expenses must be recognized and reported in the appropriate accounting period. In order to achieve this type of matching, adjusting entries need to be prepared.

## LO2 - Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.

Adjusting entries are prepared at the end of an accounting period. They allocate revenues and expenses to the appropriate accounting period regardless of when cash was received or paid. The five types of adjustments are:
(1)

Date

Date

Date
Depreciation Expense
Accumulated Depreciation
To allocate the costs of plant and equipment over their useful lives.
(4)

Date Unearned Revenue Revenue XX To adjust unearned amounts now earned.
(5)

Expense
XX
Payable
XX
To adjust for accrued expenses.

Link to Original
Link to Original

## LO3 - Prepare an adjusted trial balance and use it to prepare financial statements.

The adjusted trial balance is prepared using the account balances in the general ledger after adjusting entries have been posted. Debits must equal credits. The adjusted trial balance is used to prepare the financial statements. Financial statements are prepared based on adjusted account balances.

## ASSIGNMENTMATERIALS <br> Concept Self-check

1. What is the relationship between the matching concept and accrual accounting? Are revenues matched to expenses, or are expenses matched to revenues? Does it matter one way or the other?
2. What are adjusting entries and why are they required?
3. What are the five types of adjusting entries?
4. Why are asset accounts like Prepaid Insurance adjusted? How are they adjusted?
5. How are long-lived asset accounts adjusted? Is the procedure similar to the adjustment of other asset and liability accounts at the end of an accounting period?
6. What is a contra account and why is it used?
7. How are liability accounts like Unearned Repair Revenue adjusted?
8. Explain the terms accrued revenues and accrued expenses. Give examples of each.
9. Why is an adjusted trial balance prepared?
10.How is the adjusted trial balance used to prepare financial statements?

## Comprehension Problems

## CP 3-1

The preparation of adjusting entries requires a debit entry to one account and a credit entry to another account.

$$
A
$$

a. Insurance Expense
b. Rent Earned
c. Prepaid Rent
d. Interest Payable
e. Interest Receivable
f. Fees Earned
g. Supplies
h. Unearned Commissions

Revenue
i. Salaries Payable
j. Depreciation Expense

B

1. Commissions Revenue
2. Supplies Expense
3. Salaries Expense
4. Unearned Fees
5. Accumulated Depreciation
6. Rent Expense
7. Prepaid Insurance
8. Interest Revenue
9. Interest Expense
10. Unearned Rent Revenue

Required: Match each account in column $A$ with the appropriate account in column $B$.

CP 3-3
Prepare the journal entry required for each of the following transactions:
a. Prepaid insurance totalling $\$ 125$ has expired.
b. Utility expenses of $\$ 200$ are unpaid.
c. Supplies of $\$ 600$ have been used.
d. Salaries of $\$ 1500$ are unpaid
e. Services performed but not recorded total $\$ 2,200$
f. Services related to unearned service revenue of $\$ 620$ were performed

## Required:

For each of the above items specify the type of adjustment (prepaid expense, unearned revenue, accrued revenue, or accrued expense) and the position of accounts before adjustment (overstatement or understatement).

## CP 3-2

The following unadjusted accounts are extracted from the general ledger of A company at December 31, 2018:


Additional Information: The truck was purchased January 1, 2018. It has an estimated useful life of 4 years.

Required: Prepare the needed adjusting entry at December 31, 2018.

CP 3-4
An extract from the trial balance of Armstrong Company at June 30, 2018 is reproduced below:

|  | Amount in <br> unadjusted | Amount in <br> adjusted <br> trial |
| :--- | ---: | ---: |
| Account | trial balance | balance |
| Office supplies | 190 | $\$ 55$ |
| Accumulated depreciation - truck | 0 | 400 |
| Prepaid insurance | 850 | 610 |
| Interest payable | 0 | 100 |
| Unearned rent | 1,000 | 500 |

Required: Prepare in general journal format the entries that were posted, including a plausible description. General ledger account numbers are not necessary.

## CP 3-6

The following data are taken from an unadjusted trial balance at December 31, 2018:

| Prepaid rent | $\$ 600$ |
| :--- | ---: |
| Office supplies | 700 |
| Unearned commissions revenue | 1,500 |
| Salaries expense |  |
|  | $5,000-$ |

## Additional Information:

a. The prepaid rent consisted of a payment for three months' rent at $\$ 200$ per month for December 2018, January 2019, and February 2019.
b. Office supplies on hand at December 31, 2018 amounted to $\$ 300$.
c. All but $\$ 500$ in the Unearned Commissions account has been earned in 2018.
d. Salaries for the last three days of December amounting to $\$ 300$ have not yet been recorded.

## Required:

1. Prepare all necessary adjusting entries in general journal format at December 31, 2018. General ledger account numbers are not necessary.
2. Calculate the cumulative financial impact on assets, liabilities, owners' equity, revenue and expense if these adjusting entries are not made.

CP 3-7
The following are general ledger accounts extracted from the records of Bernard Co. at December 31, 2018, its year-end ('UB' = unadjusted balance):


Required: Prepare in general journal format the adjusting entries that were posted. Include general ledger account and plausible descriptions.

## CP 3-9

The trial balance of Lauer Corporation at December 31, 2018 follows, before and after the posting of adjusting entries.

| Acct No. | Account | Unadjusted trial balance |  | Adjustments | Adjusted trial balance |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Debit | Credit | Debit Credit | Debit | Credit |
| 101 | Cash | \$ 4,000 |  |  | \$ 4,000 |  |
| 110 | Accounts receivable | 5,000 |  |  | 5,000 |  |
| 161 | Prepaid insurance | 3,600 |  |  | 3,300 |  |
| 162 | Prepaid rent | 1,000 |  |  | 500 |  |
| 184 | Truck | 6,000 |  |  | 6,000 |  |
| 194 | Acc. dep. - truck |  |  |  |  | \$1,500 |
| 210 | Accounts payable |  | \$7,000 |  |  | 7,000 |
| 222 | Interest payable |  |  |  |  | 400 |
| 226 | Salaries payable |  |  |  |  | 1,000 |
| 248 | Unearned rent revenue |  | 1,200 |  |  | 600 |
| 320 | Owner capital |  | 2,700 |  |  | 2,700 |
| 440 | Rent Revenue |  | 25,000 |  |  | 25,600 |
| 610 | Advertising expense | 700 |  |  | 700 |  |
| 615 | Commissions expense | 2,000 |  |  | 2,000 |  |
| 624 | Dep. expense - truck |  |  |  | 1,500 |  |
| 631 | Insurance expense |  |  |  | 300 |  |
| 632 | Interest expense | 100 |  |  | 500 |  |
| 654 | Rent expense | 5,500 |  |  | 6,000 |  |
| 656 | Salaries expense | 8,000 |  |  | 9,000 |  |
|  | Totals | \$35,900 | \$35,900 |  | \$38,800 | \$38,800 |

## Required:

1. Indicate in the "Adjustments" column the debit or credit difference between the unadjusted trial balance and the adjusted trial balance.
2. Prepare in general journal format the adjusting entries that must have been recorded.

Link to Original

The following general ledger accounts and additional information are taken from the records of Wolfe Co. at the end of its fiscal year, December 31, 2018.

## Additional information:

a. The prepaid insurance is for a one-year policy, effective July 1, 2018.
b. A physical count indicated that $\$ 500$ of supplies is still on hand.
c. $\$ 50$ of December rent expense has not been recorded.


## Required:

1. Record all necessary adjusting entries in general journal format including general ledger account numbers. Assume the following account numbers: Insurance Expense: 631; Supplies Expense: 668.
2. Post the adjusting entries to T -accounts and calculate balances.

## Problems

## P 3-1

The following unrelated accounts are removed from the trial balance of Meekins Limited at December 31, its fiscal year-end:

|  | Balance |  |
| :--- | ---: | ---: |
| Account | Unadjusted | Adjusted |
| a. Prepaid rent | 300 | 600 |
| b. Wages payable | 500 | 700 |
| c. Income taxes payable | $-0-$ | -0 |
| d. Unearned repair revenue | 2,000 | 3,000 |
| e. Unearned rent revenue | 5,000 | 20,000 |
| f. Advertising expense | $-0-$ | 3,500 |
| g. Depreciation expense - equipment | 850 | 500 |
| h. Supplies expense | 4,000 | 625 |
| i. Gas expense |  | 4,500 |

Required: For each of the above accounts, prepare the most likely adjusting entry, including plausible descriptions.

## P 3-2

The unadjusted trial balance of Lukas Films Co. includes the following account balances at December 31, 2018, its fiscal year-end. Assume all accounts have normal debit or credit balances as applicable.

| Prepaid rent | $\$ 1,500$ |
| :--- | ---: |
| Equipment | 2,400 |
| Unearned advertising revenue | 1,000 |
| Insurance expense | 900 |
| Supplies expense | 600 |
| Telephone expense | 825 |
| Wages expense | 15,000 |

The following information applies at December 31:
a. A physical count of supplies indicates that $\$ 300$ of supplies have not yet been used at December 31.
b. A $\$ 75$ telephone bill for December has been received but not recorded.
(C) (8)

Link to Original
c. One day of wages amounting to $\$ 125$ remains unpaid and unrecorded at December 31; the amount will be included with the first Friday payment in January.
d. The equipment was purchased December 1; it is expected to last 2 years. No depreciation has yet been recorded.
e. The prepaid rent is for December 2018, and January and February 2019; rent is $\$ 500$ per month.
f. Half of the advertising revenue has been earned at December 31.
g. The $\$ 900$ amount in Insurance Expense is for a one-year policy, effective July 1, 2018.

Required: Prepare all necessary adjusting entries at December 31, 2018.

Following is the unadjusted trial balance of Pape Pens Co. at the end of its first year of operations, December 31, 2018:

| Acct. | Balance |  |  |
| :---: | :--- | ---: | ---: |
| No. | Account |  | 3,300 |
| 101 | Cash | Debit |  |
| 110 | Accounts receivable | 1,2000 |  |
| 161 | Prepaid insurance | 500 |  |
| 173 | Supplies | 8,000 |  |
| 184 | Truck |  | $-0-$ |
| 194 | Acc. dep. - truck |  | 5,000 |
| 210 | Accounts payable |  | $-0-$ |
| 226 | Salaries payable |  | 2,400 |
| 248 | Unearned rent revenue | $-0-$ |  |
| 260 | Taxes payable |  | 7,000 |
| 320 | Owner capital |  |  |
| 350 | Drawing |  | 16,100 |
| 410 | Commissions Revenue | 200 | $-0-$ |
| 440 | Rent earned | -00 |  |
| 610 | Advertising expense | $-0-$ |  |
| 615 | Commissions expense | 400 |  |
| 624 | Dep. expense - truck | 3,600 |  |
| 631 | Insurance expense | 7,000 |  |
| 632 | Interest expense | $-0-$ |  |
| 654 | Rent expense | 300 |  |
| 656 | Salaries expense | $-0-$ |  |
| 668 | Supplies expense | 30,500 | 30,500 |
| 669 | Telephone expense |  |  |

The following additional information is available:
a. Prepaid insurance at December 31 amounts to $\$ 600$.
b. A physical count indicates that $\$ 300$ of supplies is still on hand at December 31.
c. The truck was purchased on July 1; it has an estimated useful life of 4 years.
d. One day of salaries for December 31 is unpaid; the unpaid amount of $\$ 200$ will be included in the first Friday payment in January.
e. The balance in the Unearned Rent Revenue account represents six months rental of warehouse space, effective October 1.
f. A $\$ 100$ bill for December telephone charges has not yet been recorded.

## Required:

1. Prepare all necessary adjusting entries at December 31, 2018.
(c) (i)

Link to Original
Link to Original
2. Prepare an adjusted trial balance at December 31, 2018.
3. Prepare an income statement, statement of owners' equity, and balance sheet.

## P 3-6

Roth Contractors Co. was incorporated on December 1, 2018 and had the following transactions during December:

## Part A

a. Invested $\$ 5,000$ cash in a new business
b. Paid $\$ 1,200$ cash for three months' rent: December 2018; January and February 2019
c. Purchased a used truck for $\$ 10,000$ on credit (recorded as an account payable)
d. Purchased $\$ 1,000$ of supplies on credit.
e. Paid $\$ 1,800$ for a one-year truck insurance policy, effective December 1
f. Billed a customer $\$ 4,500$ for work completed to date
g. Collected $\$ 800$ for work completed to date
h. Paid the following expenses in cash: advertising, $\$ 350$; interest, $\$ 100$; telephone, $\$ 75$; gas, $\$ 425$; wages, $\$ 2,500$
i. Collected $\$ 2,000$ of the amount billed in $\boldsymbol{f}$ above
j. Billed customers $\$ 6,500$ for work completed to date
k. Signed a $\$ 9,000$ contract for work to be performed in January 2019
l. Paid the following expenses: advertising, \$200; interest, \$150; gas, \$375; wages, \$2,500
m. Collected a $\$ 2,000$ advance on work to be done in January
n. Received a bill for $\$ 100$ for electricity used during the month (recorded as utilities expense).

## Required:

1. Chart of accounts: Cash, Accounts Receivable, Prepaid Insurance, Supplies, Prepaid Rent, Truck, Accounts Payable, Owner Capital, Repair Revenue, Advertising Expense, Interest Expense, Telephone Expense, Gas Expense, Utilities Expense, and Wages Expense.
2. Prepare journal entries to record the December transactions.
3. Post the entries to general ledger T-accounts.

## Part B

The following information relates to December 31, 2018:
o. One month of the prepaid insurance has expired.
p. The December portion of the rent paid on December 1 has expired.
q. A physical count indicates that $\$ 350$ of supplies is still on hand.
r. The amount collected in transaction $m$ is unearned at December 31.
s. Three days of wages for December 29, 30, and 31 are unpaid; the unpaid amount of $\$ 1,500$ will be included in the first wages payment in January.
t. The truck has an estimated useful life of 4 years.

## Required:

4. Open additional general ledger T-accounts for the following: Supplies Expense, Accumulated Depreciation, Wages Payable, Unearned Revenue, Depreciation Expense, Insurance Expense, and Rent Expense.
5. Prepare all necessary adjusting entries.
6. Post the entries to general ledger T-accounts and calculate balances.
7. Prepare an adjusted trial balance at December 31.
8. Assume the fiscal year-end is December 31, 2018. Prepare an income statement, statement of owners' equity, and balance sheet.

## P 3-7

The Brown Company began operations on January 1, 2017. The owner, Joe Brown provided you with the following unadjusted trial balance as of January 31, 2017. He has asked for your help in developing the required end of month adjusting journal entries.

## The Brown Company

Trial Balance
January 31, 2017

| Accounts | Debit | Credit |
| :--- | :--- | :---: |
| Cash | $\$ 4,700$ |  |
| A/R | 2,100 |  |
| Supplies | 1,800 |  |
| P/P Rent | 6,000 |  |
| Equipment | 12,600 | $\$ 1,400$ |
| Accum. Depr. - Equip. |  | 2,800 |
| A/P |  | 15,000 |
| Unearned Revenue |  |  |
| J. Brown, Capital | 500 | 8,500 |
| J. Brown, Drawing |  | $\underline{\mathbf{\$ 2 7 , 7 0 0}}$ |
| Service Revenue | $\underline{\mathbf{\$ 2 7 , 7 0 0}}$ |  |

## In addition, the following adjusting information was provided.

a) The P/P Rent covers a 6 - month period that began on January 1.
b) At the end of the month, an inventory shows only $\$ 800$ of supplies is on hand.
c) $\$ 400$ of the unearned revenue has been earned by the end of January.
d) $\$ 2,650$ of revenue has been earned but the customers have not been billed as of the end of January.
e) Unpaid salaries and wages at the end of January total \$950.
f) A utilities expense incurred but not yet paid on January 31, 2017 for $\$ 450$.

## Required:

Prepare the required adjusting journal entries for the end of January 2017.

## CHAPTER 4

## The Classified Balance Sheet and Accounting Cycle

## CHAPTER FOUR

## The Classified Balance Sheet and Accounting Cycle

At the end of the accounting period, after financial statements have been prepared, it is necessary to close temporary accounts to owners' capital. This process is introduced in this chapter, as is the preparation of a post-closing trial balance. The accounting cycle the steps performed each accounting period to produce financial statements - is also reviewed.

Chapter 4 expands upon the content and presentation of financial statements. It reinforces what has been learned in previous chapters and introduces the classification or grouping of accounts on the balance sheet.

## Chapter 4 Learning Objectives

L01 - Define the accounting cycle.
LO2 - Identify and explain the steps in the accounting cycle.
LO3 - Explain the purpose of closing entries and use closing entries
to prepare a post-closing trial balance.
L04 - Explain the importance of financial statement disclosure.
LO5 - Explain and prepare a classified balance sheet.

## A. The Accounting Cycle

LO1 - Identify and explain the steps in the accounting cycle.

Step 1:
Transactions are analysed and journalized.

## Step 2:

Transactions are posted to the appropriate general ledger accounts.

The accounting cycle is the process used to convert economic data into financial statement information using the double-entry accounting model. The complete accounting cycle consists of eight steps:

Step 1: Transactions are analysed and recorded in the general journal.

Step 2: The journal entries in the general journal are posted to accounts in the general ledger.

| Date | Description | Folio | Debit | Credit |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| GENERAL LEDGER |  |  |  |  |  |  |
| Name of Account |  |  |  |  |  |  |

Acct. No.

| Date |  | Description | Folio | $\downarrow$ <br> Debit | $\downarrow$ <br> Credit | DR <br> CR | Balance |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Step 3: An unadjusted trial balance is prepared to ensure total debits equal total credits.

Step 3: A trial balance is prepared, to prove the equality of the debits and credits.

Example<br>Trial Balance

Acct.
No. 101 Cash 110 Accounts receivable 201 Account payable

Account

| Debit | Credit |
| ---: | ---: |
| xxx |  |
| xxx |  |
|  | xxx |

xxx

$\overline{\text { Total }} \xlongequal{\overline{\text { Total }}}$
Step 4: The unadjusted account balances are analysed and adjusting entries are journalized in the general journal and posted to the general ledger.

Step 5: An adjusted trial balance is prepared to prove the equality of debits and credits.

Step 6: The adjusted trial balance is used to prepare financial statements.

Step 7: Closing entries are journalized and posted.
Step 8: A post-closing trial balance is prepared.

## The Accounting Cycle



## B. The Closing Process

LO3 - Explain the purpose of closing entries and use closing entries to prepare a postclosing trial balance

At the end of a fiscal year after steps 1-6 of the accounting cycle have been completed and financial statements have been prepared, the revenue, expense, and drawing account balances must be zeroed so that they can begin to accumulate amounts belonging to the new fiscal year. To accomplish this, closing entries are journalized and posted. Closing entries transfer each revenue and expense account balance, as well as any balance in the Drawing account, into owners' capital. Revenues, expenses, and drawing are therefore referred to as temporary accounts because their
balances are zeroed at the end of each accounting period. Balance sheet accounts such as Cash and owners' capital, are permanent accounts because they have a continuing balance from one fiscal year to the next. The closing process transfers temporary account balances into the owners' capital account. A temporary closing account called the Income Summary is used. The four entries in the closing process are detailed below.

## Entry 1: Close the revenue accounts to the Income Summary account

A single closing entry is used to transfer all revenue account (credit) balances to the Income Summary account. All revenue accounts with a credit balance are debited to bring them to zero. Their balances are transferred to the Income Summary account as an offsetting credit.

## Entry 2: Close the expense accounts to the Income Summary account

A single closing entry is used to transfer all expense account (debit) balances to the Income Summary account. All expense accounts with a debit balance are credited to bring them to zero. Their balances are transferred to the Income Summary account as an offsetting debit.

The Drawing account is not closed to the Income Summary account because this is not an income statement account. The Drawing account is closed in Entry 4 directly to the owners' capital account.

After entries 1 and 2 above are posted to the Income Summary account, a new balance is calculated for the Income Summary account. If net income is reported on the income statement, the balance in the Income Summary should be a credit; if a net loss has been reported, the balance will be a debit. If the income summary balance does not match the net income or loss reported on the income statement, the revenues and expenses have not been closed correctly.

## Entry 3: Close the Income Summary account to Owners' Capital account

The balance in the Income Summary account is transferred to the owners' capital account because the net income belongs to the owners' equity. An equal and offsetting entry (a debit in the case of net income) is made to the Income Summary account to bring its balance to zero. The same amount is credited to the Owners' capital account. Again, the amount must always equal the net income reported on the income statement.

## Entry 4: Close the Drawing account to Owners' Capital

The Drawing account is closed to the Owners' capital account. This results in transferring the balance in drawing, a temporary account, to owners' capital, a permanent account.

The closing entries for Big Dog Carworks are shown in Figure 4-6.
These are for illustrative purposes only. Closing entries are only done at the fiscal year-end.

GENERAL JOURNAL
Page 2

| Date | Description <br> Closing Entries <br> (1) |  | Folio | Debit |
| :--- | :--- | ---: | ---: | ---: | Credit

Tax Expense 830
To close expense account balances.
(3)

Jan. 31 Income Summary 360
Owners' Capital 340
To close Income Summary.

Jan. 31 Owners' Capital
Drawing
To close drawing to owners' capital.
(4)
$360 \quad 200$
350

This amount must agree to the net income shown on the income statement.

Figure 4-6 Closing Entries for BDC at January 31, 2017 for illustrative purposes

## Posting the Closing Entries to the General Ledger

When entries 1 and 2 are posted to the general ledger, the balances in all revenue and expense accounts are transferred to the Income Summary account. The transfer of these balances is shown in Figure $4-7$. Notice that a zero balance results for each revenue and expense account after the closing entries are posted, and there is a $\$ 1,932$ credit balance in the income summary. The income summary balance agrees to the net income reported on the income statement.

Closing Expense Accounts

| Dep'n Expense - Equip. 623 |  |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Bal. | 25 | 25 |  |
| Bal. | $-0-$ |  |  |
| Dep'n Expense - Truck. | 624 |  |  |
| Bal. | 100 | 100 |  |
| Bal. | $-0-$ |  |  |
| Insurance Expense |  |  |  |
| Bal. | 200 | 200 |  |
| Bal. | $-0-$ |  |  |

Interest Expense $\quad 632$

| Interest Expense |  |  |  |
| :--- | ---: | ---: | ---: |
| Bal. | 18 | 18 |  |
| Bal. | $-0-$ |  |  |


| Rent Expense |  |  |
| :--- | ---: | ---: |
| Bal. | 1,600 | 1,600 |
| Bal. | $-0-$ |  |


| Salaries Expense |  |  |
| :--- | ---: | ---: |
| Bal. | 4,150 | 4,150 |
| Bal. | $-0-$ |  |


| Supplies Expense |  |  |
| :--- | ---: | ---: |
| Bal. | 1,500 | $1,500-$ |
| Bal. | $-0-$ |  |


| Gas Expense |  |  | 670 |
| :--- | :---: | :---: | :---: |
| Bal. | 700 | 700 | - |
| Bal. | $-0-$ |  |  |


| Taxes Expense |  |  |  |
| :--- | ---: | ---: | ---: |
| Bal. | 500 | 500 | - |
| Bal. | $-0-$ |  |  |



Figure 4-7 Closing Revenue and Expense Accounts

When the income summary is closed to owners' capital in the third closing entry, the $\$ 1,932$ credit balance in the income summary account is transferred into owners' capital as shown in Figure 4-8. As a result, the income summary is left with a zero balance.
Income $360 \quad$ Owners' Capital 340

Summary

|  | 8,793 | 10,725 |  |
| :--- | ---: | ---: | ---: |
|  |  |  |  |
| Bal. | 1,932 | 1,932 | Bal. |


|  | $1,932 \quad \longleftarrow$ |
| :--- | :--- |

Figure 4-8 Closing the Income Summary Account
Finally, when drawing is closed to owners' capital in the fourth closing entry, the $\$ 200$ debit balance in the Drawing account is transferred into owner capital as shown in Figure 4-9. After the closing entry is posted, the Drawing account is left with a zero balance and owners' capital is left with a credit balance of $\$ 1,857$.

| Drawing 350 | Owners' <br> Capital | 340 |
| :--- | :--- | :--- |


|  |  |  |  |  |
| :---: | :---: | :---: | :---: | :--- |
|  | 200 | $200 \longrightarrow$ |  |  |
| Bal. | $-0-$ |  |  | 1,932 |

Figure 4-9 Closing the Dividends Account

## The Post-Closing Trial Balance

This amount must agree to the owner capital balance calculated on the statement of owners' equity.

A post-closing trial balance is prepared immediately following the posting of closing entries. The purpose is to ensure that the debits and credits in the general ledger are equal and that all temporary accounts have been closed. The post-closing trial balance for Big Dog Carworks appears below.


## C. Financial Statement Disclosure Decisions

LO4 - Explain the importance of financial statement disclosure.

Financial statements communicate information, with a focus on the needs of financial statement users such as a company's investors and creditors. Accounting information should make it easier for management to allocate resources and for shareholders to evaluate management. A key objective of financial statements is to fairly present the entity's economic resources, obligations, equity, and financial performance.

Fulfilling these objectives is challenging. Accountants must make a number of subjective decisions about how to apply generally
accepted accounting principles. For example, they must decide how to measure wealth and how to apply recognition criteria. They must also make practical cost-benefit decisions about how much information is useful to disclose. Some of these decisions are discussed in the following section.

## Making Accounting Measurements

Economists often define wealth as an increase or decrease in the entity's ability to purchase goods and services. Accountants use a more specific measurement-they consider only increases and decreases resulting from actual transactions. If a transaction has not taken place, they do not record a change in wealth.

The accountant's measurement of wealth is shaped and limited by the assumptions underlying generally accepted accounting principles that were introduced and discussed in Chapter 1. These included the use of historical cost, matching expenses to revenues or the period in which they are incurred, and assumptions about a stable monetary unit, a separate business entity, revenue recognition, , and going concern. These assumptions mean that accountants record transactions in one currency (for example, dollars), currency retains its purchasing power, and changes in market values of assets are generally not recorded.

Economists, on the other hand, make different assumptions. They often recognize changes in market value of assets. For example, if an entity purchased land for $\$ 100,000$ that subsequently increased in value to $\$ 125,000$, economists would recognize a $\$ 25,000$ increase in wealth. International Financial Reporting Standards generally do not recognize this increase until the entity actually disposes of the asset; accountants would continue to value the land at its $\$ 100,000$ purchase cost. This practice is based on the application of the historical cost principle, which is a part of GAAP.

## D. Classified Balance Sheet

LO5 - Explain and prepare a classified Balance Sheet.

The accounting cycle and double-entry accounting have been the focus of the preceding chapters. This chapter focuses on the presentation of financial statements, including how financial information is classified (the way accounts are grouped) and what is disclosed.

A common order for the presentation of financial statements is:

1. Income statement
2. Statement of owners' equity
3. Balance Sheet
4. Statement of cash flows

In addition, the financial statements are often accompanied by an auditor's report and a statement entitled "Management's Responsibility for Financial Statements. Financial statement information must be disclosed for the most recent year as well as the prior year for comparison purposes.

Because external users of financial statements have no access to the entity's accounting records, it is important that financial statements be organized in a manner that is easy to understand. Thus, financial data are usually grouped into useful, similar categories within classified financial statements, as discussed below.

## The Classified Balance Sheet

A classified balance sheet organizes the asset and liability accounts into categories. The previous chapters used an unclassified balance sheet which included only three broad account groupings: assets, liabilities, and owners' equity. The classification of asset and liability accounts into meaningful categories is designed to facilitate the analysis of balance sheet information by external users. Assets and liabilities are classified as either current or non-current.

## Current Assets

Current assets are those resources that the entity expects to convert to cash or consume during the next fiscal year. Examples of current assets include:

- cash, comprising paper currency and coins, deposits at bank and money orders.
- short-term investments, cash that is invested in interest-bearing deposits.
- accounts receivable that are due to be collected within one year.
- notes receivable, account receivables with formalized, written promises to pay specified amounts with interest, and due to be collected within one year.
- merchandize inventory that is expected to be sold within one year.

The current asset category also includes accounts whose future benefits are expected to expire within one fiscal year, such as:

- prepaid expenses, usually consisting of advance payments for insurance, rent, and similar items.
- supplies on hand at the end of an accounting year that will be used during the next year.

Current assets are normally reported before non-current assets on the balance sheet. They are listed by decreasing levels of liquidity their ability to be converted into cash. Therefore, cash appears first under the current asset heading.

## Non-current Assets

Non-current assets are assets that will be useful for more than one year; they are often referred to as long-lived assets. Non-current assets include property, plant, and equipment (PPE) - items used to conduct the operations of the business. Some examples of PPE are: land, buildings, equipment, and motor vehicles.

Other types of non-current assets include long-term investments and intangible assets. Long-term investments include notes receivable that will be paid by customers over a period greater than one fiscal year and investments and debt of other companies that will be held for more than one year. Intangible assets are resources that do not have a physical form and whose value comes from the rights held by the owner. They are used over the long term to produce or sell products and services and include copyrights, patents, trademarks, and franchises. These types of assets will be discussed in detail in a later chapter.

## Current Liabilities

Current liabilities are obligations that must be paid within the next fiscal year. They are shown first in the liabilities section of the balance sheet and listed in order of their due dates. Examples of current liabilities include:

- bank loans (or borrowings) that are payable on demand or due within the next 12 months
- accounts payable
- accrued liabilities such as interest payable, wages payable, and taxes payable
- unearned revenue, and
- the current portion of non-current liabilities; that is, the amount that will be paid in the next fiscal year. For example, assume a $\$ 30,000$ bank loan is issued on December 31, 2017 and this amount is to be repaid at the rate of $\$ 1,000$ at the end of each month over two years. The current portion of this loan on the December 31, 2017 balance sheet would be $\$ 12,000$ (calculated as 12 months $X \$ 1,000 /$ month $)$. The remaining principal $(\$ 18,000)$ would be reported on the December 31, 2017 balance sheet as a non-current liability.


## Non-Current or Long-Term Liabilities

Non-current liabilities, also referred to as long-term liabilities, are borrowings that do not require repayment for more than one year. Examples include a bank loan (as noted above, minus the current portion). A mortgage is a liability that is secured by real estate.

## Owners' Equity

As discussed in prior chapters, the owners' equity section of the classified balance sheet provides information about how the equity balance change during the period.

## Presentation of the balance sheet

The balance sheet can be presented in the account form where liabilities and equities are presented to the right of the assets. An alternative is the report form where liabilities and owners' equity are presented below the assets. The following illustrates the classified balance sheet of Big Dog Carworks after several years of operation, presented in account form:


The statement of owners' equity is as follows:

## Big Dog Carworks

Statement of Owners' Equity
For the Year Ended December 31, 2020

| Balance at January 1, 2019 | $\$ 21,000$ |
| :--- | ---: |
| 2019 net income | 15,000 |
| Drawing | $\underline{(3,250)}$ |
| Balance at December 31, 2019 | $\mathbf{3 2 , 7 5 0}$ |
| 2020 net income | $\underline{(9,250})$ |
| Drawing | $\underline{\underline{\mathbf{\$ 4 3}, 500}}$ |

## The Classified Income Statement

Recall that the income statement summarizes a company's revenues less expenses over a period of time. An income statement for BDC was presented in the first few pages of Chapter 1:

Big Dog Carworks
Income Statement
For the Month Ended January 31, 2017
Revenue
Repairs $\$ 10,000$

| Expenses |  |
| :--- | ---: |
| $\quad$ Rent | $\$ 1,600$ |
| Salaries | 3,500 |
| Supplies | 2,000 |
| Gas | 700 |
| $\quad$ Total expenses |  |
| Net income | $\mathbf{7 , 8 0 0}$ |
|  |  |
|  |  |
|  |  |

Link to Origina

## Summary of Chapter 4 Learning Objectives

L01 - Identify and explain the steps in the accounting cycle.
The steps in the accounting cycle are:
Steps occurring continually during the fiscal year:

1. Transactions are analyzed and recorded in the general journal.
2. The journal entries in the general journal are posted to accounts in the general ledger.
Steps occurring whenever interim or year-end financial statements are prepared at the end of an accounting period
3. An unadjusted trial balance is prepared to ensure total debits equal total credits.
4. The unadjusted account balances are analyzed, and adjusting entries are journalized in the general journal and posted to the general ledger.
5. An adjusted trial balance is prepared to prove the equality of debits and credits.
6. The adjusted trial balance is used to prepare financial statements.

Steps occurring only at the fiscal year-end
7. Closing entries are journalized and posted.
8. A post-closing trial balance is prepared.

## LO2 - Explain the purpose of closing entries and use closing entries to prepare a post-closing trial balance.

After the financial statements have been prepared, the temporary account balances (revenues, expenses, and drawing) are transferred to owners' capital, a permanent account, via closing entries. The result is that the temporary accounts will have a zero balance and will be ready to accumulate transactions for the next accounting period.

The general forms of the four closing entries are:
(1)

| Dec. 31 | Revenue <br> Income Summary | XX |  |
| :--- | :--- | :--- | :--- |
|  |  | XX |  |
|  | To close revenue account balances to |  |  |
|  | the Income Summary account. |  |  |

(2)

| Dec. 31 | Income Summary <br> Expense | YY |  |
| :--- | :--- | :--- | :--- |
|  | To close expense account balances to |  | YY |
|  | the Income Summary account. |  |  |

(3)

| Dec. 31 | Income Summary | ZZ |  |
| :--- | :--- | :--- | :--- |
|  | Owners' Capital |  | ZZ |
|  | To close the Income Summary account |  |  |
|  | balance to Owners' Capital (ZZ = XX - |  |  |
|  | YY; ZZ must equal net income). ${ }^{1}$ |  |  |

Dec. 31 Owners' Capital Drawing

AA To close the Drawing account to Owners' Capital.

The post-closing trial balance is prepared after the closing entries have been posted to the general ledger. The post-closing trial balance will contain only permanent accounts because all the temporary accounts have been closed.

[^1]Dec. 31 Owners' Capital XXX
Income Summary
XXX
To close the Income Summary account balance to Owners' Capital

## L01 - Explain the importance of financial statement disclosure.

The objective of financial statements is to communicate information to meet the needs of external users. In addition to recording and reporting verifiable financial information, accountants make decisions regarding how to measure transactions. Applying GAAP can present challenges when judgment must be applied as in the case of cost-benefit decisions and materiality considerations.

## L03 - Explain and prepare a classified balance sheet.

A classified balance sheet groups assets and liabilities as follows:

| Assets | Liabilities |
| :--- | :--- |
| Current assets | Current liabilities |
| Non-current assets: | Non-current or long-term |
| Property, plant, and | liabilities |
| $\quad$ equipment |  |
| Long-term investments |  |
| Intangible assets |  |

Current assets are those that are used within one year or one operating cycle, whichever is longer, and include cash, accounts receivables, and unused supplies. Non-current assets have benefits beyond one fiscal year, or are not expected to be converted to cash within one fiscal year or one operating cycle, whichever is longer. There are three types of non-current assets: property, plant, and equipment (PPE), long-term investments, and intangible assets. Long-term investments include holdings of shares and debt of other companies. Intangible assets are rights held by the owner and do not have a physical substance; they include copyrights, patents, franchises, and trademarks. Current liabilities must be paid within one year or one operating cycle, whichever is longer. Non-current liabilities are due beyond one year or one operating cycle, whichever is longer.

## ASSIGNMENTMATERIALS

## Concept Self-check

1. List the eight steps in the accounting cycle.
2. Which steps in the accounting cycle occur continuously throughout the accounting period?
3. Which steps in the accounting cycle occur at the end of the fiscal year? Explain how they differ from the other steps.
4. Identify which types of general ledger accounts are temporary and which are permanent.
5. What is the Income Summary account and what is its purpose?
6. What are the four types of closing entries, and why are they journalized?
7. Why is the Drawing account not closed to the Income Summary account when closing entries are prepared?
8. What is a post-closing trial balance and why is it prepared?
9. What are current assets?
10. What are non-current assets?
11. What are current liabilities?
12. What are non-current liabilities?

## Comprehension Problems

CP 4-1

The following list of accounts is taken from the records of the Viking Company at December 31, 2018:

| Account | Balance |
| :--- | ---: |
| Accounts payable | $\$ 200$ |
| Accounts receivable | 100 |
| Notes payable, due within 90 days | 500 |
| Building | 1,000 |
| Cash | 20 |
| Equipment | 500 |
| Land | 2,000 |
| Mortgage payable (due 2021) | 1,500 |
| Notes receivable, due within 90 days | 40 |
| Prepaid insurance | 30 |
| Salaries payable | 60 |
| Owners' capital | $?$ |
| Supplies | 10 |

Required: Prepare a classified balance sheet. Assume all accounts have normal balances.

CP 4-2 Sarah Lee Company had the following adjusted trial balance.
Sarah Lee Co.
Income Statement
For the Month Ended January 31, 2017

| Revenues |  |  |
| :--- | ---: | ---: |
| $\quad$ Repairs |  | $\$ 10,000$ |
| Expenses | $\$ 1,600$ |  |
| $\quad$ Rent | 4,000 |  |
| Salaries | 1,500 |  |
| Supplies | 700 |  |
| Gas |  | 7,800 <br> $\quad$ Total expenses |
| Net income |  |  |

Required: Prepare closing entries at January 31, 2017.

## Problems

## P 4-1

Miller Company ended its fiscal year on June 30, 2017. The company's adjusted trial balance as of the end of its fiscal year is shown below.

MILLER COMPANY
Adjusted Trial Balance
June 30, 2017

| Cash | $\$ 9,840$ |  |
| :--- | :--- | ---: |
| Account Receivable | 8,780 |  |
| Equipment | 15,900 |  |
| Accumulated Depr. - Equip. |  | $\$ 7,400$ |
| Account payable |  | 4,220 |
| Unearned Rent Revenue |  | 1,800 |
| Owners' Capital |  | 45,200 |
| Drawing |  |  |
| Service Revenue | 8,000 | 64,000 |
| Rent Revenue | 55,700 |  |
| Depreciation expense | $\mathbf{1 4 , 9 0 0}$ |  |
| Salaries expense | $\mathbf{\$ 1 2 9 , 1 2 0}$ | $\mathbf{\$ 1 2 9 , 1 2 0}$ |
| Utilities expense |  |  |
|  |  |  |

## Required:

1. Prepare the closing entries using page J15.
2. Post to Owner's Capital and Income Summary accounts.
3. Prepare a post-closing trial balance at June 30.

## P 4-2

The adjusted trial balance of James Moore Advertising Services, at December 31,2018.

MOORE COMPANY
Adjusted Trial Balance
December 31, 2018

| Cash | \$6,000 |  |
| :---: | :---: | :---: |
| Account Receivable | 6,300 |  |
| Office Supplies | 200 |  |
| Land | 10,000 |  |
| Building | 42,000 |  |
| Accumulated Depr. - Build. |  | \$24,000 |
| Equipment | 8,000 |  |
| Accumulated Depr. - Equip. |  | 6,000 |
| Account payable |  | 2,000 |
| Salaries payable |  | 500 |
| Unearned Revenue |  | 5,000 |
| Notes payable (long term) |  | 7,000 |
| Owners' Capital |  | 12,000 |
| Drawing | 25,000 |  |
| Service Revenue |  | 64,300 |
| Depreciation expense - Building | 1,000 |  |
| Depreciation expense - Equip. | 2,000 |  |
| Salaries expense | 16,500 |  |
| Supplies expense | 800 |  |
| Advertising expense | 3,000 |  |
| Total | \$120,800 | \$120,800 |

By K. Kourani

## Requirements:

1. Prepare the income statement and the statement of owner's equity for the year ended December 31, 2018.
2. Prepare the classified balance sheet at December 31, 2018.
3. Journalize and post the closing entries.
4. Prepare a post-closing trial balance at December 31, 2018.

## P 4-3

Smart Company has an inexperienced accountant. During the first month on the job, the accountant made the following errors in journalizing transactions. All entries were posted as made.

1. A payment on account of $\$ 950$ to a creditor was debited to Accounts Payable \$590 and credited to Cash \$590.
2. The purchase of supplies on account for $\$ 560$ was debited to Computer $\$ 56$ and credited to Accounts Payable \$56.
3. A $\$ 800$ withdrawal of cash for N. Smart's personal use was debited to Rent Expense $\$ 800$ and credited to Cash $\$ 800$.

## Required:

Prepare the correcting entries.

## CHAPTER 5

Accounting for the Sale of Goods

## CHAPTER FIVE

## Accounting for the Sale of Goods

To this point, examples of business operations have involved the sale of services. This chapter introduces business operations based on the purchase and resale of goods. For example, Best Buy and Walmart each purchase and resell goods-such businesses are known as merchandisers. The accounting transactions for merchandising companies differ from those of service-based businesses. Chapter 5 covers accounting for transactions of sales of goods on credit and related cash collections by merchandising firms, and transactions involving purchases and payments for goods sold in the normal course of business activities.

## Chapter 5 Learning Objectives

L01 - Describe merchandising and explain the financial statement components of sales, cost of goods sold, merchandise inventory, and gross profit; differentiate between the perpetual and periodic inventory systems.
LO2 - Analyze and record purchase transactions for a merchandiser.

L03 - Analyze and record sales transactions for a merchandiser.
L04 - Record adjustments to merchandise inventory.
LO5 - Explain and prepare a classified multiple-step income statement for a merchandiser.
L06 - Explain the closing process for a merchandiser.
L07 - (Appendix) Explain and identify the entries to record purchase and sales transactions in a periodic inventory system.

## A. The Basics of Merchandising

LO1 - Describe merchandising and explain the financial statement components of sales, cost of goods sold, merchandise inventory, and gross profit; differentiate between the perpetual and periodic inventory systems.

A merchandising company, or merchandiser, differs in several basic ways from a company that provides services. First, a merchandiser purchases and then sells goods whereas a service company sells services. For example, a car dealership is a merchandiser that sells cars while an airline is a service company that sells air travel. Because merchandising involves the purchase and then the resale of goods, an expense called cost of goods sold results. Cost of goods sold is the purchase price of items that are then re-sold to customers. For example, the cost of goods sold for a car dealership would be the cost of the cars purchased from the manufacturer. A service company does not have an expense called cost of goods sold since it does not sell physical items. As a result, the income statement for a merchandiser includes different details. A merchandising income statement highlights cost of goods sold by showing the difference between sales revenue and cost of goods sold, which is called gross profit or gross margin. The basic income statement differences between a service business and a merchandiser are illustrated in Figure 5-1.


Figure 5-1 Differences Between the Income Statements of Service and Merchandising Companies

Assume that Excel Cars Company decides to go into the business of buying used vehicles from a supplier and reselling these to customers. If Excel purchases a vehicle for $\$ 2,000$ and then sells it for $\$ 3,000$, the gross profit would be $\$ 1,000$, as follows:


The word "gross" is used by accountants to indicate that other expenses incurred in running the business must still be deducted from this amount before net income is calculated. In other words, gross profit represents the amount of sales revenue that remains to pay expenses after the cost of the goods sold is deducted.

A gross profit percentage can be calculated to express the relationship of gross profit to sales. The sale of the vehicle that cost $\$ 3,000$ results in a $33.3 \%$ gross profit percentage ( $\$ 1,000 / 3,000$ ). That is, for every $\$ 1$ of sales, the company has $\$ .33$ left to cover other expenses after deducting cost of goods sold. Readers of financial statements use this percentage as a means to evaluate the performance of one company against other companies in the same industry, or in the same company from year to year. Small fluctuations in the gross profit percentage can have significant effects on the financial performance of a company because the amount of sales and cost of goods sold are often very large in comparison to other income statement items.

Another difference between a service company and a merchandiser relates to the balance sheet. Since a merchandiser purchases goods for resale, goods held for resale by a merchandiser are called merchandise inventory and are reported as an asset on the balance sheet. A service company would not normally have merchandise inventory.

## Inventory Systems

There are two ways that inventory is managed: the perpetual inventory system or periodic inventory system. This chapter focuses on the perpetual system. In a perpetual inventory system, the Merchandise Inventory and Cost Of Goods Sold accounts in the general ledger are updated immediately when a purchase or sale of goods occurs. When merchandise inventory is purchased, the cost is debited to the Merchandise Inventory account. As inventory is sold to customers, the cost of the inventory sold is removed from the Merchandise Inventory account and debited to the Cost Of Goods Sold account. Under a perpetual system, the detailed composition of merchanides inventory - item description, number of items, cost per item, and total cost - is known at any time. However, a physical count is still performed at the end of the accounting period to determine and adjust for differences between the actual inventory on hand and the Merchandise Inventory account balance in the general ledger.

Some businesses will use a periodic inventory system instead. The purchase of merchandise inventory is debited to a temporary account called Purchases in the general ledger. At the end of the accounting period, inventory is counted, the Merchandise Inventory account is updated, and cost of goods sold is calculated. In a periodic inventory system, the real-time balances in Merchandise Inventory and Cost Of Goods Sold accounts are
not known. The entry to record this difference is discussed later in this chapter. The periodic system is discussed in greater detail in the appendix to this chapter.

## B. The Purchase and Payment of Merchandise Using the Perpetual Inventory Method

LO2 - Analyse and record purchase transactions for a merchandiser.

## Recording the Purchase of Merchandise Inventory

When merchandise inventory is purchased, the cost is recorded in a Merchandise Inventory general ledger account. An account payable results when the merchandise inventory is acquired but will not be paid in cash until a later date. For example, recall the vehicle purchased on account by Excel Cars Company for $\$ 2,000$. Assume this was purchased on May 2, 2018. The journal entry and general ledger T-account effects would be as follows:

General Journal Entry General Ledger Effect


To record purchase of vehicle.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Merchandise Inventory. <br> Accounts Payable . $\qquad$ <br> To record the purchase of merchandise inventory on account. |  | 2,000 | 2,000 |

In addition to the purchase of merchandise inventory, there are other activities that affect the Merchandise Inventory account. For instance, merchandise may occasionally be returned to a supplier or damaged in transit, or discounts may be earned for prompt cash payment. These transactions result in the reduction of amounts due to the supplier and thus the costs of inventory. The purchase of merchandise inventory may also involve the payment of transportation and handling costs. These are all costs necessary to prepare inventory for sale, and all such costs are included in the Merchandise Inventory account.

Assume that the vehicle purchased by Excel turned out to be the wrong colour. The supplier was contacted on May 3 and agreed to
reduce the price by $\$ 300$ to $\$ 1,700$. This is an example of a returns adjustment. The amount of the allowance, or reduction, is recorded as via journal entry as a credit to the Merchandise Inventory account. The entry and related T-account effects are:

May 3 Accounts Payable


To record reduction in account payable: vehicle wrong colour.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Accounts Payable $\ldots \ldots \ldots \ldots \ldots \ldots \ldots$ <br> Merchandise Inventory $\ldots \ldots \ldots \ldots \ldots$ <br> To record purchase allowance; <br> incorrect |  | 300 | 300 |

Note that the cost of the vehicle has been reduced to \$1,700 (\$2,000 -300 ) as has the amount owing to the supplier.

## Purchase Discounts

Purchase discounts affect the purchase price of merchandise if payment is made within a time period specified in the supplier's invoice. For example, if the terms on the $\$ 2,000$ invoice for one vehicle received by Excel indicates " $1 / 15$, n45", this means that the $\$ 2,000$ must be paid within 45 days (' $n$ ' = net). However, if cash payment is made by Excel within 15 days, the purchase price will be reduced by $1 \%$.

Assuming the amount is paid within 15 days, the supplier's terms entitle Excel to deduct $\$ 17$ [(\$2,000-\$300) = \$1,700 x 1\% = \$17]. The payment to the supplier if payment was made on May 9 would be recorded as:


To record payment on account in full and purchases discount applied.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Accounts Payable <br> Merchandise Inventory $\qquad$ Cash <br> To record payment on account within the |  | 1,700 | $\begin{array}{r} 17 \\ 1,683 \end{array}$ |

The cost of the vehicle in Excel's inventory records is now \$1,683 ( $\$ 2,000-300-17$ ). If payment is made after the discount period, $\$ 2,700$ of cash is paid and the entry would be:
Accounts Payable
$\quad$ Cash
To record payment on account; no purchase discount applied.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Accounts Payable $\qquad$ Cash $\qquad$ <br> To record payment of account; no purchase discount applied. |  | 1,700 | 1,700 |

In this case, the Merchandise Inventory account is not affected. The cost of the vehicle in the general ledger remains at $\$ 1,700$.

## Transportation

Costs to transport goods from the supplier to the seller must also be considered when recording the cost of merchandise inventory. The shipping terms on the invoice identify the point at which ownership of the inventory transfers from the supplier to the purchaser. When the terms are FOB shipping point, ownership transfers at the 'shipping point' so the purchaser or buyer is responsible for transportation costs. FOB destination indicates that ownership
transfers at the 'destination point' so the seller is responsible for transportation costs. FOB is the abbreviation for "free on board."

Assume that Excel's supplier sells with terms of FOB shipping point indicating that transportation costs are Excel's responsibility. If the cost of shipping is $\$ 125$ and this amount was paid in cash to the truck driver at time of delivery on May 9, the entry would be:

| Merch. Inventory |  |
| ---: | ---: |
| 2,000 |  |
|  | 300 |
| 125 |  |
| $\mathbf{1 , 8 0 8}$ |  |



To record freight on vehicle purchased.

| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Merchandise Inventory $\ldots \ldots \ldots \ldots \ldots \ldots$ <br> Cash................................................ <br> To record shipping costs on inventory <br> purchased. |  | 125 | 125 |

The cost of the vehicle in the Excel Merchandise Inventory account is now $\$ 1,808$. It is important to note that Excel's transportation costs to deliver goods to customers are recorded as delivery expenses that do not affect the Merchandise Inventory account.

The next section describes how the sale of merchandise is recorded as well as the related costs of items sold.

## C. Merchandise Inventory: Sales and Collection Using the Perpetual Inventory System

LO3 - Analyse and record sales transactions for a merchandiser.

In addition to purchases on account, a merchandising company's operating cycle includes the sale of merchandise inventory on account or on credit.

There are some slight recording differences when revenue is earned in a merchandising company. These are discussed below.

## Recording the Sale of Merchandise Inventory

The sale of merchandise inventory is recorded with two entries:

1. recording the sale by debiting Cash or Accounts Receivable and crediting Sales, and
2. recording the cost of the sale by debiting Cost of Goods Sold and crediting Merchandise Inventory.

Assume the vehicle purchased by Excel is sold on May 15 for $\$ 3,000$ on account. Recall that the cost of this vehicle in the Excel Merchandise Inventory account is $\$ 1,808$, as shown below.

The entries to record the sale of the merchandise inventory are:


| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Accounts Receivable <br> Sales <br> To record the sale of merchandise on account. |  | 3,000 | 3,000 |
|  | Cost of Goods Sold Merchandise Inventory <br> To record the cost of the sale |  | 1,808 | 1,808 |

The first part of the entry records the sales revenue. The second part is required to reduce the Merchandise Inventory account and transfer the cost of the merchandise sold to the Cost of Goods Sold account, and then to the income statement. The part of the entry ensures that both the Merchandise Inventory and Cost of Goods Sold accounts in the general ledger are up to date.

## Sales Returns and Allowances

When merchandise inventory that has been sold is returned to the merchandiser by the customer, a sales return and allowance is recorded. For example, assume some damage occurs to the car sold by Excel while it is being delivered to the customer on May 17. Excel would give the customer a sales allowance by agreeing to reduce the amount owing by, say, $\$ 100$. The entry is:

May 17 Sales Returns and Allowances

|  | Accounts Receivable |  |
| :--- | :--- | :---: |
| 3,000 | 100 |  |
| Accounts Receivable | 100 |  | To record customer allowance for damage to vehicle during delivery.


| General Journal |  |  |  |  |
| :---: | :---: | ---: | ---: | ---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Sales Returns and Allowances ........... <br> Accounts Receivable ................ <br> To record allowance for damage to mer- <br> chandise inventory during delivery. |  | 100 | 100 |

Accounts receivable is credited because the original sale was made on account and has not yet been paid. The amount owing from the customer is reduced to $\$ 2,900$. If the $\$ 2,900$ had already been paid, a credit would be made to Cash and $\$ 100$ refunded to the customer. The Sales Returns and Allowances account is a contra revenue account, meaning it is deducted from Sales when preparing the income statement.

If goods are returned by a customer, a sales return occurs. The related sales and cost of goods sold recorded on the income statement are reversed and the goods are returned to inventory. For example, assume Max Corporation sells a plastic container for $\$ 3$ that it purchased for $\$ 1$. The dual entry at the time of sale would be:


If the container is returned, the journal entry would reverse the original entry, except that Sales Returns and Allowances would be debited instead of the Sales account:

Sales Returns and Allowances
Accounts Receivable
Merchandise Inventory
Cost of Goods Sold
To record return of plastic container.

3

1

$$
3
$$

$$
1
$$

Use of a Sales Returns and Allowances contra account allows management to track the amount of returned and damaged items for their information purposes.

## Sales Discounts

Another contra revenue account, Sales Discounts, records reductions in sales amounts when a customer pays within a certain time period. For example, assume Excel Cars Corporation offers sales terms of " $2 / 10$, n30." This means that the amount owed must be paid by the customer within 30 days (' $n$ ' = net); however, if the customer chooses to pay within 10 days, a $2 \%$ discount may be deducted from the amount owing.

Consider the sale of the vehicle for \$2,900 (\$3,000 less the \$100 allowance for damage). Payment within 10 days entitles the customer to a $\$ 58$ discount $(\$ 2,900 \times 2 \%=\$ 58)$. If payment is made
on May 21 and therefore within the discount period, Excel receives $\$ 2,842$ cash ( $\$ 2,900-58$ ) and prepares the following entry:

May 21 Cash
2,842

58
Sales Discounts

Accounts Receivable
$\frac{\text { Cash }}{2,842}$
$\frac{\text { Sales Discounts }}{58}$

| Accounts Receivable |  |
| ---: | ---: |
| 2,900 |  |
|  | 2,900 |
| $\mathbf{- 0 -}$ |  |

To record payment on account and sales discount applied.

| General Journal |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Account/Explanation | PR | Debit | Credit |
|  | Cash....................................................................... <br> Sales Discounts <br> Accounts Receivable $\qquad$ <br> To record payment on account and sales discount applied. |  | $\begin{array}{r} 2,842 \\ 58 \end{array}$ | 2,900 |

This entry reduces the accounts receivable amount to zero which is the desired result. If payment is not made within the discount period, the customer pays the full amount owing of $\$ 2,900$.

The Sales Allowances and Sales Discounts contra accounts are deducted from sales on the income statement to arrive at net sales. Cost of goods sold is deducted from net sales. If Excel purchased and sold only this one vehicle, the partial income statement for the period from January 1 to May 31 would show:

Excel Cars Company
Partial Income Statement
For the Five Month Period Ended May 31, 2018

| Sales |  | $\$ 3,000$ |
| :--- | ---: | ---: |
| Less: Sales returns and allowances | $\$ 100$ |  |
| $\quad$ Sales discounts | 58 | 158 |
|  |  | 2,842 |
| Net sales |  |  |
| Less: Cost of goods sold |  | 1,808 |
| Gross profit | 1,034 |  |

As was the case for Sales Returns and Allowances, the balance in the Sales Discounts account is deducted from Sales on the income statement to arrive at Net Sales. Merchandisers often report only the net sales amount on the income statement. Details from sales returns and allowances, and sales discounts, are often omitted because they are immaterial in amount relative to total sales. However, separate general ledger accounts for each of sales returns and allowances, and sales discounts, are useful in helping management identify potential problems that require investigation.

## D. Adjustments to Merchandise Inventory Using the Perpetual Inventory System

```
LO4 - Record
adjustments to
merchandise
inventory.
```

In the simple example above, Excel did not have any merchandise inventory on hand at either the start of the year or at the end of May. It purchased and sold one vehicle during the month.

Now assume that Excel Cars Company purchased five vehicles from its supplier for $\$ 2,000$ each on June 2,2018 . The company sold three of these for $\$ 3,000$ each on June 16. On June 30, ending inventory would consist of two vehicles valued at $\$ 2,000$ each, or $\$ 4,000$ in total. (Note that inventory is valued at cost, not estimated selling price.) Assume there are no applicable transportation, purchase allowances or discounts expenditures.

The journal entry to record the purchase of the vehicles on June 2 would be:


The summary journal entry to record the sale of the vehicles on June 16 would be:


Assume the purchases and sales of vehicles in May and June were the only activity of the company during its fiscal year ended December 31, 2018, and the only opening general ledger account balances were Cash - $\$ 5,000$ and owners' Capital - $\$ 5,000$. After the May and June transactions are recorded, the general ledger Taccounts would appear as follows:

| Cash |  | Accounts Payable |  | Owner Capital | Sales |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 5,000 | 1,683 ${ }^{3}$ | ${ }^{2} 300$ | 2,000 ${ }^{1}$ | 5,000 |  | 3,000 ${ }^{5}$ |
| 72,842 | 1254 | ${ }^{3} 1,700$ | $10,000^{8}$ |  |  | 9,000 ${ }^{9}$ |
| 6,034 |  |  | 10,000 |  |  | 12,000 |
| Accounts Rec. |  |  |  |  | Sales Ret. \& Allow. |  |
| 53,000 | $100^{6}$ |  |  |  | ${ }^{6} 100$ |  |
| 99,000 | 2,900 ${ }^{7}$ |  |  |  |  |  |
| 9,000 |  |  |  |  | Sales Discounts |  |
|  |  |  |  |  | 758 |  |
| Merchandise Inv. |  |  |  |  |  |  |
| 12,000 | $300{ }^{2}$ |  |  |  | Cost of Goods Sold |  |
| ${ }^{4} 125$ | $17^{3}$ |  |  |  | 51,808 |  |
| 1,808 |  |  |  |  | 96,000 |  |
|  | 1,808 ${ }^{5}$ |  |  |  | 7,808 |  |
| $\begin{array}{r} \hline-0- \\ 810,000 \\ \hline \end{array}$ | 6,000 ${ }^{9}$ |  |  |  |  |  |
| 4,000 |  |  |  |  |  |  |
|  |  | Summary of transactions |  |  |  |  |
|  |  | ${ }^{1}$ Purchased one vehicle on credit, May 2 |  |  |  |  |
|  |  | ${ }^{2}$ Adjustment by supplier for wrong colour |  |  |  |  |
|  |  | ${ }^{3}$ Paid supplier May 9; purchase discount taken |  |  |  |  |
|  |  | ${ }^{4}$ Paid transportation costs |  |  |  |  |
|  |  | ${ }^{5}$ Sold one vehicle on May 15 |  |  |  |  |
|  |  | ${ }^{6}$ Customer credited for delivery damage May 17 |  |  |  |  |
|  |  | ${ }^{7}$ Payment received from customer on May 21; sales discount applied |  |  |  |  |
|  |  | ${ }^{8}$ Purchased five vehicles on credit, June 2 |  |  |  |  |
|  |  | ${ }^{9}$ Sold three vehicles on June 16 |  |  |  |  |

At the end of the fiscal year, an unadjusted trial balance would be prepared based on this information, as follows:

Excel Cars Co.
Unadjusted Trial Balance
December 31, 2018

| Account |  |  |  |
| :---: | :---: | :---: | :---: |
| No. | Account Title | Account Balance |  |
|  |  | Debit | Credit |
| 101 | Cash | \$ 6,034 |  |
| 110 | Accounts Receivable | 9,000 |  |
| 150 | Merchandise Inventory | 4,000 |  |
| 210 | Accounts Payable |  | \$ 10,000 |
| 320 | Owner Capital |  | 5,000 |
| 500 | Sales |  | 12,000 |
| 508 | Sales Returns and Allowances | 100 |  |
| 509 | Sales Discounts | 58 |  |
| 570 | Cost of Goods Sold | 7,808 |  |
|  |  | \$27,000 | \$27,000 |

## E. Merchandising Income Statement

LO5 - Explain and prepare a classified multiple-step income statement for a merchandiser.

Businesses are required to show expenses on the income statement based on either the nature or the function of the expense. The nature of an expense is determined by its basic characteristics (what it is). For example, when expenses are listed on the income statement as interest, depreciation, income taxes, or salaries, this identifies the nature of each expense. In contrast, the function of an expense describes the grouping of expenses based on their purpose (what they relate to). For example, an income statement that shows cost of goods sold, selling expenses, and general and administrative expenses has grouped expenses by their function. When expenses are grouped by function, additional information must be disclosed to show the nature of expenses within each group. Full disclosure is the generally accepted accounting principle that requires financial statements to report all relevant information about the operations and financial position of the entity. Information that is relevant but not included in the body of the statements is provided in the notes to the financial statements.

A merchandising income statement can be prepared in different formats. For this course, only one format will be used-the classified multiple-step format. This format is generally used only for internal reporting because of its detail. Most external financial statement users would find this detail excessive and distracting.

An example of a classified multiple-step income statement is shown below using assumed data for XYZ Inc. for its month ended December 31, 2017.

XYZ Inc.
Income Statement Month Ended December 31, 2017


Notice that the classified multiple-step income statement shows expenses by both function and nature. The broad categories that show expenses by function include operating expenses, selling expenses, general and administrative expenses, and income taxes. Within each category, the nature of expenses is disclosed including sales salaries, advertizing, depreciation, supplies, and insurance. Notice that Rent Expense has been divided between two groupings because it applies to both selling (store) and general (office) expenses.

The normal operating activity for XYZ Inc. is merchandising. Revenues and expenses that are not part of normal operating activities are listed under Other Revenues and Expenses. XYZ Inc. shows Rent Revenue under Other Revenues and Expenses because this type of revenue is not part of its merchandising operations. Interest earned, dividends earned, and gains on the sale of property, plant, and equipment are more examples of other revenues not related to merchandising operations. XYZ Inc. deducts interest expense under Other Revenues and Expenses. Interest expense does not result from operating activities; it is a financing activity because it is associated with the borrowing of money. Other examples of non-operating expenses include losses on the sale of property, plant, and equipment. Finally, income taxes expense is deducted. Income tax is a government levy, and considered unrelated to normal business operations.

## F. Closing Entries for a Merchandiser Using the Perpetual Inventory System

LO6 - Explain the closing process for a merchandiser.

The process of recording closing entries for service companies was illustrated in Chapter 4. The closing procedure for merchandising companies is the same as for service companies-all income statement accounts are transferred to the Income Summary account, the Income Summary is closed to Owners' Capital, and Drawings are closed to Owners' Capital.

When preparing closing entries for a merchandiser, the income statement accounts unique for merchandisers need to be considered-Sales, Sales Discounts, Sales Returns and Allowances, and Cost of Goods Sold. Sales is a revenue account so has a normal credit balance. To close Sales, it must be debited with a corresponding credit to the income summary. Sales Discounts and Sales Returns and Allowances are both contra revenue accounts so each has a normal debit balance. Cost of Goods Sold has a normal debit balance because it is an expense. To close these debit balance accounts, a credit is required with a corresponding debit to the income summary.

All accounts listed in the income statement columns are transferred to the income summary account, and then the income summary is closed to owners' capital. The same three-step process is used, as
shown in chapter 4, as applied to the financial information of Excel Cars Company for the year ended December 31, 2018:

## Entry 1

All income statement accounts with credit balances are debited to bring them to zero. Their balances are transferred to the income summary account.

Dec. 31 Sales
(a)

Income Summary 12,000
To close all income statement accounts with credit balances to the income summary.

## Entry 2

All income statement accounts with debit balances are credited to bring them to zero. Their balances are transferred to the income summary account.

Dec. 31 Income Summary 9,966
Cost of Goods Sold 9,808
Sales Returns and Allow. 100
Sales Discounts 58
To close all income statement accounts with credit balances to income summary.

## Entry 3

The Income Summary account is closed to the Owners' capital account. The effect is to transfer temporary (income statement) account balances in the income summary totalling $\$ 4,034$ to the permanent (balance sheet) account, Owners' capital.
(c)

Dec. 31 Income Summary
Owners' Capital
2,034

To close income summary account to owners' capital.

After these closing entries are posted, the general ledger T-accounts would appear as follows:
Accounts


| Sales Discounts |  |
| ---: | ---: |
| 758 |  |
|  | $58^{\mathrm{b}}$ |
| $-0-$ |  |
|  |  |

Cost of Goods

| Sold |  |
| ---: | ---: |
| 51,808 |  |
| 96,000 |  |
| 7,808 |  |
| 2,000 |  |
| 9,808 |  |
|  | $9,808^{\mathrm{b}}$ |
| $-0-$ |  |

All income statement accounts and the income summary account are reduced to zero and net income for the year of $\$ 2,034$ is transferred to owners' capital.

## Appendix: The Periodic Inventory System

## Opening Inventory

Under the periodic inventory system, the ending inventory of one accounting time period becomes the opening inventory of the next accounting time period. Opening inventory is added to purchases each period and ending inventory is deducted to calculate cost of goods sold.

Assume that Excel Cars Company had the following transactions in 2019, its next accounting year:

Opening inventory $\quad 1$ vehicle at $\$ 2,000$
Plus: Purchases
6 vehicles at $\$ 2,000$ each
Less: Sales
(5) vehicles at $\$ 3,000$ each

Equals ending inventory 2 vehicles at $\$ 2,000$ each
Journal entries are omitted in this example. The gross profit and net income calculations disclosed on the income statement for 2018 and 2019 are shown below. Note that the ending inventory at December 31, 2018 becomes the opening inventory at January 1, 2019.

Excel Cars Co.<br>Income Statement

For the Year Ended December 31, 2019

|  | 2018 | 2019 |  |
| :---: | :---: | :---: | :---: |
| Sales | \$12,000 | \$15,000 |  |
| Less: Sales returns and allowances | (100) | -0- |  |
| Sales discounts | (58) | -0- |  |
| Net sales | 11,842 | 15,000 |  |
| Cost of goods sold |  |  |  |
| Opening inventory | -0- | $\rightarrow 2,000$ |  |
| Purchases | 12,000 | 12,000 | Ending |
| Transportation-in | 125 | -0- | inventory for |
| Less: Purchase returns and allow. | (300) | -0- | 2018 becomes the opening |
| Purchase discounts | (17) | -0- | inventory for |
| Cost of goods available for sale | 11,808 | 14,000 | 2019. |
| Less: ending inventory | $(2,000)$ | $(4,000)$ |  |
| Cost of goods sold | 9,808 | 10,000 |  |
| Gross profit and net income | \$ 2,034 | \$ 5,000 |  |

In 2019, seven vehicles are available for sale - one remaining from 2018 and now included as opening inventory at January 1, 2019 plus six purchased in 2019. Cost of goods available for sale therefore equals $\$ 14,000$ for the 2019 fiscal year ( $7 \times \$ 2,000$ ). Two vehicles are not sold so are shown as ending inventory at December 31,2019 . Their total cost of $\$ 4,000$ is deducted from cost of goods available for sale to arrive at cost of goods sold for 2019 of $\$ 10,000$. As was done on 2018, ending inventory amounts would be determined by counting the vehicles on the lot at December 31, 2019 and determining from purchase invoices how much was paid for these.

The interrelationship of inventory disclosed in the income statement and balance sheet using the periodic inventory system can be illustrated as follows:

Excel Car Co.
Income Statement
For the Year Ended December 31, 2019
Sales
\$15,000
Cost of goods sold

| Opening inventory (Jan. 1, 2019) | $\longrightarrow \$ 2,000$ |  |
| :---: | :---: | :---: |
| Cost of goods purchased | 12,000 |  |
| Cost of goods available | 14,000 |  |
| Less: Ending inventory (Dec. 31) | $(4,000) \leftarrow$ |  |
| ost of goods sold |  | 10,000 $\$ 5,000$ |
| profit and net income |  | +5,000 |

Excel Car Co.
Balance Sheet


At the end of the accounting period, cost of goods sold must be calculated which requires that the balance in Merchandise Inventory be determined. To determine the end of the period balance in Merchandise Inventory, a physical count of inventory is performed. The total value of the inventory as identified by the physical count becomes the ending balance in Merchandise Inventory. Cost of goods sold can then be calculated as follows:
Beginning Balance of Merchandise Inventory ..... XX
Plus: Net Cost of Goods Purchased* ..... XX
Less: Ending Balance of Merchandise Inventory ..... (XX)
Equals: Cost of Goods Sold ..... XX

## ASSIGNMENTMATERIALS

## Concept Self-check

1. How does the income statement prepared for a company that sells goods differ from that prepared for a service business?
2. How is gross profit calculated? What relationships do the gross profit and gross profit percentage calculations express? Explain, using an example.
3. What is a perpetual inventory system?
4. How is the purchase of merchandise inventory on credit recorded in a perpetual system?
5. How is a purchase return recorded in a perpetual system?
6. What does the credit term of " $1 / 15, \mathrm{n} 30$ " mean?
7. How is a purchase discount recorded in a perpetual system?
8. How is the sale of merchandise inventory on credit recorded in a perpetual system?
9. How is a sales return recorded in a perpetual system?
10.What is a sales discount and how is it recorded in a perpetual inventory system?
11.Why does merchandise inventory need to be adjusted at the end of the accounting period and how is this done in a perpetual inventory system?
10. What types of transactions affect merchandise inventory in a perpetual inventory system?
11. How are the closing entries for a merchandiser using a perpetual inventory system different than for a service company?
14.When reporting expenses on multi-step income statement, how is the function of an expense reported? The nature of an expense?
15.Compare the perpetual and periodic inventory systems. What are some advantages of each?
12. (Appendix) How is cost of goods sold calculated using the periodic inventory system?

## Comprehension Problems

CP 5-1
Consider the following information of Jones Corporation over four years:

|  | 2021 | 2020 | 2019 | 2018 |
| :--- | ---: | ---: | ---: | ---: |
| Sales | $\$ 10,000$ | $\$ 9,000$ | $\$$ | $?$ |
| Cost of goods sold | $?$ | 6,840 | 6,160 | $?$ |
| Gross profit | 2,500 | $?$ | 1,840 | $?$ |
| Gross profit percentage | $?$ | $?$ | $?$ | $22 \%$ |

Required:

1. Calculate the missing amounts for each year.
2. What does this information indicate about the company?

## CP 5-2

Reber Corp. uses the perpetual inventory system. Its transactions during July 2018 are as follows:

July 6 Purchased $\$ 600$ of merchandise on account from Hobson Corporation for terms $1 / 10$, net 30
9 Returned $\$ 200$ of defective merchandise
15 Paid the amount owing to Hobson.
Required: Prepare journal entries to record the above transactions.

## CP 5-3

Boucher Corporation uses the perpetual inventory system. Its transactions during June 2017 are as follows:

June1Boucher purchased \$1,200 of merchandise inventory from a supplier for terms $1 / 10, \mathrm{n} 60$.
3 Boucher sold all of the inventory purchased on June 1 for \$1,500 to Wright Inc. for terms 2/10, net 30.
8 Wright returned $\$ 800$ of defective merchandise purchased June 3 (cost to Boucher: \$600).
13 Boucher received payment from Wright Inc. for the balance owed.

Required: Prepare journal entries to record the above transactions.

## CP 5-4

The following information is taken from the records of Smith Corp. at June 30, 2018, the fiscal year-end:

Advertizing expense $\quad \$ 1,500$
Commissions expense $\quad 4,000$
Cost of goods sold $\quad 50,000$
Delivery expense 1,000
Insurance expense $\quad 1,000$
Rent expense $\quad 2,500$
Salaries expense $\quad 5,000$
Sales 72,000
Sales returns and allowances 2,000

## Required:

1. Prepare a classified income statement.
2. Compute gross profit percentage.

## CP 5-5

Refer to the information in CP 5-4.
Required: Prepare all closing entries.

## CP 5-6

Consider the information for each of the following four companies.

|  | $A$ |  | $B$ | $C$ |
| :--- | :--- | ---: | ---: | ---: |
| $D$ |  |  |  |  |
| Opening inventory | \$ | $\$ 184$ | $\$ 112$ | $\$ 750$ |
| Purchases | 1,415 | $?$ | 840 | 5,860 |
| Cost of goods | 1,940 | 534 | $?$ | 6,610 |
| available |  |  |  |  |
| Ending inventory | 340 | 200 | 135 | $?$ |
| Cost of goods sold | $?$ | $?$ | $?$ | 5,740 |

Required: Calculate the missing amounts.

## CP 5-7

The following information is taken from the records of four different companies in the same industry:

|  | A | $B$ | C | D |
| :---: | :---: | :---: | :---: | :---: |
| Sales | \$ 300 | \$ 150 | \$ ? | \$ 90 |
| Opening inventory | ? | 40 | 40 | 12 |
| Purchases | 240 | ? | ? | 63 |
| Cost of goods available | 320 | ? | 260 | ? |
| Less: Ending inventory | ? | (60) | (60) | (15) |
| Cost of goods sold | ? | 100 | 200 | 60 |
| Gross profit | \$ 100 | \$ ? | \$ 100 | \$ ? |
| Gross profit percentage | ? | ? | ? | ? |

## Required:

1. Calculate the missing amounts.
2. Which company seems to be performing best? Why?

CP 5-8

Horne Inc. and Sperling Renovations Ltd. both sell goods and use the perpetual inventory system. Horne Inc. had $\$ 3,000$ of merchandise inventory at the start of its fiscal year, January 1, 2015. During the 2015, Horne Inc. had the following transactions:

May 5 Horne sold \$4,000 of merchandise on account to Sperling Renovations Ltd., terms 2/10, net 30. Cost of merchandise to Horne from its supplier was $\$ 2,500$.
7 Sperling returned \$500 of merchandise received in error which Horne returned to inventory; Horne issued a credit memo. Cost of merchandise to Horne was $\$ 300$.
15 Horne received the amount due from Sperling Renovations Ltd.

Required: Prepare journal entries to record the above transactions and adjustment:
a. In the records of Horne Inc.
b. In the records of Sperling Renovations Ltd.

## CP 5-9 Recording Purchase and Sales Transactions

Below are the April, 2016 sales for Beautort Co.
April 1 Purchased $\$ 15,000$ of merchandise for cash.
April 3 Sold merchandise to a customer for \$8,000 cash. (Cost \$4,600)
April 5 Purchased \$10,000 of merchandise from a supplier for terms 1/10, n30.
April 7 Returned \$2,000 of damaged merchandise inventory from April 5 back to the supplier.
Supplier will repair the items and return them to their own inventory.
April 8 Sold \$8,000 of merchandise for terms 2/10, n30. (Cost $\$ 4,000$ ). Agreed to pay shipping costs for the goods sold to the customer.
April 9 Shipped the goods sold on April 8 to customer, fob shipping point for $\$ 500$ cash.
(Hint: Shipping costs paid to ship merchandise sold to a customer is not an inventory cost.)
April 10 Customer from April 3 returned \$1,000 of unsuitable goods which were returned to inventory. (Cost \$400). Amount paid was refunded.
April 10 Agreed to give customer from April 8 sale a sales allowance of $\$ 200$.
April 12 Purchased inventory on account for \$22,000 for terms 1/10, n30.
April 15 Paid amount owing for purchases on April 5.
April 16 Paid $\$ 600$ for shipping on the April 12 purchase.
April 18 Collected \$5,000 cash, net of discount, for the customer account owing from April
8.

April 27 Paid for the April 12 purchase.
April 27 Sold \$20,000 of merchandise inventory for cash (Cost $\$ 10,000)$.

Required: Prepare the journal entries, if any, for Beautort Co. Round final entry amounts to the nearest whole dollar.

## CP 5-10 Calculating Inventory and Cost of Goods Sold

Below is a table that contains two important calculations that link together to determine net in- come/(loss):

| Inventory, opening balance | $\$ 10,000$ | $\$ 53,000$ | $?$ | 168,540 | 50,562 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Plus: purchases | 30,000 | $?$ | $1,685,400$ | $?$ | $?$ |
| Total goods available for sale | $?$ | 212,000 | $2,247,200$ | $?$ | 657,306 |
| Less: ending inventory | 15,000 | $?$ | 842,700 | 556,180 | 100,000 |
| Cost of goods sold | $?$ | 132,500 | $?$ | $?$ | $?$ |
|  |  |  |  |  |  |
| Sales | $?$ | 240,000 | $1,600,000$ | 900,000 | $?$ |
| Less: cost of goods sold | $?$ | $?$ | $?$ | $?$ | $?$ |
| Gross profit | 30,000 | $?$ | $?$ | 276,400 | 142,694 |
| Less: operating expenses | 12,000 | $?$ | 275,000 | $?$ | $?$ |
| Net income/(loss) | $?$ | 43,900 | $?$ | 26,400 | $(2,306)$ |
| Gross profit/sales (\%) | $?$ | $?$ | $?$ | $?$ | $?$ |

Required: Calculate the missing account balances using the relationships between these accounts. Percentage can be rounded to the nearest two decimal places.

## Problems

## P 5-4

Southern Cross Corporation supplies you with the following information applicable to the current year, December 31, 2018. The company uses the perpetual inventory system.

| Delivery expense | $\$ 2,000$ |
| :--- | ---: |
| Sales | 100,000 |
| Merchandise inventory (Dec. 31) | 15,000 |
| Cost of goods sold | 70,000 |
| Office supplies expense | 7,000 |
| Sales returns and allowances | 10,000 |
| Salaries expense | 4,000 |
| Office supplies | 5,000 |

## Required:

Prepare an income statement. List expenses other than cost of goods sold as other expenses. Assume all accounts have normal balances.

## P 5-5 Recording Purchase and Sales Transactions

Below are transactions for March, 2016 for AngieJ Ltd.:

| March 1 | Purchased \$25,000 of merchandise on account for terms 2/10, n30. |
| :---: | :---: |
| March 3 | Sold merchandise to a customer for $\$ 5,000$ for terms $1 / 10$, n30. (Cost $\$ 2,600$ ) |
| March 4 | Customer from March 3 returned $\$ 200$ of some unsuitable goods which were returned to inventory. (Cost \$100) |
| March 5 | Purchased $\$ 15,000$ of merchandise from a supplier for cash and arranged for shipping, fob shipping point. |
| March 6 | Paid \$200 for shipping on the March 5 purchase. |
| March 7 | Contacted the supplier from March 5 regarding \$2,000 of merchandise with some minor damages. Supplier agreed to reduce the price and offered an allowance of $\$ 500$ cash, which was accepted. |
| March 8 | Sold $\$ 25,000$ of merchandise for terms $1.5 / 10$, n30. (Cost $\$ 13,000)$. Agreed to pay shipping costs for the goods sold to the customer. |
| March 9 | Shipped the goods sold on March 8 to customer, fob destination for $\$ 500$ cash. <br> (Hint: Shipping costs paid to ship merchandise sold to a customer is an operating expense.) |
| March 11 | Paid for the March 1 purchase to the supplier. |
| March 13 | Collected the account owing from the customer from March 3. |
| March 15 | Purchased office supplies on account for $\$ 540$ for terms 1/10, n30. |
| March 18 | Ordered merchandise inventory from a supplier totalling $\$ 15,000$. Goods to be shipped on April 10, fob shipping point. |
| March 20 | Collected $\$ 6,010$ cash from an account owing from two months ago. The early payment discount had expired. |
| March 25 | Paid for the March 15 purchase. |
| March 27 | Sold $\$ 12,500$ of merchandise inventory for cash (Cost $\$ 5,000)$. |

Required: Prepare the journal entries, if any, for AngieJ Ltd.

## P 5-6

Providence Corp. was incorporated on July 2, 2018 to operate a merchandising business. All its sales on account are made according to the following terms: 2/10, n30. Its transactions during July 2018 are as follows:

July 2 Purchased \$3,500 merchandise on account from Blic Pens Ltd. for terms 2/10, n30, FOB destination.
2 Sold merchandise on account to Spellman Chair Rentals Inc. for $\$ 2,000$, costing $\$ 800$.
3 Paid Sayer Holdings Corp. \$500 for July rent
5 Paid Easton Furniture Ltd. \$1,000 for equipment
8 Collected $\$ 200$ for a cash sale made today to Ethan Matthews Furniture Ltd.
8 Purchased \$2,000 merchandise on account from Shaw Distributors Inc. for terms $2 / 15, \mathrm{n} 30$
9 Received the amount due from Spellman Chair Rentals Inc. for the July 2 sale (less discount)
10 Paid Blic Pens Ltd. for the July 2 purchase (less discount)
10 Purchased $\$ 200$ of merchandise on account from Peel Products Inc. for terms n30
15 Sold merchandise on account to Eagle Products Corp. for \$2,000, cost $\$ 500$.
15 Purchased \$1,500 of merchandise on account from Bevan Door Inc. for terms 2/10, n30
15 Received a memo from Shaw Distributors Inc. to reduce its account payable by $\$ 100$ for defective merchandise included in the July 8 purchase.
20 Sold merchandise on account to Aspen Promotions Ltd. for \$3,500 costing \$1,500
24 Paid Bevan Doors Inc. for the purchase made July 15 (less discount)
26 Sold merchandise on account to Longbeach Sales Ltd. for $\$ 600$, costing \$200.
26 Purchased \$800 of merchandise on account from Silverman Co. for terms 2/10, n30

Required: Prepare journal entries to record the July transactions.

## CHAPTER 6

Assigning Costs to Merchandise

## CHAPTER SIX

## Assigning Costs to Merchandise

Recording transactions related to the purchase and sale of merchandise inventory was introduced and discussed in Chapter 5. This chapter reviews how the cost of goods sold is calculated using various inventory cost flow assumptions. Additionally, issues related to merchandise inventory that remains on hand at the end of an accounting period are also explored.

## Chapter 6 Learning Objectives

L01 - Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), last in first out (LIFO) and weighted average cost flow assumptions, using the perpetual inventory system
LO2 - Explain the impact on financial statements of inventory cost flow assumptions and errors.
LO3 - Explain and calculate lower of cost and net realizable value inventory adjustments.
L04 - Estimate merchandise inventory using the gross profit method and the retail inventory method.
LO5 - (Appendix) Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), last in first out (LIFO) and weighted average cost flow assumptions, using the periodic inventory system.

## A. Inventory Cost Flow Assumptions

LO1 - Calculate cost of goods sold and merchandise inventory under specific
identification, first-in first-out (FIFO), last in first out (LIFO) and weighted average cost flow assumptions using the perpetual inventory system.

Determining the cost of each unit of inventory, and thus the total cost of ending inventory on the balance sheet, can be challenging. Why? We know from Chapter 5 that the cost of inventory can be affected by discounts, returns, and transportation costs. Additionally, the purchase cost of an inventory item can be different from one purchase date to the next. For example, the cost of raw coffee beans purchased by a manufacturer could be $\$ 5.00$ a pound in October and $\$ 7.00$ a pound in November because of changes in weather conditions in South America. Therefore, each pound of coffee inventory may have a different cost depending on which pound is assumed to be unsold. Also, some types of inventory physically flow into and out of a warehouse in a specific sequence, while others do not. For instance, a retail grocer needs to manage vegetable sales so that the oldest produce is sold first. On the other hand, a car dealership has no control over which vehicles are sold because customers make specific choices based on their preferences. Finally, a company that sells many low-value, similar items like pencils may want to merely choose the easiest method to calculate ending inventory. So how is the cost of a unit in merchandise inventory determined? There are several methods that can be used, as described in the following sections.

Assume a company sells only one product and uses the perpetual inventory system. It has no beginning inventory at June 1, 2018. The company purchased five units during June as shown in Figure 6-1.

|  | Purchase Transaction |  |
| :--- | :---: | :---: |
| Date | Number <br> of units | Price per <br> unit |
| June 1 | 1 | $\$ 1$ |
| $\mathbf{5}$ | 1 | 2 |
| $\mathbf{7}$ | 1 | 3 |
| $\mathbf{2 1}$ | 1 | 4 |
| $\mathbf{2 8}$ | 1 | 5 |
|  | 5 | $\$ 15$ |

Figure 6-1 June Purchases and Purchase Price per Unit
At June 28, there are 5 units in inventory with a total cost of \$15 (\$1 $+\$ 2+\$ 3+\$ 4+\$ 5)$. Assume four units are sold on June 30 for $\$ 10$ each. The cost of the four units sold could be determined based on identifying the cost associated with the specific units sold, like a car dealership, especially if the value of one unit of inventory is large. Alternatively, a company might assume that the oldest purchases
are sold first. Finally, if a company sells large quantities of similar low dollar value items such as pencils, an average cost might be used to calculate ending inventory because it is simpler. These methods are called respectively, specific identification; first-in, firstout (FIFO); last in first out (LIFO) and weighted average.

## Specific Identification

Under specific identification, each inventory item that is sold is matched with its purchase cost. This method is most practical when inventory consists of relatively few, expensive items, particularly when individual units can be identified with serial numbers-for example, motor vehicles sold by a dealership.

Assume the four units sold on June 30 are those purchased on June $1,5,7$, and 28 . The fourth unit purchased on June 21 remains in ending inventory. Cost of goods sold would total \$11 (\$1+\$2+\$3+ $\$ 5$ ). Sales would total $\$ 40$ (4 @ \$10). As a result, gross profit would be $\$ 29(\$ 40-11)$. Ending inventory would be $\$ 4$, the cost of the unit purchased on June 21.

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold would show:

| Merchandise Inventory |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Jun. 1 | \$1 |  |  |  |  |
| 5 | 2 |  |  |  |  |
| 7 | 3 |  |  |  |  |
| 21 | 4 |  |  |  |  |
| 28 | 5 |  |  | Cost of Goods Sold |  |
|  |  | 11 | Jun. 30 | $\longrightarrow 11$ |  |
| End. Bal. | 4 |  |  |  |  |

Figure 6-2 Cost of Goods Sold using Specific Identification
The entry to record the June 30 sale on account would be:

Accounts Receivable
Sales
40
To record the sale of merchandise on account.
Cost of Goods Sold
Merchandise Inventory
11

To record the cost of the sale.

It is not possible to use specific identification when inventory consists of a large number of similar, inexpensive items that cannot be easily differentiated. Consequently, a method of assigning costs to inventory items based on an assumed flow of goods can be adopted. Three such generally accepted methods, known as cost flow assumptions, are discussed next.

## The First-in, First-out (FIFO) Cost Flow Assumption

First-in, first-out (FIFO) assumes that the first goods purchased are the first ones sold. A FIFO cost flow assumption makes sense when inventory consists of perishable items such as groceries and other time-sensitive goods.

Using the information from the previous example, the first four units purchased are assumed to be the first four units sold under FIFO. The cost of the four units sold is $\$ 10(\$ 1+\$ 2+\$ 3+\$ 4)$. Sales still equal $\$ 40$, so gross profit under FIFO is $\$ 30(\$ 40-\$ 10)$. The cost of the one remaining unit in ending inventory would be the cost of the fifth unit purchased (\$5).

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold as illustrated in Figure 6-3 would show:

| Merchandise Inventory |  |  |  |
| ---: | ---: | ---: | ---: |
| Jun. 1 | $\$ 1$ |  |  |
| 5 | 2 |  |  |
| 7 | 3 |  |  |
| 21 | 4 |  |  |
| 28 | 5 |  |  |
|  |  | 10 | Jun. 30 |
| End. Bal. | 5 |  |  |

Figure 6-3 Cost of Goods Sold using FIFO
The entry to record the sale would be:
Accounts Receivable
40
Sales
40
To record the sale of merchandise on account.
Cost of Goods Sold
10
Merchandise Inventory
10
To record the cost of the sale.

## Last-In, First-Out (LIFO) Cost Flow Assumption

The last-in, first-out (LIFO) method of assigning costs assumes that the most recent purchases are sold first. These more recent costs are charged to the goods sold, and the costs of the earliest purchases are assigned to inventory.
Using the information from the previous example, the last four units purchased are assumed to be the last four units sold under LIFO. The cost of the four units sold is $\$ 14(\$ 2+\$ 3+\$ 4+\$ 5)$. Sales still equal $\$ 40$, so gross profit under LIFO is $\$ 26$ ( $\$ 40-\$ 14$ ). The cost of the one remaining unit in ending inventory would be the cost of the first unit purchased (\$1).

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold as illustrated in Figure 6-4 would show:

| Merchandise Inventory |  |  |  |  |  |  |
| ---: | ---: | ---: | ---: | :--- | :--- | :---: |
| Jun. 1 | $\$ 1$ |  |  |  |  |  |
| 5 | 2 |  |  |  |  |  |
| 7 | 3 |  |  |  |  |  |
| 21 | 4 |  |  |  |  |  |
| 28 | 5 |  |  |  |  |  |
|  |  | 14 | Jun. 30 |  | Cost of Goods Sold |  |
|  |  |  |  |  |  |  |
| End. |  |  |  |  |  |  |
| Bal. |  |  |  |  |  |  |

Figure 6-4 Cost of Goods Sold using LIFO
The entry to record the sale would be:

Accounts Receivable
Sales
To record the sale of merchandise on account.
Cost of Goods Sold
Merchandise Inventory
14
o record the cost of the sale.

## The Weighted Average Cost Flow Assumption

A weighted average cost flow is used when low-value, similar items are sold, or when inventory is in the form of a gas or liquid example, when several crude oil shipments are stored in one large holding tank. The weighted average cost assumption is popular in practice because it is easy to calculate.

To calculate a weighted average, the total cost of all purchases of a particular inventory type is divided by the number of units purchased. In our example, the purchase prices for all five units are totalled ( $\$ 1+\$ 2+\$ 3+\$ 4+\$ 5=\$ 15)$ and divided by the total number of units purchased (5). The weighted average cost for each unit is $\$ 3(\$ 15 / 5)$. The weighted average cost of goods sold would be $\$ 12$ (4 units @ $\$ 3$ ). Sales still equal $\$ 40$ resulting in a gross profit under weighted average of $\$ 28(\$ 40-\$ 12)$. The cost of the one unit remaining in ending inventory is $\$ 3$.

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold are:


Figure 6-5 Cost of Goods Sold using Weighted Average
The entry to record the sale would be:

$$
\begin{array}{lcc}
\text { Accounts Receivable } & 40 \\
\quad \text { Sales } & 40 \\
\text { To record the sale of merchandise on account. } \\
\text { Cost of Goods Sold } \\
\quad \text { Merchandise Inventory } & 12 & \\
\text { To record the cost of the sale. } & & 12 \\
\end{array}
$$

## Cost Flow Assumptions: A Comprehensive Example

Recall that under the perpetual inventory system, cost of goods sold is calculated and recorded in the accounting system at the time when sales are recorded. In our simplified example, all sales occurred on June 30 after all inventory had been purchased. In reality, the purchase and sale of merchandise is continous. To demonstrate the calculations when purchases and sales occur continuously throughout the accounting period, let's review a more comprehensive example.

Assume the same example as above, except that sales of units occur as follows during June:

| Date |  | Number <br> of units <br> sold |
| ---: | :---: | :---: |
| June 3 |  | 1 |
| 8 |  | 1 |
| 23 |  | 1 |
| 29 |  | 1 |

To help with the calculation of cost of goods sold, an inventory record card will be used to track the individual transactions. This card records information about purchases such as the date, number of units purchased, and purchase cost per unit. It also records cost of goods sold information: the date of sale, number of units sold, and the cost of each unit sold. Finally, the card records the balance of units on hand, the cost of each unit held, and the total cost of the units on hand.

A partially-completed inventory record card is shown in Figure 6-5 below:

The card tracks the flow of each type of inventory.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | $\begin{array}{c}\text { Unit } \\ \text { Cost }\end{array}$ | $\begin{array}{c}\text { Total } \\ \$\end{array}$ | Units |  |  |  |  | \(\left.\begin{array}{c}Unit <br>

Cost\end{array} \quad $$
\begin{array}{c}\text { Total } \\
\$\end{array}
$$\right)\)

Figure 6-6 Inventory Record Card
In Figure 6-6, the inventory at the end of the accounting period is one unit. This is the number of units on hand according to the accounting records. A physical inventory count must still be done, generally at the end of the fiscal year, to verify the quantities actually on hand. As discussed in Chapter 5, any discrepancies identified by the physical inventory count are adjusted for as reduction.

As purchases and sales are made, costs are assigned to the goods using the chosen cost flow assumption. This information is used to calculate the cost of goods sold amount for each sales transaction at the time of sale. These costs will vary depending on the inventory cost flow assumption used. As we will see in the next sections, the cost of sales may also vary depending on when sales occur.

Comprehensive Example-Specific Identification
To apply specific identification, we need information about which units were sold on each date. Assume that specific units were sold as detailed below.

Date of Sale
June 3
8
23 29

Specific Unit Sold
The unit purchased on June 1 was sold on June 3 The unit purchased on June 7 was sold on June 8 The unit purchased on June 5 was sold on June 23 The unit purchased on June 28 was sold on June 29

Using the information above to apply specific identification, the resulting inventory record card appears in Figure 6-7.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | Unit <br> Cost | Total | Units | Unit Cost | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ | Units | Unit <br> Cost | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ |
| June 1 | 1 | \$1 | \$1 |  |  |  | 1 | \$1 | \$1 |
| 3 |  |  |  | 1 | \$1 | \$1 | 0 | \$0 | \$0 |
| 5 | 1 | \$2 | \$2 |  |  |  | 1 | \$2 | \$2 |
| 7 | 1 | \$3 | \$3 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 2 \\ & 1 @ \$ 3 \end{aligned}$ | $\int \$ 5$ |
| 8 |  |  |  | 1 | \$3 | \$3 | 1 | \$2 | \$2 |
| 21 | 1 | \$4 | \$4 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 2 \\ & 1 @ \$ 4 \end{aligned}$ | ] \$6 |
| 23 |  |  |  | 1 | \$2 | \$2 | 1 | \$4 | \$4 |
| 28 | 1 | \$5 | \$5 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 4 \\ & 1 @ \$ 5 \end{aligned}$ | $\mathcal{F}$ |
| 29 |  |  |  | 1 | \$5 | \$5 | 1 | \$4 | \$4 |

Figure 6-7 Inventory Record Card using Specific Identification
Notice in Figure 6-8 below that the number of units sold plus the units in ending inventory equals the total units that were available for sale ( $4+1=5$ units). As well, the cost of goods sold plus the cost of items in ending inventory equals the cost of goods available for sale ( $\$ 11+\$ 4=\$ 15$ ). This relationship will always be true for each of specific identification, FIFO, LIFO and weighted average.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | $\begin{array}{c}\text { Unit } \\ \text { Cost }\end{array}$ | $\begin{array}{c}\text { Total } \\ \$\end{array}$ | Units |  |  |  |  |  | \(\left.\begin{array}{c}Unit <br>

Cost\end{array} \quad $$
\begin{array}{c}\text { Total } \\
\$\end{array}
$$\right)\)


Figure 6-8 Total Number (or Cost) of Units Sold plus Total Number (or Cost) of Units in Ending Inventory equals Total Number (or Cost) of Units Available for Sale

## Comprehensive Example-FIFO (Perpetual)

Using the same information, we now apply the FIFO cost flow assumption as shown in Figure 6-9.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | Unit Cost | Total \$ | Units | Unit Cost | Total \$ | Units | Unit Cost | Total \$ |
| June 1 | 1 | \$1 | \$1 |  |  |  | 1 | \$1 | \$1 |
| 3 |  |  |  | 1 | \$1 | \$1 | 0 | \$0 | \$0 |
| 5 | 1 | \$2 | \$2 |  |  |  | 1 | \$2 | \$2 |
| 7 | 1 | \$3 | \$3 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 2 \\ & 1 @ \$ 3 \end{aligned}$ | $\} \$ 5$ |
| 8 |  |  |  | 1 | \$2 | \$2 | 1 | \$3 | \$3 |
| 21 | 1 | \$4 | \$4 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 3 \\ & 1 @ \$ 4 \end{aligned}$ | ¢ $\$ 7$ |
| 23 |  |  |  | 1 | \$3 | \$3 | 1 | \$4 | \$4 |
| 28 | 1 | \$5 | \$5 |  |  |  | 2 | $\begin{aligned} & 1 @ \$ 4 \\ & 1 @ \$ 5 \end{aligned}$ | \} \$9 |
| 29 |  |  |  | 1 | \$4 | \$4 | 1 | \$5 | \$5 |
| Tota uni |  |  |  | Total n of units 4 un | ber <br> old: <br> s | $\uparrow$ | Total of en inv | mber <br> s in g ry: |  |
|  |  | Total cost of goods available for sale: \$15 |  |  | Total cost of goods sold:\$10 |  |  | Total cost of ending inventory: \$5 |  |

Figure 6-9 Inventory Record Card using FIFO (Perpetual)
When calculating the cost of the units sold in FIFO, the oldest unit in inventory will always be the first unit removed. For example, in Figure 6-9, on June 8, one unit is sold when the previous balance in inventory consisted of 2 units: 1 unit purchased on June 5 that cost $\$ 2$ and 1 unit purchased on June 7 that cost $\$ 3$. Because the unit costing $\$ 2$ was in inventory first (before the June 8 unit costing \$3), the cost assigned to the unit sold on June 8 is $\$ 2$. Under FIFO, the first units into inventory are assumed to be the first units removed from inventory when calculating cost of goods sold. Therefore, under FIFO, ending inventory will always be the most recent units
purchased. In Figure 6-9, there is one unit in ending inventory and it is assigned the $\$ 5$ cost of the most recent purchase which was made on June 28.

## Comprehensive Example-LIFO (Perpetual)

Using the same information, we now apply the LIFO cost flow assumption as shown in Figure 6-10.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | Unit Cost | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ | Units | Unit Cost | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ | Units | Unit Cost | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ |
| June 1 | 1 | \$1 | \$1 |  |  |  | 1 | \$1 |  |
| 3 |  |  |  |  | \$1 |  | 1 | 1@\$1 | \% 1 |
| 5 | 1 | \$2 | \$2 | 1 |  | \$2 | 1 | 1@\$2 | - \$2 |
| 7 | 1 | \$3 | \$3 |  |  |  | 2 |  | \$3 |
| 8 |  |  |  | 1 | \$2 | \$3 | 1 | \$3 |  |
| 21 | 1 | \$4 | \$4 |  |  |  | 2 | $\begin{aligned} & \text { 1@\$3 } \\ & \text { 1@\$4 } \end{aligned}$ | \} \$7 |
| 23 |  |  |  | 1 | \$3 | \$4 | 1 |  |  |
| 28 | 1 | \$5 | \$5 |  |  |  | 2 | 1@\$5 | 〕 \$5 |
| 29 |  |  |  | 1 | \$4 | \$5 | 1 | \$9 | \$1 |
|  | $\uparrow$ |  |  |  |  |  |  |  |  |
| Total number of units available for sale: 5 units |  |  | ニ | Total nu of units <br> 4 un |  | + | $\begin{array}{r} \text { Total } \\ \text { of } \\ \text { er } \\ \text { inve } \end{array}$ | mber <br> s in ng <br> ory: |  |
|  |  | Total cost of goods available for sale: \$15 |  |  | Total cost of goods sold:\$14 |  |  | Total cost of ending inventory: \$1 |  |

Figure 6-10 Inventory Record Card using LIFO (Perpetual)
When calculating the cost of the units sold in LIFO, the last unit in inventory will always be the first unit removed. For example, in Figure 6-10, on June 8, one unit is sold when the previous balance in inventory consisted of 2 units: 1 unit purchased on June 28 that cost $\$ 5$ and 1 unit purchased on June 21 that cost $\$ 4$. Because the unit costing $\$ 5$ was in inventory last (after the June 8 unit costing \$3),
the cost assigned to the unit sold on June 8 is $\$ 3$. Under LIFO, the last units into inventory are assumed to be the first units removed from inventory when calculating cost of goods sold. Therefore, under LIFO, ending inventory will always be the most recent units purchased. In Figure 6-10, there is one unit in ending inventory and it is assigned the $\$ 1$ cost of the most recent purchase which was made on June 1.

## Comprehensive Example—Weighted Average (Perpetual)

The inventory record card transactions using weighted average costing are detailed in Figure 6-11. For consistency, all weighted average calculations will be rounded to two decimal places. When a perpetual inventory system is used, the weighted average is calculated each time a purchase is made. For example, after the June 7 purchase, the balance in inventory is 2 units with a total cost of $\$ 5.00$ (1 unit at $\$ 2.00+1$ unit at $\$ 3.00$ ) resulting in an average cost per unit of $\$ 2.50(\$ 5.00 \div 2$ units $=\$ 2.50)$. When a sale occurs, the cost of the sale is based on the most recent average cost per unit. For example, the cost of the sale on June 3 uses the $\$ 1.00$ average cost per unit from June 1 while the cost of the sale on June 8 uses the $\$ 2.50$ average cost per unit from June 7.

|  | Purchased |  |  | Sold |  |  | Balance in Inventory |  |  | Average Cost Calc. |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | $\begin{aligned} & \text { Unit } \\ & \text { cost } \end{aligned}$ | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ | Units | $\begin{aligned} & \text { Unit } \\ & \text { cost } \end{aligned}$ | $\begin{gathered} \text { Total } \\ \$ \\ \hline \end{gathered}$ | Units | $\begin{aligned} & \text { Unit } \\ & \text { cost } \end{aligned}$ | $\begin{gathered} \text { Total } \\ \$ \end{gathered}$ | Tot. \$ /Tot. units | Avg. cost /unit |
| June 1 | 1 | \$1 | \$1 |  |  |  | 1 | \$1.00 | \$1.00 | \$1.00/1 | \$1.00 |
| 3 |  |  |  | 1 | \$1.00 | \$1.00 | 0 | \$0.00 | \$0.00 | \$0.00/0 | \$0.00 |
| 5 | 1 | \$2 | \$2 |  |  |  | 1 | \$2.00 | \$2.00 | \$2.00/1 | \$2.00 |
| 7 | 1 | \$3 | \$3 |  |  |  | 2 | \$2.50 | \$5.00 | \$5.00/2 | \$2.50 |
| 8 |  |  |  | 1 | \$2.50 | \$2.50 | 1 | \$2.50 | \$2.50 | \$2.50/1 | \$2.50 |
| 21 | 1 | \$4 | \$4 |  |  |  | 2 | \$3.25 | \$6.50 | \$6.50/2 | \$3.25 |
| 23 |  |  |  | 1 | \$3.25 | \$3.25 | 1 | \$3.25 | \$3.25 | \$3.25/1 | \$3.25 |
| 28 | 1 | \$5 | \$5 |  |  |  | 2 | \$4.13* | \$8.25 | \$8.25/2 | \$4.13* |
| 29 |  |  |  | 1 | \$4.13 | \$4.13 | 1 | \$4.12 | \$4.12 | \$2.12/1 | \$4.12 |

*rounded
Figure 6-11 Inventory Record Card using Weighted Average Costing (Perpetual)

A common error made by students when applying weighted average occurs when the unit costs are rounded. For example, on June 28, the average cost per unit is rounded to $\$ 4.13$ (\$8.25 $\div 2$ units $=\$ 4.125 /$ unit rounded to $\$ 4.13$ ). On June 29 , the cost of the unit sold is $\$ 4.13$, the June 28 average cost per unit. Care must be taken to recognize that the total remaining balance in inventory after the June 29 sale is $\$ 4.12$, calculated as the June 28 ending
inventory total dollar amount of $\$ 8.25$ less the June 29 total cost of goods sold of $\$ 4.13$. Students will often incorrectly use the average cost per unit, in this case $\$ 4.13$, to calculate the ending inventory balance. This produces an incorrect result. The cost of goods sold plus the balance in inventory must equal the goods available for sale ( $\$ 4.12+\$ 4.13=\$ 8.25$ ).

Figure 6-12 compares the results of the three cost flow methods. Goods available for sale, units sold, and units in ending inventory are the same regardless of which method is used. Because each cost flow method allocates the cost of goods available for sale in a particular way, the cost of goods sold and ending inventory values are different for each method.

|  | Total cost <br> of goods <br> available <br> for sale | Total units <br> available <br> for sale | Total <br> cost of <br> goods <br> sold | Total <br> units sold | Total cost <br> of ending <br> inventory | Total <br> units in <br> ending <br> inventory |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: |
| $\quad$Cost flow <br> assumption | $\$ 15.00$ | 5 | $\$ 11.00$ | 4 | $\$ 4.00$ | 1 |
| Specific identification | 15.00 | 5 | 10.00 | 4 | 5.00 | 1 |
| FIFO | 15.00 | 5 | 10.88 | 4 | 4.12 | 1 |
| Weighted average | 15.00 | 5 | 14.00 | 4 | 1 | 1 |
| LIFO |  |  |  |  |  |  |

Figure 6-12 Comparing Specific Identification, FIFO, LIFO and Weighted Average

## Journal Entries

In Chapter 5 the journal entries to record the sale of merchandise were introduced. Chapter 5 showed how the dollar value included in these journal entries is determined. We now know that the information in the inventory record is used to prepare the journal entries in the general journal. For example, the credit sale on June 23 using weighted average costing would be recorded as follows (refer to Figure 6-11).

Accounts Receivable Sales
10.00
10.00

To record the sale of merchandise on account at \$10 per unit.
Cost of Goods Sold 3.25
Merchandise Inventory
To record the cost of the sale.
Perpetual inventory incorporates an internal control feature that is lost under the periodic inventory system. Losses resulting from theft and error can easily be determined when the actual quantity
of goods on hand is counted and compared with the quantities shown in the inventory records as being on hand. It may seem that this advantage is offset by the time and expense required to continuously update inventory records, particularly where there are thousands of different items of various sizes on hand. However, computerization makes this record keeping easier and less expensive because the inventory accounting system can be tied in to the sales system so that inventory is updated whenever a sale is recorded.

## Inventory Record Card

In a company such as a large drugstore or hardware chain, inventory consists of thousands of different products. For businesses that carry large volumes of many inventory types, the general ledger merchandise inventory account contains only summarized transactions of the purchases and sales. The detailed transactions for each type of inventory would be recorded in the underlying inventory record cards. The inventory record card is an example of a subsidiary ledger, more commonly called a subledger. The merchandise inventory subledger provides a detailed listing of type, amount, and total cost of all types of inventory held at a particular point in time. The sum of the balances on each inventory record card in the subledger would always equal the ending amount recorded in the Mechandize Inventory general ledger account. So a subledger contains the detail for each product in inventory while the general ledger account shows only a summary. In this way, the general ledger information is streamlined while allowing for detail to be available through the subledger.

## B. Financial Statement Impact of Different Inventory Cost Flows

LO2 - Explain the impact on
financial
statements of inventory cost flow
assumptions and errors.

Purchase prices may change as a result of larger economic or political phenomenon. For example, the cost of a barrel of oil can be affected by a decision made by a large producer like the government of Saudi Arabia. Changes in the purchasing power of a national currency over time can also affect the costs of purchased inventory. When costs of purchases are increasing, as in a period of inflation (or decreasing, as in a period of deflation), each cost flow assumption results in a different value for cost of goods sold and the resulting ending inventory, gross profit, and net income.

Using information from the preceding comprehensive example, the effects of each cost flow assumption on net income and ending inventory for the month are shown in Figure 6-13.

|  | Spec. <br> ident. | FIFO | Wtd. avg. | LIFO |
| :---: | :---: | :---: | :---: | :---: |
| Sales (4 units @ \$10) | \$40.00 | \$40.00 | \$40.00 | \$40.00 |
| Cost of goods sold | 11.00 | 10.00 | 10.88 | 14.00 |
| Gross profit and net income | \$29.00 | \$30.00 | \$29.12 | \$26.00 |
| Ending inventory (on the balance sheet) | \$ 4.00 | \$ 5.00 | \$ 4.12 | \$1.00 |

Figure 6-13 Effects of Different Cost Flow Assumptions
FIFO maximizes net income and ending inventory amounts when costs are rising. FIFO minimizes net income and ending inventory amounts when purchase costs are decreasing. However, LIFO does the opposite of FIFO.

Because different cost flow assumptions can affect the financial statements, GAAP requires that each company disclose the inventory cost flow method it uses in a note to the financial statements. Additionally, GAAP requires that once a method is adopted, it must be used every accounting period consistently thereafter unless there is a justifiable reason to change. However, if a company carries a variety of inventory items, it may choose a different cost flow assumption for each type of item, as long as these are applied consistently and disclosed. For example, Wal-Mart might use weighted average to account for its sporting goods items and specific identification for each of its various major appliances.

## Effect of Inventory Errors on the Financial Statements

There are two components necessary to determine the inventory value disclosed on a corporation's balance sheet. The first component involves calculating the quantity of inventory on hand at the end of an accounting period by performing a physical inventory count. The second requirement involves assigning the most appropriate cost to this quantity of inventory.

An error in calculating either the quantity or the cost of ending inventory will misstate reported income for two time periods. Assume merchandise inventory at December 31, 2017, 2018, and 2019 was reported as $\$ 2,000$ and that merchandise purchases during each of 2018 and 2019 were $\$ 20,000$. There were no other expenditures. Assume further that sales each year amounted to
$\$ 30,000$ with cost of goods sold of $\$ 20,000$ resulting in gross profit of $\$ 10,000$. These transactions are summarized below.


Figure 6-14 Income Statement Effects, No Errors in Ending Inventory

Assume now that ending inventory was misstated at December 31, 2018. Instead of the $\$ 2,000$ that was reported, the correct value should have been $\$ 1,000$. The effect of this error was to understate cost of goods sold on the income statement-cost of goods sold should have been $\$ 21,000$ in 2018 as shown below instead of $\$ 20,000$ as originally reported above. Because of the 2018 error, the 2019 beginning inventory was incorrectly reported above as $\$ 2,000$ and should have been $\$ 1,000$ as shown below. This caused the 2019 gross profit to be understated by $\$ 1,000$-cost of goods sold in 2019 should have been $\$ 19,000$ as illustrated below but was originally reported above as $\$ 20,000$.


Figure 6-15 Income Statement Effects, Error in 2018 Ending Inventory

As can be seen, income is misstated in both 2018 and 2019 because cost of goods sold in both years is affected by the adjustment to ending inventory needed at the end of 2018 and 2019. The opposite effects occur when inventory is understated at the end of an accounting period.

An error in ending inventory is offset in the next year because one year's ending inventory becomes the next year's opening inventory. This process can be illustrated by comparing gross profits for 2018 and 2019 in the above example. The sum of both years' gross profits is the same.

|  | Overstated <br> inventory | Correct <br> inventory |
| :--- | ---: | ---: |
| Gross profit for 2018 | $\$ 10,000$ | $\$ 9,000$ |
| Gross profit for 2019 | $\underline{10,000}$ | $\underline{11,000}$ |
| Total | $\underline{\$ 20,000}$ | $\underline{\$ 20,000}$ |

Figure 6-16 Gross Profit Effects Balance Out Over Two Years

## C. Lower of Cost and Net Realizable Value (LCNRV)

LO3 - Explain and calculate lower of cost and net realizable value inventory adjustments.

In addition to the adjusting entry to record the shrinkage of merchandise inventory (discussed in Chapter 5), there is an additional adjusting entry to be considered at the end of the accounting period when calculating cost of goods sold and ending inventory values for the financial statements. Generally accepted accounting principles require that inventory be valued at the lesser amount of its laid-down cost and the amount for which it can likely be sold-its net realizable value (NRV). This concept is known as the lower of cost and net realizable value, or LCNRV. Laid-down cost includes the invoice price of the goods (less any purchase discounts) plus transportation in, insurance while in transit, and any other expenditure made by the purchaser to get the merchandise to the place of business and ready for sale.

As an example of LCNRV, a change in consumer demand may mean that inventories become obsolete and need to be reduced in value below the purchase cost. This often occurs in the electronics industry as new and more popular products are introduced.

The lower of cost and net realizable value can be applied to individual inventory items or groups of similar items. Assume two types of inventory for a paper supply company, as shown in Figure 6-17 below.

|  | Total cost | Total NRV | LCNRV |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Unit basis | Group basis |
| White paper | \$1,250 | \$1,200 | \$1,200 |  |
| Coloured paper | 1,400 | 1,500 | 1,400 |  |
| Total | $\xlongequal{\$ 2,650}$ | \$2,700 | \$2,600 | $\frac{\$ 2,650}{1}$ |
| Ending inventory (LCNRV) |  |  | \$2,600 | \$2,650 |

Figure 6-17 LCNRV Calculations
Depending on the calculation used, the valuation of ending inventory will be either $\$ 2,600$ or $\$ 2,650$. Under the unit basis, the lower of cost and net realizable value is selected for each item: $\$ 1,200$ for white paper and $\$ 1,400$ for coloured paper, for a total LCNRV of $\$ 2,600$. Because the LCNRV is lower than cost, an adjusting entry must be recorded as follows.

Cost of Goods Sold
Merchandise Inventory
50

To adjust inventory to LCNRV.
The purpose of the adjusting entry is to ensure that inventory is not overstated on the balance sheet and that net income is not overstated on the income statement.

If white paper and coloured paper are considered a similar group, the calculations in Figure 6-17 above show they have a combined cost of $\$ 2,650$ and a combined net realizable value of $\$ 2,700$. LCNRV would therefore be $\$ 2,650$. In this case, the cost is equal to the LCNRV so no adjusting entry would be required if applying LCNRV on a group basis.

## D. Estimating the Balance in Merchandise Inventory

LO4 - Estimate merchandise inventory using the gross profit method and the retail inventory method.

A physical inventory count determines the quantity of items on hand. When costs are assigned to these items and these individual costs are added, a total inventory amount is calculated. Is this dollar amount correct? Should it be larger? How can one tell if the physical count is accurate? Being able to estimate this amount provides a check on the reasonableness of the physical count and valuation.

The two methods used to estimate the inventory dollar amount are the gross profit method and the retail inventory method. Both
methods are based on a calculation of the gross profit percentage in the income statement. Assume the following information:

| Sales |  | \$15,000 | 100\% |
| :---: | :---: | :---: | :---: |
| Cost of goods sold: |  |  |  |
| Opening inventory | \$ 4,000 |  |  |
| Purchases | 12,000 |  |  |
| Cost of goods available for sale | 16,000 |  |  |
| Less: Ending inventory | $(6,000)$ |  |  |
| Cost of goods sold |  | 10,000 | 67\% |
| Gross profit |  | \$ 5,000 | 33\% |

The gross profit percentage, rounded to the nearest whole percent, is $33 \%(\$ 5,000 / 15,000)$. This means that for each dollar of sales, an average of $\$ .33$ is left to cover other expenses after deducting cost of goods sold.

Estimating ending inventory requires an understanding of the relationship of ending inventory with cost of goods sold.

Review the following cost of goods sold calculations.

| Cost of goods sold |  | Cost of goods sold |  |
| :---: | :---: | :---: | :---: |
| Opening inventory | \$ 4,000 | Opening inventory | \$ 4,000 |
| Purchases | 12,000 | Purchases | 12,000 |
| Cost of goods available for sale | 16,000 | Cost of goods available for sale | 16,000 |
| Less: Estimated ending inventory | ? | Less: Estimated ending inventory | 6,000 |
| Cost of goods sold | \$10,000 | Cost of goods sold |  |
|  |  |  |  |
| How much of the $\$ 16,000$ of goods that the company had available to sell is still not sold at December 31 (in other words, what is ending inventory)? You can calculate this as: |  | How much of the $\$ 16,000$ of goods that were available to be sold have been sold? Use the dollar amount of ending inventory to calculate this: |  |
|  |  |  |  |
| Available for sale | \$16,000 | Available for sale | \$16,000 |
| Less inventory that was sold | 10,000 | Less inventory on hand | 6,000 |
| Equals what must still be on hand | \$ 6,000 | Equals what must have been sold | \$10,000 |

The sum of cost of goods sold and ending inventory is always equal to cost of goods available for sale. Knowing any two of these amounts enables the third amount to be calculated. Understanding this relationship is the key to estimating inventory using either the gross profit or retail inventory methods, discussed below.

## Gross Profit Method

The gross profit method of estimating ending inventory assumes that the percentage of gross profit on sales remains approximately the same from period to period. Therefore, if the gross profit
percentage is known, the dollar amount of ending inventory can be estimated. First, gross profit is estimated by applying the gross profit percentage to sales. From this, cost of goods sold can be derived, namely the difference between sales and gross profit. Cost of goods available for sale can be determined from the accounting records (opening inventory + purchases). The difference between cost of goods available for sale and cost of goods sold is the estimated value of ending inventory.

To demonstrate, assume that Pete's Products Ltd. has an average gross profit percentage of $40 \%$. If opening inventory at January 1, 2019 was $\$ 200$, sales for the six months ended June 30, 2019 were $\$ 2,000$, and inventory purchased during the six months ended June 30,2019 was $\$ 1,100$, the cost of goods sold and ending inventory can be estimated as follows.

Sales (given)
Cost of goods sold
Opening inventory (given)
Purchases (given)
Cost of goods available for sale
Less: Estimated ending inventory
Cost of goods sold
Gross profit


The estimated ending inventory at June 30 must be $\$ 100$-the difference between the cost of goods available for sale and cost of goods sold.

The gross profit method of estimating inventory is useful in situations when goods have been stolen or destroyed by fire or when it is not cost-effective to make a physical inventory count.

Step 1: Opening inventory and purchases (and therefore cost of goods available for sale) are restated at retail (cost x 160\%).

Step 3: Ending inventory can be derived (\$2,080 $-2,000=\$ 80$ ).

## Retail Inventory Method

The retail inventory method is another means to estimate cost of goods sold and ending inventory. It can be used when items are consistently valued at a known percentage of cost, known as a mark-up. A mark-up is the ratio of retail value (or selling price) to cost. For example, if an inventory item had a cost of $\$ 10$ and a retail value of $\$ 12$, it was marked up to $120 \%$ ( $12 / 10 \times 100$ ). Mark-ups are commonly used in clothing stores.

First, the cost of goods available for sale is converted to its retail value (the selling price). To do this, the mark-up must be known. Assume the same information as above for Pete's Products Ltd., except that now every item in the store is marked up to $160 \%$ of its purchase price. That is, if an item is purchased for $\$ 100$, it is sold for $\$ 160$. Based on this, opening inventory, purchases, and cost of goods available can be re-stated at retail. Cost of goods sold can then be valued at retail, meaning that it will equal sales for the period. From this, ending inventory (at retail) can be determined, then converted back to cost using the mark-up. These steps are illustrated below.


The retail inventory method of estimating ending inventory is easy to calculate and produces a relatively accurate cost of ending inventory, provided that no change in the average mark-up has occurred during the period.

Appendix: Inventory Cost Flow Assumptions Under the Periodic System

LO5 - Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), and weighted average cost flow assumptions, using the periodic inventory system.

Recall from Chapter 5 that the periodic inventory system does not maintain detailed records to calculate cost of goods sold each time a sale is made. Rather, when a sale is made, the following entry is made:

Date | Accounts Receivable XX XX |
| :---: |
| Sales |

No entry is made to record cost of goods sold and to reduce Merchandise Inventory, as is done under the perpetual inventory system. Instead, all purchases are expenses and recorded in the general ledger account "Purchases." A physical inventory count is conducted at year-end. An amount for ending inventory is calculated based on this count and the valuation of the items in inventory, and cost of goods sold is calculated in the income statement based on this total amount. The income statement format is:

Sales
Cost of goods sold Opening inventory $\$ 1,000$ Purchases $\quad \underline{5,000}$
Goods available for sale 6,000
Less: Ending inventory $\quad(2,000)$
Cost of goods sold
Gross profit
\$10,000 4,000 \$6,000

Even under the periodic inventory system, however, inventory cost flow assumptions need to be made (specific identification, FIFO, weighted average) when purchase prices change over time, as in a period of inflation. Further, different inventory cost flow assumptions produce different cost of goods sold and ending inventory values, just as they did under the perpetual inventory system. These effects have been explained earlier in this chapter. Under the periodic inventory system, cost of goods sold and ending inventory values are determined as if the sales for the period all take place at the end of the period. These calculations were demonstrated in our earliest example in this chapter.

Our original example using units assumed there was no opening inventory at June 1, 2018 and that purchases were made as follows.

| Date | Purchase <br> Transaction |  |
| :---: | :---: | :---: |
|  | Number of units | Price per unit |
| June 1 | 1 | \$ 1 |
| 5 | 1 | 2 |
| 7 | 1 | 3 |
| 21 | 1 | 4 |
| 28 | 1 | 5 |

When recorded in the general ledger T-account "Purchases" (an income statement account), these transactions would be recorded as follows:

| Purchases |  | No. 570 |
| ---: | ---: | ---: |
| Jun. 1 | $\$ 1$ |  |
| 5 | 2 |  |
| 7 | 3 |  |
| 21 | 4 |  |
| 28 | 5 |  |

Sales of four units are all assumed to take place on June 30. Ending inventory would then be counted at the end of the day on June 30. One unit should be on hand. It would be valued as follows under the various inventory cost flow assumptions, as discussed in the first part of the chapter:

Specific identification \$4
FIFO 5
Weighted average 3

These values would be used to calculate cost of goods sold and gross profit on the income statement, as shown in Figure 6-16 below:

| Sales | Spec. ident. \$40 | $\begin{gathered} \text { FIFO } \\ \$ 40 \end{gathered}$ | Wtd. avg. \$40 |
| :---: | :---: | :---: | :---: |
| Cost of goods sold |  |  |  |
| Opening inventory | -0- | -0- | -0- |
| Purchases | 15 | 15 | 15 |
| Goods available for sale | 15 | 15 | 15 |
| Less: Ending inventory | (4) | (5) | (3) |
| Cost of goods sold | 11 | 10 | 12 |
| Gross profit and net income | \$29 | \$30 | \$28 |
| Ending inventory (balance sheet) | \$ 4 | \$ 5 | \$ 3 |

Figure 6-18 Effects of Different Cost Flow Assumptions: Periodic Inventory System

Note that these results are the same as those calculated using the perpetual inventory system and assuming all sales take place on June 30 using specific identification (Figure 6-2), FIFO (Figure 6-3), LIFO (Figure 6-4), and weighted average (Figure 6-5) cost flow assumptions, respectively.

## ASSIGNMENTMATERIALS Concept Self-check

1. What three inventory cost flow assumptions can be used in perpetual inventory systems?
2. What impact does the use of different inventory cost flow assumptions have on financial statements?
3. How do rising costs affect ending inventory and cost of goods sold values using FIFO, LIFO and weighted average cost flow assumptions?
4. Assume that you are the president of your company and paid a year-end bonus according to the amount of net income earned during the year. When prices are rising, would you choose a FIFO, LIFO or weighted average cost flow assumption? Explain, using an example to support your answer. Would your choice be the same if prices were falling?
5. The ending inventory of CBCA Inc. is overstated by $\$ 5,000$ at December 31, 2017. What is the effect on 2017 net income? What is the effect on 2018 net income assuming that no other inventory errors have occurred during 2018?
6. What is meant by the laid-down cost of inventory?
7. When should inventory be valued at less than cost? What does the term net realizable value mean?
8. What is the primary reason for using the LCNRV method of inventory valuation?
9. Why is estimating inventory useful?
10. How does the estimation of ending inventory differ between the gross profit method and the retail inventory method? Use examples to illustrate.
11. When is the gross profit method particularly useful?
12. Does the retail inventory method assume any particular inventory cost flow assumption?
13. (Appendix) Contrast the journal entries required under the periodic and perpetual inventory systems.

## Comprehension Problems

## CP 6-1

Laplante Inc. uses the perpetual inventory system. The following transactions took place during January 2019

|  |  | Unit |  |
| ---: | :--- | ---: | ---: |
| Date |  | Units | Cost |
| Jan. 1 | Opening Inventory | 100 | $\$ 1$ |
| 7 | Purchase \#1 | 10 | 2 |
| 9 | Sale \#1 | 80 |  |
| 21 | Purchase \#2 | 20 | 3 |
| 24 | Sale \#2 | 40 |  |

Required: Using the table below, calculate cost of goods sold, and ending inventory under the following inventory cost flow assumptions:

1. FIFO, LIFO
2. Weighted average.

|  | Purchased |  |  | Sold |  |  |  | Balance in Inventory |  |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | $\begin{array}{c}\text { Unit } \\ \text { Cost }\end{array}$ | $\begin{array}{c}\text { Total } \\ \$\end{array}$ | Units | $\begin{array}{c}\text { Unit } \\ \text { Cost }\end{array}$ | $\begin{array}{c}\text { Total } \\ \$\end{array}$ |  | Units | Unit |  |
| Cost |  |  |  |  |  |  |  |  |  |  | \(\left.\begin{array}{c}Total <br>

\$\end{array}\right]\)

## CP 6-2

ABBA uses the perpetual inventory system. The following transactions took place in January 2017.

|  |  | Unit <br> Selling <br> Price/ |
| ---: | ---: | ---: |
|  |  | Units |
| Cost |  |  |

Assume all sales are made on account.
Required:

1. Calculate the ending inventory under the three-cost flow assumption: a) FIFO, b) LIFO, and c) weighted average.
2. Assume ABBA uses the FIFO and LIFO inventory cost flow assumption
a. Show calculations for cost of goods sold for both inventory methods.
3. Assume ABBA uses the weighted average inventory cost flow assumption
a. Show calculations for cost of goods sold.

## CP 6-3

The following information is taken from the records of East Oak Distributors Inc. The company uses the perpetual inventory system.

| Date |  | Unit <br> Units |
| :--- | :--- | ---: | :---: |
| Cost/Price |  |  |

## Required:

1. Calculate cost of goods sold and the cost of ending inventory under each of the following inventory cost flow assumptions:
a. FIFO
b. LIFO
c. Weighted average.
2. Complete the following partial income statements:

|  | FIFO | LIFO | Wtd. <br> Avg. |
| :--- | :---: | :---: | :---: |
| Sales | $\$$ | $\$$ | $\$$ |
| Cost of goods sold |  |  |  |
| Gross profit |  |  |  |

3. Which costing method would you choose if you wished to maximize net income? Maximize ending inventory value?

## CP 6-4

Required: Choose the method of inventory valuation that corresponds to each of the statements that follow:

1. FIFO
2. Weighted average.
3. LIFO
$\qquad$ Matches actual flow of goods with actual flow of costs in most cases Matches old costs with new sales prices Results in the lowest net income in periods of falling prices Does not assume any particular flow of goods Best suited for situations in which inventory consists of perishable goods
Values ending inventory at approximate replacement cost

## CP 6-5

Listed below are four common accounting errors. Using the format shown, indicate the effect, if any, of each of the errors on the company's financial statements for the items shown. Assume the company uses the perpetual inventory system and that the ending inventory balance will be adjusted to the physical count at year-end.

|  | 2017 Statements |  |  |  | 2018 Statements |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Errors | Opening invent. | Ending invent. | $2017$ <br> Total assets |  | Opening invent. | Ending invent. | 2018 <br> Total <br> assets | $\begin{gathered} 2018 \\ \text { Net } \\ \text { income } \end{gathered}$ |
| 1. Goods purchased in 2017 were included in December 31 inventory, but the transaction was not recorded until early 2018. | -0- |  |  |  |  |  |  |  |
| 2. Goods purchased in 2017 were included in December 31, 2017 inventory, and the transaction was recorded in 2017. | -0- |  |  |  |  |  |  |  |
| 3. Goods were purchased in 2017 and the transaction recorded in that year; however, the goods were not included in the December 31 inventory as they should have been. | -0- |  |  |  |  |  |  |  |
| 4. Goods purchased in 2017 were excluded from December 31 inventory, and the transaction was recorded early in 2018. | -0- |  |  |  |  |  |  |  |

Required: Use a + (plus sign) to denote that an item is too high as a result of the error, a - (minus sign) to denote that it is too low, and a -0-(zero) to indicate no effect. The answer for the 2017 opening inventory is shown.

## CP 6-6

Partial income statements of Lilydale Products Inc. are reproduced below:

|  | 2019 | 2020 | 2021 |
| :--- | ---: | ---: | ---: |
| Sales | $\$ 30,000$ | $\$ 40,000$ | $\$ 50,000$ |
| Cost of Goods Sold | 20,000 | 23,000 | 25,000 |
| Gross Profit | $\$ 10,000$ | $\$ 17,000$ | $\$ 25,000$ |
|  |  |  |  |

## Required:

1. Calculate the impact of the two errors listed below on the gross profit calculated for the three years:
a. The 2019 ending inventory was understated by $\$ 2,000$.
b. The 2021 ending inventory was overstated by $\$ 5,000$.
2. What is the impact of these errors on total assets?

## CP 6-7

Erndale Products Ltd. has the following items in inventory at year-end:

|  |  | Cost |  |
| :---: | :---: | :---: | :---: |
| Item | Units | (FIFO) | NRV |
| X | 2 | $\$ 50$ | $\$ 60$ |
| Y | 3 | 150 | 75 |
| Z | 4 | 25 | 20 |

Required: Calculate the cost of ending inventory using LCNRV on

1. A unit-by-unit basis
2. A group inventory basis.

## CP 6-8

Windy City Insurance Ltd. has received a fire-loss claim of \$45,000 from Balton Corp. A fire destroyed Balton's inventory on May 25, 2018.
Balton has an average gross profit of $331 / 3$ per cent. You have obtained the following information:

| Inventory, May 1, 2018 | $\$ 80,000$ |
| :--- | ---: |
| Purchases, May 1 - May 25 | 150,000 |
| Sales, May 1 - May 25 | 300,000 |

Required:

1. Calculate the estimated amount of inventory lost in the fire.
2. How reasonable is Balton's claim?

## CP 6-9

The records of Renault Corporation showed that sales during the period were $\$ 276,000$, Opening inventory amounted to $\$ 26,000$ at cost, Purchases were $\$ 90,000$ at cost. The company paid $\$ 4,000$ for transportation-in. Mark-up on all items sold is $300 \%$.

## Required:

1. Calculate:
a. Cost of goods available for sale at retail
b. Cost of goods sold at retail
c. Ending inventory at retail
d. Ending inventory at cost
e. Cost of goods sold at cost
f. Gross profit at cost.
2. Demonstrate that your results maintain a $300 \%$ mark-up.

## CP 6-10

Midlife Corp. is in the process of preparing its financial statements as at May 31, 2018. It has a consistent mark-up of $200 \%$ on goods it sells. The following information is available for the five months ended May 31:

| Opening inventory | $\$ 10,000$ |
| :--- | ---: |
| Net purchases | 140,000 |
| Sales | 250,000 |

Required: Estimate the cost of ending inventory at May 31.

Link to Original

## CP 6-11 (Appendix)

On March 15, 2017, Sudden Sales Co. purchased \$5,000 of merchandise for cash.

Required: Assuming that Sudden Sales uses the periodic inventory system, calculate the cost of goods sold in each of the following circumstances:

1. Opening inventory, -0-; ending inventory, \$2,000
2. Opening inventory, $\$ 3,000$; ending inventory, $\$ 4,000$
3. Opening inventory, $\$ 1,000$; ending inventory, $\$ 1,500$
4. Opening inventory, $\$ 2,000$; ending inventory, $-0-$

## CP 6-12 (Appendix)

Bouchard Inc. uses a periodic inventory system.

|  | Units | Unit |
| :--- | ---: | :---: |
|  |  | Cost |
| Opening inventory | 100 | $\$ 1$ |
| Purchase \#1 | 10 | 1 |
| Purchase \#2 | 20 | 2 |
| Purchase \#3 | 30 | 3 |
| Purchase \#4 | 40 | 4 |
| Purchase \#5 | 50 | 5 |

The company sold 200 units during the month at $\$ 6$ per unit.
Required: Using the income statement format shown below, calculate ending inventory, cost of a good sold, and gross profit for each of:

1. FIFO
2. LIFO
3. Weighted average.

## Sales

| FIFO | LIFO |
| ---: | :--- |
| $\$ 1,500$ | $\$ 1,500$ |

Cost of goods sold
Opening inventory
Purchases
Cost of goods available
Less: Ending inventory
Cost of goods sold
Gross profit

## CP 6-13 (Appendix)

The following transactions took place in ABBA Limited in 2017.

| Opening Inventory | 2,000 units @ $\$ 0.50$ |
| :--- | ---: |
| Purchase \#1 | 1,000 units @ $\$ 2.00$ |
| Purchase \#2 | 500 units @ $\$ 1.00$ |
| Purchase \#3 | 1,000 units @ $\$ 2.50$ |
| Sales | 2,000 units |

Assume a periodic inventory system is used.
Required: Calculate

1. Ending inventory under LIFO
2. Ending inventory under FIFO
3. Ending inventory under weighted average.
4. Cost of goods sold under LIFO
5. Cost of goods sold under FIFO
6. Cost of goods sold under weighted average.

## CP 6-14 (Appendix)

The following information is taken from the records of West End Distributors Inc. The company uses the periodic inventory system.

|  |  | Units | Unit <br> cost |
| ---: | :--- | :---: | :---: |
| May | 1 | Opening Inventory | 100 |
| 6 | Purchase \#1 | 200 | 1 |
| 12 | Purchase \#2 | 125 | 2 |
| 19 | Purchase \#3 | 350 | 2 |
| 29 | Purchase \#4 | 150 | 3 |

At May 31, 200 units remain unsold. For specific identification purposes, items on hand were:

100 units of purchase \#1
100 units of purchase \#4
The other units were sold on May 31 for $\$ 2$ each.

## Required:

1. Calculate the cost of ending inventory under each of the following costing methods:
a. FIFO
b. LIFO
c. Weighted average.
2. Complete the following partial income statements:

Sales
FIFO
$\$ 1,450$
$\$ 1,450$

Cost of goods sold
Opening inventory
Purchases
Cost of goods available
Less: Ending inventory
Cost of goods sold
Gross profit

Sam company reports the following beginning inventory and purchases, and it ends the period with 40 units in inventory.

Beginning inventory . . . . . . . . . . 100 units at $\$ 11$ cost per unit
Purchase 1. . . . . . . . . . . . . . . . . . 40 units at $\$ 12$ cost per unit
Purchase 2 . . . . . . . . . . . . . . . . . . 20 units at $\$ 13$ cost per unit
a. Compute ending inventory using the FIFO periodic system.
b. Compute cost of goods sold using the LIFO periodic system.

## Problems

## P 6-1

The following sales and purchases of the same product were made during 2020 at Yang Corporation. The opening inventory consisted of 50 units at $\$ 1$ each.
Apr. 15 Purch. \#1
Oct. 15 Purch. \#2 600

| Sales |  |  |
| :--- | :--- | :---: |
|  | Total |  |
| Apr. 25 | Units | $\$$ |
| Oct. 25 | Sale | $\$ 250$ |
| Sale \#2** | $\$ 500$ |  |

*for specific identification, sold 50 units of opening inventory and 200 units of purchase \#1
${ }^{* *}$ for specific identification, sold 500 units of purchase \#2
Required:

1. Calculate cost of goods sold and the cost of ending inventory under each of FIFO, LIFO, and weighted average inventory cost flow assumptions. Set up a table as follows:

|  | Purchased |  |  | Sold |  |  | Balance in inventory |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | Unit <br> cost | Total <br> $\$$ | Units | Unit <br> cost | Total <br> $\$$ | Units | Unit <br> cost | Total <br> $\$$ |
|  |  |  |  |  |  |  | 50 | $\$ 1$ | $\$ 50$ |

2. Prepare calculations comparing the effect on gross profit of the three inventory cost flow assumptions.
3. The president wants to maximize the company's net income this year. What would you suggest that is in accordance with GAAP?

## P 6-2

Palermo Inc. uses the perpetual inventory system. All sales are made on account. The following data are taken from the company's for the year ended December 31, 2020 :


Required:

1. Calculate ending inventory and COGS under a) FIFO, b) LIFO and c) weighted average inventory cost flow assumptions.
2. Calculate the amount of gross profit for the year under FIFO, LIFO and weighted average inventory cost flow assumptions. Which method matches cost of goods sold more closely with revenues? Why?

## P 6-3

Southern Cross Company Limited made the following purchases and sales of Products A and B during the year ended December 31, 2018:

## Product A

|  |  | Unit cost/ |  |
| :--- | :--- | ---: | :---: |
| Jan. 07 | Purchase \#1 | 8,000 | $\$ 12.00$ |
| Mar. 30 | Sale \#1 | 9,000 | 16.00 |
| May 10 | Purchase \#2 | 12,000 | 12.10 |
| Jul. 04 | Sale \#2 | 14,000 | 17.00 |

## Product B

|  |  | Unit cost/ |  |
| :--- | :--- | ---: | :---: |
|  |  | Units | selling price |
| Jan. 13 | Purchase \#1 | 5,000 | $\$ 13.81$ |
| Jul. 15 | Sale \#1 | 1,000 | 20.00 |
| Oct. 23 | Purchase \#2 | 7,000 | 14.21 |
| Dec. 14 | Sale \#2 | 8,000 | 21.00 |

Opening inventory at January 1 amounted to 4,000 units at $\$ 11.90$ per unit for Product A and 2,000 units at $\$ 13.26$ per unit for Product B.

Required:

1. Prepare inventory record cards for Products A and B for the year using the weighted average inventory cost flow assumption.
2. Calculate total cost of ending inventory at December 31, 2018.
3. Assume now that Southern Cross keeps over 1,000 types of inventory on hand. Why might staff prefer to use computerized accounting software if a perpetual inventory system is used?
4. (Appendix) What recommendations might you make to the president of Southern Cross regarding the use of the perpetual inventory system if only Products A and B are sold?

## P 6-4

Northgate Products Corp. sells gadgets and uses the perpetual inventory system. During the month of January 2018, the number of gadgets purchased and sold was as follows:

|  | Purchased |  |  | Sold |  |  | Balance in inventory |  |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Units | $\begin{array}{c}\text { Unit } \\ \text { cost }\end{array}$ | $\begin{array}{c}\text { Total } \\ \$\end{array}$ | Units |  |  |  |  |  | \(\left.\begin{array}{c}Unit <br>

cost\end{array} $$
\begin{array}{c}\text { Total } \\
\$\end{array}
$$\right)\)

Assume the January 10 units were sold on account for $\$ 3$ each, and the January 20 units were sold on account for $\$ 5$ each.
*for specific identification, sold 50 units of opening inventory and 150 units of purchase \#2
**for specific identification, sold 100 units of purchase \#1 and 300 units from purchase \#3

## Required:

1. Complete the inventory record card, and calculate cost of goods sold and the cost of ending inventory under each of the following inventory cost flow assumptions:
a. FIFO
b. LIFO
c. Weighted average.
2. Prepare the journal entries required to record purchases and sales using the FIFO inventory cost flow assumption.
3. Calculate the sum of cost of goods sold and ending inventory balances under each of the three assumptions. Explain the results.

## P 6-5

Partial income statements of Schneider Products Inc. are reproduced below:

|  | 2017 | 2018 |
| :--- | ---: | ---: |
| Sales | $\$ 50,000$ | $\$ 50,000$ |
| Cost of goods sold | 20,000 |  |
| Gross profit | $\$ 30,000$ |  |

The 2017 ending inventory was overstated by $\$ 2,000$ during the physical count. The 2018 physical inventory count was done properly.

Required:

1. Calculate the impact of this error on the gross profit calculated for 2017 and 2018.
2. What is the impact of this error on total assets at the end of 2017 and 2018? Net assets?

## P 6-6

The year-end inventory of Goodall Inc. consisted of the following similar groups of items, priced at cost and at net realizable value:

| Item | Cost | NRV |
| :---: | ---: | ---: |
| A | $\$ 60$ | $\$ 63$ |
| B | 40 | 40 |
| C | 80 | 78 |
| D | 50 | 42 |

Required: Calculate ending inventory based on:

1. Cost
2. LCNRV (unit basis)
3. LCNRV (group basis).

## P 6-7

Reflex Corporation sells three products. The inventory valuation of these products is shown below for years 2018 and 2019.


The partial comparative income statements for the two years follow:

## Sales

$\frac{2018}{\$ 1,500} \frac{2019}{\$ 1,500}$

Cost of goods sold
Opening inventory
Purchases
Cost of goods available Ending inventory
$\qquad$

Cost of goods sold
Gross profit

## Required:

1. If Reflex values its inventory using LCNRV/unit basis, complete the 2018 and 2019 cost, net realizable value, and LCNRV calculations.
2. Complete the partial income statements for 2018 using cost, LCNRV/unit basis, and LCNRV/group basis to calculate ending inventory and cost of goods sold.
3. Complete the partial income statements for 2019 using cost, LCNRV/unit basis, and LCNRV/group basis to calculate ending inventory and cost of goods sold.
4. Which inventory valuation would yield the same gross profits for 2018 and 2019 ?
a. Cost and LCNRV/unit basis
b. Cost and LCNRV/group basis
c. Cost basis.
5. Which methods yield the maximum combined profits for both years?

## P 6-8

The gross profit of Bellevue Widget Company Ltd. has consistently averaged $39 \%$. The company's records were recently destroyed by fire. The following data are available:
Sales ..... \$305
Purchases ..... 175
Opening inventory ..... 25
Sales returns and allowances ..... 5
Purchases returns and ..... 5
allowances ..... 8
Delivery expenses ..... 3
Transportation-in ..... 3
Truck operating expenses ..... 6
Selling commissions expense ..... 3
Administrative expenses
Required: Calculate the estimated ending inventory.

## P6-9

The president of Luna Sea Corporation is concerned that the yearend inventory amounting to $\$ 5,000$ at cost is less than expected. Although a physical count was made and the costing was accurately calculated using FIFO, the president asks you to estimate the yearend inventory using the following information for the year:

|  | At retail | At cost |
| :--- | ---: | ---: |
| Sales | $\$ 160,000$ |  |
| Sales returns and allowances | 10,000 |  |
| Purchases | 164,000 | $\$ 80,000$ |
| Purchases returns and allowances | 4,000 | 2,000 |
| Transportation-in |  | 1,000 |
| Opening inventory | 20,000 | 11,000 |

## Required:

1. Calculate the estimated ending inventory at cost using the retail inventory method. Assume mark-up is 200\%.
2. Calculate the amount of inventory discrepancy at cost.
3. Why might this discrepancy occur?
4. What changes to the inventory system might you suggest to the president?

## P 6-10 (Appendix)

Zebra Corporation uses specific identification to cost inventory. During the first three years of operation ended December 31, 2018, the year-end inventory, computed by different methods for comparative purposes, was as follows:

|  | Ending inventory |  |  |
| :--- | ---: | ---: | ---: |
|  | 2018 | 2019 | 2020 |
| LIFO | $\$ 360$ | $\$ 400$ | $\$ 320$ |
| FIFO | 300 | 320 | 280 |
| Weighted average | 340 | 420 | 300 |

Opening inventory on January 1, 2018 was zero. Sales and purchases for the three years were as follows:

|  | 2018 | 2019 | 2020 |
| :--- | ---: | ---: | ---: | ---: |
| Sales | $\underline{\$ 1,000}$ | $\underline{\$ 1,200}$ | $\underline{\$ 1,150}$ |
| Purchases | $\underline{\underline{1,280}}$ | $\underline{1,100}$ | $\underline{1,010}$ |

There were no other expenses or revenues.
Required: Using the format of the table below, determine net income under each method. Show calculations. Partial results using specific identification are shown:

|  | 2018 | 2019 | 2020 |
| :---: | :---: | :---: | :---: |
| Sales | \$1,000 | \$1,200 | \$1,150 |
| Cost of goods sold |  |  |  |
| Opening inventory | -0- | ? | ? |
| Purchases | 1,280 | ? | ? |
| Less: Ending inventory | (360) | ? | ? |
| Cost of goods sold | 920 | ? | ? |
| Gross profit/net income | \$ 80 | \$ 140 | \$ 60 |

## P 6-11 (Appendix)

The opening inventory of Tan Corporation at January 1, 2020 consisted of 50 units at $\$ 1$ each. The company uses the periodic inventory system. The following purchases were made during 2020.

|  |  | Units | Unit <br> Cost |
| :--- | ---: | :---: | :---: |
| Apr. | 15 | 200 | $\$ 2$ |
| May | 25 | 200 | $\$ 3$ |
| June | 7 | 200 | $\$ 4$ |
| Oct. | 15 | 200 | $\$ 5$ |

## Required:

1. Calculate the number of units available for sale. Then calculate the dollar amount of cost of goods available for sale at December 31, 2020. Set up a column for each of FIFO, LIFO, and weighted average inventory cost flow assumptions as follows:

$$
\begin{array}{llll} 
& & \text { Wtd. } \\
\text { Units } & \text { FIFO } & \text { LIFO } & \text { avg. }
\end{array}
$$

Opening inventory
Purchases
Cost of goods available
2. If there are 200 units on hand at December 31, 2020, calculate the cost of ending inventory under each of FIFO, LIFO, and weighted average inventory cost flow assumptions. . For items sold were:
50 units of the April 15 purchases
200 units of the May 25 purchases
200 units of the June 7 purchases
200 units of the October 15 purchases
3. Calculate the cost of goods sold under each of FIFO, LIFO, and weighted average inventory cost flow assumptions. Set up a table as follows:

|  | Units | FIFO | LIFO | Wtd. <br> avg. |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Cost of goods available <br> Ending inventory <br> Cost of goods sold | $\square$ | - | - |  |  |

4. Based on the calculations in (3), the president of Tan Corporation has asked you to prepare some calculations comparing the effect on income of
a. Using a weighted average cost flow method instead of LIFO;
b. Using a FIFO cost flow method instead of LIFO.
5. What method of cost flow would you recommend in this case? Why?

## P 6-12 (Appendix)

Western Produce Inc. uses the periodic inventory system. The following data are taken from the records of the company for the month of January 2020.

| Goods available for sale |  |  | Sales |  |  |  |
| :--- | :---: | :---: | :--- | :--- | :---: | :---: |
|  |  | Unit |  |  | Unit sell. |  |
|  | Units | cost |  |  | Units | price |
| Opening Inventory | 25 | $\$ 5$ |  |  |  |  |
| Purchase \#1 | 15 | $\$ 4$ |  | Sale \#1 | 30 | $\$ 6$ |
| Purchase \#2 | 10 | $\$ 3$ |  | Sale \#2 | 20 | $\$ 4$ |
| Purchase \#3 | 35 | $\$ 2$ |  | Sale \#3 | 50 | $\$ 2$ |
| Purchase \#4 | 40 | $\$ 1$ |  |  |  |  |

## Required:

1. Calculate the amount of inventory at the end of January assuming that inventory cost is calculated using FIFO and LIFO
2. How would the ending inventory differ if the weighted average cost method is used?
3. Calculate the amount of gross profit under each of the above costing methods. Which method matches inventory costs more closely with revenues? Why?

## P 6-13 (Appendix)

Southern Cross Company Limited made the following purchases during the year:

Jan. 78,000 units @ \$12.00 = \$ 96,000
Mar. 30 9,000 units @ $\$ 12.40=\$ 111,600$
May 1012,000 units @ $\$ 12.00=\$ 144,000$
Jul. $\quad 416,000$ units @ $\$ 12.60=\$ 201,600$
Sept. 26,000 units @ $\$ 12.80=\$ 76,800$
Dec. 14 7,000 units @ $\$ 12.70=\$ 88,900$
Opening inventory at January 1 amounted to 4,000 units at \$11.90 per unit. Closing inventory at December 31 amounted to 15,000 units. For specific identification purposes, this consisted of 4,000 units of opening inventory, 8,000 units of the January 7 purchase, and 3,000 units of the March 30 purchase. Selling price during the year was stable at $\$ 16$ per unit.

## Required:

1. Prepare a schedule of inventory as at December 31 based on FIFO, LIFO, and weighted average inventory cost flow assumptions. Assume a periodic inventory system is used.
2. Prepare an income statement showing sales, cost of goods sold, and gross profit based on each of these three assumptions.
3. Which method of inventory valuation matches revenues more closely with costs in this company under current conditions? Why?

## P 6-14 (Appendix)

The comptroller of Exeter Services Ltd. has asked you to forecast the effect of rising and falling prices on income when FIFO and weighted average costing methods are used. The following inventory data are made available:

| Opening inventory | 100 units at $\$ 10=\$ 1,000$ |
| :--- | :--- |
| Purchases | 500 units at $\$ 12=\$ 6,000$ |
| Ending inventory | 250 units |

Partially completed income statements are as follows:

|  | FIFO |  | avg. ${ }_{\$ 5,000}$ |  |  | FIFO |  |  | avg. |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sales |  | \$5,000 |  |  |  |  |  |  |  |  |  |
| Cost of goods sold |  |  |  |  |  |  |  |  |  |  |  |
| Opening inventory | \$1,000 |  |  |  |  |  |  |  |  |  |  |
| Purchases | 6,000 |  |  |  |  |  |  |  |  |  |  |
| Cost of goods avail. | 7,000 |  | ? |  |  | ? |  |  | ? |  |  |
| Ending inventory* | 3,000 |  |  |  |  |  |  |  |  |  |  |
| Cost of goods sold |  | 4,000 |  |  | ? |  |  | ? |  |  | ? |
| Gross profit |  | \$1,000 |  | \$ |  |  | \$ |  |  | \$ | ? |

## Required:

1. Complete the statement for weighted average rising prices using the data provided. (Hint: you need to recalculate the ending inventory cost.)
2. Complete the statement for FIFO falling prices. Assume that purchases were made at $\$ 8$ per unit.
3. Complete the statement for weighted average falling prices by assuming that purchases were made at $\$ 8$ per unit. (Note that this changes cost of purchases and ending inventory cost.)
4. Assume that income tax expense is calculated at 50 per cent of income before income taxes. Which costing method would be most tax-advantageous from the company's point of view when prices are rising? When prices are falling?

## CHAPTER 8

Internal Control and Cash

## CHAPTER EIGHT

## INTERNAL CONTROL and CASH

## Chapter 8 Learning Objectives

LO1 - Define internal control and explain how it is applied to cash.
LO2 - Explain and journalize petty cash transactions.
LO3 - Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

## A. Internal Control

LO1 - Define internal control and explain how it is applied to cash.

Assets are the lifeblood of a company. As such, they must be protected. This duty falls to managers of a company. The policies and procedures implemented by management to protect assets are collectively referred to as internal controls. An effective internal control program not only protects assets, but also aids in accurate recordkeeping, produces financial statement information in a timely manner, ensures compliance with laws and regulations, and promotes efficient operations. Effective internal control procedures ensure that adequate records are maintained, transactions are authorized, duties among employees are divided between recordkeeping functions and control of assets, and employees' work is checked by others. The use of electronic recordkeeping systems does not decrease the need for good internal controls.

The effectiveness of internal controls is limited by human error and fraud. Human error can occur because of negligence or mistakes. Fraud is the intentional decision to circumvent internal control systems for personal gain. Sometimes, employees cooperate in order to avoid internal controls. This collusion is often difficult to detect, but fortunately, it is not a common occurrence when adequate controls are in place.

Internal controls take many forms. Some are broadly based, like mandatory employee drug testing, video surveillance, and scrutiny of company email systems. Others are specific to a particular type of asset or process. For instance, internal controls need to be applied to a company's accounting system to ensure that transactions are processed efficiently and correctly to produce reliable records in a timely manner. Procedures should be documented to promote good recordkeeping, and employees need to be trained in the application of internal control procedures.

Financial statements prepared according to generally accepted accounting principles are useful not only to external users in evaluating the financial performance and financial position of the company, but also for internal decision making. There are various internal control mechanisms that aid in the production of timely and useful financial information. For instance, using a chart of accounts is necessary to ensure transactions are consistently recorded in the appropriate account.

The design of accounting records and documents is another important means to provide financial information. Financial data is entered and summarized in records and transmitted by documents.

A good system of internal control requires that these records and documents be prepared at the time a transaction takes place or as soon as possible afterward, since they become less credible and the possibility of error increases as time passes. Documents supporting financial transactions - for example, sales invoices - should also be consecutively pre-numbered, to indicate whether any are missing.

Internal control also promotes the protection of assets. Cash is particularly vulnerable to misuse. A good system of internal control for cash should provide adequate procedures for protecting cash receipts and cash disbursements. Procedures to exercise control over cash vary from company to company and depend upon such variables as company size, number of employees, and cash sources. However, effective cash control generally requires the following:

- Separation of duties: People responsible for handling cash should not be responsible for maintaining cash records. By separating the custodial and record-keeping duties, theft of cash and its concealment is less likely.
- Same-day deposits: All cash receipts should be deposited daily in the company's bank account. This prevents theft and personal use of the money before deposit.
- Ensure human recourse control
- Payments made using non-cash means: Checks or electronic funds transfer (EFT) provide separate external records to verify cash disbursements. For example, many businesses pay their employees using electronic funds transfer because it is more secure and efficient than using cash or even checks.
- Documentation: Standardizing documents used for financial transactions, such as invoices, internal materials requests, inventory receipts and travel expense reports, can help to maintain consistency in record keeping over time.
- Access Control: Controlling access to different parts of an accounting system via passwords, lockouts and electronic access logs can keep unauthorized users out of the system while providing a way to audit the usage of the system to identify the source of errors or discrepancies
- Assigning specific duties to each employee
- Rotating employee job assignments
- Apply Technological control

Two forms of internal control over cash will be discussed in this chapter: the use of a petty cash account and the preparation of bank reconciliations.

## B. Petty Cash

LO2 - Explain and journalize petty cash transactions.

The payment of small amounts by check may be inconvenient and costly. For example, using cash to pay for postage on an incoming package might be less than the total cost of processing a check. A small amount of cash kept on hand to pay for small, infrequent expenses is referred to as a petty cash fund.

## Establishing and Reimbursing the Petty Cash Fund

To set up the petty cash fund, a check is prepared for the amount of the fund. The custodian of the fund cashes the check and places the coins and currency in a locked box. Responsibility for the petty cash fund should be delegated to only one person, who should be held accountable for its contents. Cash payments, supported by receipts, are made by this petty cash custodian out of the fund as required. When the amount of cash has been reduced to a pre-determined level, the receipts are compiled and submitted for entry into the accounting system. A check is then issued to reimburse the petty cash fund for the total amount of the receipts. At any given time, the petty cash amount should consist of cash and supporting receipts, all totalling the petty cash fund amount. To demonstrate the management of a petty cash fund, assume that a $\$ 200$ check is issued for the purpose of establishing a petty cash fund.

The journal entry is:


Petty Cash is a current asset account. When reporting Cash on the financial statements, the balances in Petty Cash and Cash are usually added together and reported as one amount.

Assume the petty cash custodian has receipts totalling \$190 and $\$ 10$ in coin and currency remaining in the petty cash box. The receipts consist of the following: delivery charges, $\$ 100$; postage, $\$ 35$; and office supplies, $\$ 55$. The petty cash custodian submits the receipts to the accountant who records the following entry and issues a check for $\$ 190$.
Delivery Expense ..... 100
Postage Expense ..... 35
Office Supplies Expense ${ }^{1}$ ..... 55Cash190To reimburse the petty cash fund.

As an added internal control, petty cash receipts should be cancelled at the time of reimbursement in order to prevent their reuse for duplicate reimbursements. The petty cash custodian cashes the $\$ 190$ check. The $\$ 190$ plus the $\$ 10$ of coin and currency in the locked box immediately prior to reimbursement equals the $\$ 200$ total maintained in the petty cash fund.

Sometimes, the receipts plus the coin and currency in the petty cash locked box do not equal the required petty cash balance. To demonstrate, assume the same information above except that the coin and currency remaining in the petty cash locked box was $\$ 8$. This amount plus the receipts for $\$ 190$ equals $\$ 198$ and not $\$ 200$, indicating a shortage in the petty cash box. The entry at the time of reimbursement reflects the shortage and is recorded as:

| Delivery Expense | 100 |
| :--- | ---: | ---: |
| Postage Expense | 35 |
| Office Supplies Expense | 55 |
| Cash Over/Short Expense | 2 |
| $\quad$ Cash | 192 |
| To reimburse the petty cash fund and account for the $\$ 2$ |  |
| shortage. |  |

Notice that the $\$ 192$ credit to Cash plus the $\$ 8$ of coin and currency remaining in the petty cash box immediately prior to reimbursement equals the $\$ 200$ required total in the petty cash fund.

Assume, instead, that the coin and currency in the petty cash locked box was $\$ 14$. This amount plus the receipts for $\$ 190$ equals $\$ 204$ and not $\$ 200$, indicating an overage in the petty cash box. The entry at the time of reimbursement reflects the overage and is recorded as:

[^2]Delivery Expense ..... 100
Postage Expense ..... 35
Office Supplies Expense ..... 55Cash Over/Short Exp.4
Cash ..... 186
To reimburse the petty cash fund and account for the $\$ 4$overage.

Again, notice that the $\$ 186$ credit to Cash plus the $\$ 14$ of coin and currency remaining in the petty cash box immediately prior to reimbursement equals the $\$ 200$ required total in the petty cash fund.

The size of the petty cash fund should not be large enough to become a potential theft issue. If a petty cash fund is too large, it may be an indicator that transactions that should be paid by check are not being processed in accordance with company policy.

## C. Cash Collections and Payments

LO3 - Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

The widespread use of banks facilitates cash transactions between entities and provides a safeguard for the cash assets being exchanged. This involvement of banks as intermediaries between entities has accounting implications. At any point in time, the cash balance in the accounting records of a particular company usually differs from the bank cash balance of that company. Differences occur because some cash transactions recorded in the accounting records have not yet been recorded by the bank and, conversely, some cash transactions recorded by the bank have not yet been recorded in the company's accounting records.

The use of a bank reconciliation is one method of internal control over cash. A bank reconciliation proves the accuracy of both the company's and the bank's records, and reveals any errors made by either party. The bank reconciliation is a tool that can help detect attempts at theft and manipulation of records. An example of a bank reconciliation for Big Dog Carworks Co. is shown in Figure 8-1:


Figure 8-1 Big Dog's Bank Reconciliation at March 31, 2017
The bank reconciliation provides a simple method to show why the bank statement issued by the company's bank and the Cash balance in a company's general ledger differ on a given date like a month-end, and whether these differences are acceptable. In the example above, the difference ( $\$ 20,673$ versus $\$ 24,927$ ) occurs because there are three checks that have been recorded in BDC's general ledger Cash account totalling $\$ 4,254$ that have not yet been presented and accepted for payment (or been cleared) by the bank. Checks that are recorded in the company's general ledger but are not paid out of its bank account when the bank statement is prepared are referred to as outstanding checks. Outstanding checks cause the bank statement balance to be overstated compared to the company's records. These checks must be subtracted from the bank balance on the bank reconciliation so that the Cash general ledger account and bank statement balances agree.

These outstanding checks will likely be cashed by the bank a few days after the month end and will appear on the next month's bank statement. As a result, these differences are reasonable, occurring only because of slight timing differences between transactions being recorded in the general ledger and on the bank statement.

The steps needed to prepare a bank reconciliation are discussed below.

## The Bank Reconciliation

Discrepancies between the cash balance reported on the bank statement and the cash balance reported in a business's Cash account in the general ledger at a particular date are known as reconciling items and are added or subtracted to either the general ledger Cash balance or the amount of cash shown at the end of the period on the bank statement. The cash balance prior to reconciliation is called the unreconciled cash balance. The balance after adding and subtracting the reconciling items is called the reconciled cash balance. The following is a list of potential reconciling items and their impact on the bank reconciliation.

## General ledger reconciling items

- Collection of notes receivable (added)
- NSF checks (subtracted)
- Bank charges (subtracted)
- Book errors (added or subtracted, depending on the nature of the error)


## Bank reconciling items

- Deposits in transit (added)
- Outstanding checks (subtracted)
- Bank errors (added or subtracted, depending on the nature of the error)


## General Ledger Reconciling Items

The collection of notes receivable ${ }^{2}$ may be made by a bank on behalf of the company. These collections are often unknown to the company until they appear as an addition on the bank statement. They cause the general ledger Cash account to be understated. As a result, the collection of a notes receivable is added to the unreconciled general ledger Cash balance on the bank reconciliation.

Checks returned to the bank because there were not sufficient funds (NSF) in a customer's bank account to cover them appear on the bank statement as a reduction of cash. The company must then request that the customer pay the amount again. As a result, the general ledger Cash account is overstated by the amount of the NSF check. NSF checks must be subtracted from the unreconciled general ledger Cash balance of cash on the bank reconciliation.

Checks received by a company and deposited into its bank account may be returned by the customer's bank for a number of other reasons (for example, the check was "stale-dated" - issued too long ago; was unsigned or illegible; or shows the wrong account

[^3]number). Returned checks cause the general ledger Cash account to be overstated compared to the bank statement. These returned checks must be deducted from the unreconciled general ledger Cash balance on the bank reconciliation.

Bank service charges are also deducted from the customer's bank account. Since the service charges have not yet been recorded by the company, the general ledger Cash account is overstated. Therefore, service charges are subtracted from the unreconciled general ledger Cash balance on the bank reconciliation.

A business may incorrectly record journal entries involving cash. For instance, a deposit or check may be recorded for the wrong amount in the company records. These errors are often detected when amounts recorded by the company are compared to the bank statement. Depending on the nature of the error, it will be either added to or subtracted from the unreconciled general ledger Cash balance on the bank reconciliation. For example, if the company issued a check for $\$ 250$ but recorded it in the records as $\$ 520$, the $\$ 270$ difference would be added to the unreconciled general ledger Cash balance of Cash on the bank reconciliation to correct the error, because the general ledger Cash balance is too low. As another example, if the company recorded a deposit as $\$ 520$ when the correct amount of the deposit was $\$ 250$, the $\$ 270$ difference would be subtracted from the unreconciled general ledger Cash balance on the bank reconciliation to correct the error because the general ledger Cash balance is too high. Each error must be analyzed to determine whether it will be added to or subtracted from the unreconciled general ledger Cash balance on the bank reconciliation.

## Bank Reconciling Items

Cash receipts are recorded as an increase of cash in the company's accounting records when they are received. These cash receipts are deposited by the company into its bank. The bank records an increase in cash only when these amounts are actually deposited with the bank. Not all cash receipts recorded by the company may have been recorded by the bank when the bank statement is prepared. There may be outstanding deposits (also called deposits in transit). Outstanding deposits cause the bank statement cash balance to be understated. Therefore, outstanding deposits are a reconciling item that must be added to the unreconciled bank balance on the bank reconciliation.

On the date that a check is prepared by a company, it is recorded as a reduction of cash in a company's general ledger. A bank statement will not record a cash reduction until a check clears the bank.
Outstanding checks mean that the bank statement balance is overstated. Therefore, outstanding checks are a reconciling item that must be subtracted from the unreconciled bank balance on the bank reconciliation as shown in Figure 8-1 above.

Bank errors sometimes occur and are not revealed until the transactions on the bank statement are compared to the company's accounting records. When an error is identified, the company notifies the bank to have it corrected. Depending on the nature of the error, it is either added to or subtracted from the unreconciled bank balance on the bank reconciliation. For example, if the bank cleared a check as $\$ 520$ that was correctly written for $\$ 250$, the $\$ 270$ difference would be added to the unreconciled bank balance on the bank reconciliation. The cash balance reported on the bank statement is understated by $\$ 270$ as a result of this error. As another example, if the bank recorded a deposit as $\$ 520$ when the correct amount was actually $\$ 250$, the $\$ 270$ difference would be subtracted from the unreconciled bank balance on the bank reconciliation. The cash balance reported on the bank statement is overstated by $\$ 270$ as a result of this specific error. Each error must be carefully analyzed to determine how it will be treated on the bank reconciliation.

## Illustrative Problem—Bank Reconciliation

Now, a bank reconciliation will be prepared for BDC for the next month-end, April 30. The general ledger Cash account shows an opening balance of $\$ 20,673$ at April 1 (note that this is the amount that is shown in Figure 8-1 as the March 31 ending Cash balance. Assume cash receipts (debits) amount to \$9,482 in April and that cash disbursements (credits) amount to $\$ 8,226$. The ending balance general ledger Cash balance at April 30 is $\$ 21,929$. The general ledger for April is shown in Figure 8-2.

The opening balance agrees to the March 31 general ledger balance shown on the bank reconciliation in Fig. 8-


The ending balance is used as the unreconciled general ledger balance on the April 30 bank reconciliation.

Figure 8-2 Big Dog's General Ledger 'Cash' Account for April 30, 2017

Assume further that April deposits made and checks issued are as follows:

| Deposits |  | Checks |  |
| :---: | :---: | :---: | :---: |
| Date | Amount | No. | Amount |
| April 5 | \$1,570 | 601 | \$ 24 |
| 10 | 390 | 602 | 1,720 |
| 23 | 5,000 | 603 | 230 |
| 28 | 1,522 | 604 | 200 |
| 30 | 1,000 | 605 | 2,220 |
|  |  | 606 | 287 |
|  |  | 607 | 1,364 |
|  |  | 608 | 100 |
|  |  | 609 | 40 |
|  |  | 610 | 1,520 |
|  |  | 611 | 124 |
|  |  | 612 | 397 |
| Total | \$9,482 | Total | \$8,226 |
|  |  |  |  |
|  |  | ree to accoun igure | Cash debits 2. |

The bank statement issued by BDC's bank is as follows:

| Second Chartered Bank <br> Big Dog Carworks Co. <br> Bank Statement <br> Month Ended April 30, 2017 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date | Type | Out | In | Balance |
| Apr. 1 |  |  |  | \$24,92 |
|  |  |  |  | 7 |
| 2 | Deposit |  | 1,570 | 26,497 |
| 3 | Ck. 580 | $(4,051)$ |  | 22,446 |
| 4 | Deposit |  | 390 | 22,836 |
| 6 | Ck. 599 | (196) |  | 22,640 |
| 7 | Ck. 601 | (24) |  | 22,616 |
| 9 | Ck. 603 | (230) |  | 22,386 |
| 11 | Ck. 604 | (200) |  | 22,186 |
| 16 | Ck. 611 | (124) |  | 22,062 |
| 17 | Ck. 612 | (397) |  | 21,665 |
| 18 | Ck. 600 | (7) |  | 21,658 |
| 19 | Deposit |  | 5,000 | 26,658 |
| 21 | Ck. 605 | $(2,220)$ |  | 24,438 |
| 22 | NSF | (180) |  | 24,258 |
| 24 | Deposit |  | 1,522 | 25,780 |
| 26 | Ck. 602 | $(1,720)$ |  | 24,060 |
| 28 | Ck. 115 | (31) |  | 24,029 |
| 30 | SC | (6) |  | 24,023 |
| Ck. = check SC = service charge NSF = not sufficient funds |  |  |  |  |

The opening balance agrees to the March 31 bank statement balance shown in Fig. 8-1

The ending balance is used as the unreconciled bank statement balance on the April 30 bank reconciliation.

Figure 8-3 Big Dog's Bank Statement for the month of April, 2017
There are nine steps to follow in preparing a bank reconciliation:

## Step 1

a. List the unreconciled April 30 general ledger cash balance ( $\$ 21,929$ from Figure 8-2) on the left side of the bank reconciliation, similar to that shown in Figure 8-1.
b. List the ending cash balance on the bank statement (\$24,023 from Figure 8-3) on the right side of the bank reconciliation, similar to that shown in Figure 8-1.

The bank reconciliation should show:


## Step 2

Compare clearing checks shown on the bank statement with checks recorded as cash disbursements in the company's records.
a. Review the prior month's bank reconciliation and ensure that outstanding checks have cleared the bank in the subsequent month.

## In the company records:

These checks were recorded in March; therefore, the cash balance per the general ledger is correctly stated.

In the bank statement:
These outstanding March checks may not have cleared the bank in April. If some of the checks have not yet been paid, the bank's balance is overstated at April 30 by the amount of these checks.

The outstanding checks on the March 31 bank reconciliation are shown in Figure 8-1 and reproduced below.

Checks clearing the bank are marked with an ' $x$ ' on the prior month's outstanding check list and on the April bank statement, as follows:

| Check No. | Amount |
| :---: | ---: |
| 580 | $\$ 4,051 \mathrm{x}$ |
| 599 | 196 x |
| 600 | 7 x |


| Date | Type | Out |  | In | Balance |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Apr. 1 |  |  |  |  | \$24,92 |
|  |  |  |  |  | 7 |
| 2 | Deposit |  |  | 1,570 | 26,497 |
| 3 | Ck. 580 | $(4,051)$ | x |  | 22,446 |
| 4 | Deposit |  |  | 390 | 22,836 |
| 6 | Ck. 599 | (196) | x |  | 22,640 |
| 7 | Ck. 601 | (24) |  |  | 22,616 |
| 9 | Ck. 603 | (230) |  |  | 22,386 |
| 11 | Ck. 604 | (200) |  |  | 22,186 |
| 16 | Ck. 611 | (124) |  |  | 22,062 |
| 17 | Ck. 612 | (397) |  |  | 21,665 |
| 18 | Ck. 600 | (7) | x |  | 21,658 |
| 19 | Deposit |  |  | 5,000 | 26,658 |
| 21 | Ck. 605 | $(2,220)$ |  |  | 24,438 |
| 22 | NSF | (180) |  |  | 24,258 |
| 24 | Deposit |  |  | 1,522 | 25,780 |
| 26 | Ck. 602 | $(1,720)$ |  |  | 24,060 |
| 28 | 115 | (31) |  |  | 24,029 |
| 30 | SC | (6) |  |  | 24,023 |

All the March outstanding checks (\# 580, 599, and 600) were paid by the bank in April; no adjustment is required in the April 30 bank reconciliation-the cash balance per the company's general ledger and the bank statement at April 30 are correctly stated in relation to these March outstanding checks.
b. Compare the checks clearing the bank in April with the checks recorded as April cash disbursements. Cleared items are marked with an ' x ' on the April check list and the April bank statement:


| Date | Type | Out |  | In | Balance |
| ---: | :--- | ---: | :--- | ---: | ---: |
| Apr. 1 |  |  |  |  | $\$ 24,927$ |
| 2 | Deposit |  |  | 1,570 | 26,497 |
| 3 | Ck. 580 | $(4,051)$ | x |  | 22,446 |
| 4 | Deposit |  |  | 390 | 22,836 |
| 6 | Ck. 599 | $(196)$ | x |  | 22,640 |
| 7 | Ck. 601 | $(24)$ | x |  | 22,616 |
| 9 | Ck. 603 | $(230)$ | x |  | 22,386 |
| 11 | Ck. 604 | $(200)$ | x |  | 22,186 |
| 16 | Ck. 611 | $(124)$ | x |  | 22,062 |
| 17 | Ck. 612 | $(397)$ | x |  | 21,665 |
| 18 | Ck. 600 | $(7)$ | x |  | 21,658 |
| 19 | Deposit |  |  | 5,000 | 26,658 |
| 21 | Ck. 605 | $(2,220)$ | x |  | 24,438 |
| 22 | NSF | $(180)$ |  |  | 24,258 |
| 24 | Deposit |  |  | 1,522 | 2,780 |
| 26 | Ck. 602 | $(1,720)$ | x |  | 24,060 |
| 28 | Ck. 115 | $(31)$ |  |  | 24,029 |
| 30 | SC | $(6)$ |  |  | 24,023 |

In the company records:
These checks were recorded in April; therefore, the general ledger Cash balance is correctly stated.

In the bank statement:
These outstanding checks were not paid by the bank in
April. Therefore, the unreconciled bank balance on April 30 of $\$ 24,023$ is overstated.

The outstanding checks must be deducted from the unreconciled bank statement balance on the bank reconciliation, as follows:


## Step 3

Other disbursements made by the bank but not recorded in the company records are identified and marked with an ' $x$ '.

| Date | Type | Out |  | In | Balance |
| ---: | :--- | ---: | :--- | ---: | ---: |
| Apr. 1 |  |  |  |  | $\$ 24,92$ |
|  |  |  |  |  | 7 |
| 2 | Deposit |  |  | 1,570 | 26,497 |
| 3 | Ck. 580 | $(4,051)$ | x |  | 22,446 |
| 4 | Deposit |  |  | 390 | 22,836 |
| 6 | Ck. 599 | $(196)$ | x |  | 22,640 |
| 7 | Ck. 601 | $(24)$ | x |  | 22,616 |
| 9 | Ck. 603 | $(230)$ | x |  | 22,386 |
| 11 | Ck. 604 | $(200)$ | x |  | 22,186 |
| 16 | Ck. 611 | $(124)$ | x |  | 22,062 |
| 17 | Ck. 612 | $(397)$ | x |  | 21,665 |
| 18 | Ck. 600 | $(7)$ | x |  | 21,658 |
| 19 | Deposit |  |  | 5,000 | 26,658 |
| 21 | Ck. 605 | $(2,220)$ | x |  | 24,438 |
| 22 | NSF | $(180)$ | x |  | 24,258 |
| 24 | Deposit |  |  | 1,522 | 25,780 |
| 26 | Ck. 602 | $(1,720)$ | x |  | 24,060 |
| 28 | Ck. 115 | $(31)$ | x |  | 24,029 |
| 30 | SC | $(6)$ | x |  | 24,023 |

a. An examination of the April bank statement shows that the bank had deducted the NSF check of John Donne for $\$ 180$.

$$
\begin{aligned}
& \text { In the company records: } \\
& \text { The check of John Donne had originally been recorded as a } \\
& \text { cash receipt (a payment on account). During April, no entry } \\
& \text { was made regarding this returned check; therefore, the } \\
& \text { cash balance in the general ledger is overstated at April } 30 \text {. } \\
& \text { In the bank statement: } \\
& \text { The bank has already made a deduction from the cash } \\
& \text { balance shown on the bank statement for this NSF check. }
\end{aligned}
$$

In reconciling the cash balances shown in the general ledger and on the bank statement, this returned check must be deducted from the unreconciled general ledger Cash balance of $\$ 21,929$ shown on the bank reconciliation. It also should be set up as an account receivable and a notice should be sent to Donne requesting payment again. The journal entry to do this will be discussed below.
b. An examination of the April 30 bank statement also shows that the bank has deducted a service charge of $\$ 6$ during April.

```
In the company records:
```

This service charge was not deducted from the cash balance in the general ledger during April. Therefore, the cash balance is overstated at April 30.

In the bank statement:
The service charges have already been deducted from the cash balance shown on the bank statement.

To reconcile the cash balance in the company records with the bank statement, this service charge must be deducted from the unreconciled general ledger Cash balance shown on the bank reconciliation.
c. An examination of the April bank statement shows that the bank deducted a check issued by another company for \$31 from the BDCC bank account in error. (Assume that when notified, the bank indicated it would make a correction in May's bank statement.)

```
In the company records:
This check does not belong to Big Dog and does not require
any change in its accounting records.
In the bank statement:
The check should not have been deducted from Big Dog's
bank account. Therefore, the cash balance shown on the
bank statement balance on the April 30 bank reconciliation
is understated.
```

To reconcile the cash balance in the company records with the bank statement, the checks deducted in error must be added to the unreconciled bank statement balance of $\$ 24,023$ shown on the bank reconciliation.

These three reconciling items are included on the bank reconciliation as follows:

| Big Dog Carworks Co. Bank Reconciliation At April 30, 2017 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Unreconciled general ledger Cash balance at Apr. 30 |  | \$21,929 | Unreconci at Apr. 30 <br> Add: Check | statement balance <br> d in error | $\begin{array}{r} \$ 24,023 \\ 31 \end{array}$ |
| Less: Bank charges NSF Check - J. Donne | $\begin{array}{r} \$ 6 \\ 180 \\ \hline \end{array}$ | (186) | Less: Outstanding checks |  |  |
|  |  |  | Check No. | Amount |  |
|  |  |  | 606 | \$ 287 |  |
|  |  |  | 607 | 1,364 |  |
|  |  |  | 608 | 100 |  |
|  |  |  | 609 | 40 |  |
|  |  |  | 610 | 1,520 | $(3,311)$ |

## Step 4

Compare clearing deposits shown on the bank statement with deposits recorded as cash receipts in the company's records.
a. Review the prior month's bank reconciliation and ensure that outstanding deposits have cleared the bank in the subsequent month.

## In the company records:

The March cash receipts have been recorded correctly.

## In the bank statement:

All of the March cash receipts have been deposited and recorded on the bank statement. There are no outstanding deposits at March 31.
b. Compare the deposits clearing the bank in April with the deposits recorded as April cash receipts. Cleared items are marked with an ' $x$ ' on the April deposits list and the April bank statement:

| Date | Amount |  |  |
| :---: | ---: | :--- | :--- |
| April 5 | $\$ 1,570$ | x |  |
| 10 | 390 | x |  |
| 23 | 5,000 | x |  |
| 28 | 1,522 | x | This April |
| 30 | 1,000 |  | deposit is still |
| Total | $\$ 9,482$ | in transit. |  |


| Date | Type | Out |  | In |  | Balance |
| ---: | :--- | ---: | :--- | ---: | ---: | ---: |
| Apr. 1 |  |  |  |  |  | $\$ 24,92$ |
|  |  |  |  |  |  | 7 |
| 2 | Deposit |  |  | 1,570 | x | 26,497 |
| 3 | Ck. 580 | $(4,051)$ | x |  |  | 22,446 |
| 4 | Deposit |  |  | 390 | x | 22,836 |
| 6 | Ck. 599 | $(196)$ | x |  |  | 22,640 |
| 7 | Ck. 601 | $(24)$ | x |  |  | 22,616 |
| 9 | Ck. 603 | $(230)$ | x |  |  | 22,386 |
| 11 | Ck. 604 | $(200)$ | x |  |  | 22,186 |
| 16 | Ck. 611 | $(124)$ | x |  |  | 22,062 |
| 17 | Ck. 612 | $(397)$ | x |  |  | 21,665 |
| 18 | Ck. 600 | $(7)$ | x |  |  | 21,658 |
| 19 | Deposit |  |  | 5,000 | x | 26,658 |
| 21 | Ck. 605 | $(2,220)$ | x |  |  | 24,438 |
| 22 | NSF | $(180)$ | x |  |  | 24,258 |
| 24 | Deposit |  |  | 1,522 | x | 25,780 |
| 26 | Ck. 602 | $(1,720)$ | x |  |  | 24,060 |
| 28 | Ck. 115 | $(31)$ |  |  |  | 24,029 |
| 30 | SC | $(6)$ | x |  |  | 24,023 |

This comparison indicates that the April 30 cash receipt amounting to $\$ 1,000$ has not yet been included as a deposit in the bank statement.

In the company records:
The April cash receipts have been recorded correctly.
In the bank statement:
The April cash receipts have been deposited and recorded on the bank statement, except for the April 30 deposit.

To reconcile the cash balance in the company records with the bank statement, the outstanding deposit must be added to the bank statement ending cash balance of $\$ 24,023$ on the bank reconciliation, as follows:


## Step 5

Total both sides of the bank reconciliation. The result should be that the reconciled general ledger Cash balance and the bank statement balances are equal.

The completed bank reconciliation is shown in Figure 8-4.


Figure 8-4 BDC's April 30 Bank Reconciliation

## Step 6

The adjusted balance of $\$ 21,743$ calculated in the bank reconciliation must be reflected in the company's general ledger Cash account. Adjusting entries must be prepared. The adjusting entries are based on the reconciling item on the left-hand side of the bank reconciliation and are as follows:

| Bank Charges Expense |  |  |  | $\begin{array}{ll}632 & 6 \\ 101 & 6\end{array}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| Accounts Receivable - Donne 110180 |  |  |  |  |  |  |  |
| - Cash |  |  |  |  |  | 101 | 180 |  |  |
| To record reconciling items from April 30 bank reconciliation. |  |  |  |  |  |  |  |
| Once the adjustment is posted, the Cash general ledger account balance is correct, as illustrated in Figure 8-5. |  |  |  |  |  |  |  |
|  | GENERAL LEDGER |  |  |  |  |  |  |
| $\begin{aligned} & \hline \text { Date } \\ & 201 \\ & 7 \\ & \hline \end{aligned}$ |  | Description | Folio | Debit | Credit |  | Balanc <br> e |
| Mar. | 31 | Balance |  |  |  | DR | 20,673 |
| Apr. | 30 | April cash receipts | CRJ6 | 9,482 |  | DR | 30,155 |
|  | 30 | April cash payments | $\begin{array}{\|l\|} \hline \text { CDJ1 } \\ \hline 8 \\ \hline \end{array}$ |  | 8,226 | DR | 21,929 |
| $\longrightarrow$ | 30 | Bank charge expense | Adj. |  | 6 | DR | 21,923 |
|  | 30 | NSF check | Adj. |  | 180 | DR | 21,743 |
|  |  |  |  |  |  |  | $\uparrow$ |

This adjusted Cash balance in the general ledger now agrees with the bank reconciliation.

Figure 8-5 Updated Cash Account in the General Ledger
Big Dog does not make any adjusting entries for the reconciling items on the right (bank) side of the bank reconciliation since these items should eventually clear the bank or be corrected by the bank on a later month's bank statement.

## Debit and Credit Card Transactions

Debit and credit cards are commonly accepted by companies when customers make purchases. Because the cash is efficiently and safely transferred directly into a company's bank account by the debit or credit card company, such transactions enhance internal control over cash. However, the seller is typically charged a fee for accepting debit and credit cards. For example, assume BDC makes a $\$ 1,000$ sale to a customer who uses a credit card that charges BDC a fee of $2 \%$; the cost of the sale is $\$ 750$.

BDC would record the following entries:

| Cash | 980 |  |
| :--- | ---: | ---: |
| Bank Charges Expense | 20 |  |
| $\quad$ Sales |  | 1,000 |
| To record sale and related credit card fee. |  |  |
| Cost of Good Sold | 750 |  |
| $\quad$Merchandize Inventory  <br> To record cost of sales. 750 <br>   |  |  |

The credit card fee is calculated as the $\$ 1,000$ sale $\times 2 \%=\$ 20$. This means that BDC collects net cash proceeds of $\$ 980$ ( $\$ 1,000-\$ 20$ ). The use of debit cards also involves fees. These entries are journalized in the same manner.

## AS S I G N M E N T M A T E R I A L S <br> Concept Self-check

1. What is internal control?
2. What is an imprest petty cash system?
3. What is the difference between establishing and replenishing the petty cash fund?
4. How does the preparation of a bank reconciliation strengthen the internal control of cash?
5. What are some reconciling items that appear in a bank reconciliation?
6. What are the steps in preparing a bank reconciliation?
7. What is an NSF check?

## Comprehension Problems

## CP 8-2

The following information pertains to Ferguson Corp. at December 31, 2017, its year-end:
Cash per company records \$5,005

Cash per bank statement 7,000
Bank service charges not yet recorded in company records 30
Note collected by bank not yet recorded in company records, including \$25 of interest

1,325
Fluet inc. check deducted in error by bank 200
December deposit recorded by the bank January 3, 2018700
December checks not yet paid by bank in December \#631 \$354
\#642 746
\#660 200
\#661

300
\$1,600

Required: Prepare a bank reconciliation and all necessary adjusting journal entries at December 31, 2017.

## CP 8-3

The Cash general ledger account balance of Gladstone Ltd. was \$2,531 at March 31, 2017. On this same date, the bank statement had a balance of $\$ 1,500$. The following discrepancies were noted:
a. A deposit of $\$ 1,000$ made on March 30, 2017 was not yet recorded by the bank on the March statement.
b. A customer's check amounting to \$700 and deposited on March 15 was returned NSF with the bank statement.
c. Check \#4302 for office supplies expense, correctly made out for $\$ 125$ and clearing the bank for this amount, was recorded in the company records as \$152.
d. $\$ 20$ for March service charges were recorded on the bank statement but not in the company records.
e. A cancelled check for $\$ 250$ belonging to Global Corp. but charged by the bank to Gladstone Ltd. was included with the cancelled checks returned by the bank.
f. There were $\$ 622$ of outstanding checks at March 31.
g. The bank collected a note receivable for $\$ 300$ on March 31 including interest of $\$ 50$. The bank charged Gladstone Ltd. a $\$ 10$ service charge that also is not included in the company records.

Required: Prepare a bank reconciliation and record all necessary adjusting entries at March 31, 2017.

Link to Origina

Link to Original

Rommy Company deposits all cash receipts on the day when they are received and it makes all cash payments by check. At the close of business on June 30, 2016, its Cash account shows an \$11,352 debit balance. Rommy's June 30 bank statement shows $\$ 10,332$ on deposit in the bank. Prepare a bank reconciliation for Rommy Company using the following information.
a) Outstanding checks as of June 30 total $\$ 1,713$.
b) The June 30 bank statement included a $\$ 23$ debit memorandum for bank services; Rommy has not yet recorded the cost of these services. c) In reviewing the bank statement, a $\$ 90$ check written by Rommy Company was mistakenly recorded in Rommy Company's books at \$99. d) June 30 cash receipts of $\$ 2,724$ were placed in the bank's night depository after banking hours and were not recorded on the June 30 bank statement.
e) The bank statement included a \$5 credit for interest earned on the cash in the bank.

## Required:

1. Prepare a bank reconciliation at June 30.
2. Prepare the necessary adjusting journal entries required to make the Cash account in the general ledger agree with the adjusted cash balance on the June 30 bank reconciliation.

## Problems

## P 8-1

The following transactions were made by Simpson Corp. in December 2017.

Dec. 1 Established a petty cash fund of $\$ 100$.
14 Reimbursed the fund for receipts as follows:
Office supplies \$50
Maintenance 35
Petty cash on hand prior to reimbursement was \$46.
29 Reimbursed the fund for the following:
Office supplies $\quad \$ 10$
Delivery charges 20
Petty cash on hand prior to reimbursement was $\$ 72$.
31 Reduced the amount of the fund to $\$ 50$.

## Required:

1. Prepare journal entries to record these transactions.
2. Suggest improvements to the internal controls of Simpson's petty cash fund.

Link to Original

## P 8-2

The reconciliation of the cash balance per bank statement with the balance in the Cash account in the general ledger usually results in one of five types of adjustments. These are
a. Additions to the reported general ledger cash balance
b. Deductions from the reported general ledger cash balance
c. Additions to the reported cash balance per the bank statement
d. Deductions from the reported cash balance per the bank statement
e. Information that has no effect on the current reconciliation.

Required:

1. Using the above letters $a$ to $e$ from the list, indicate the appropriate adjustment for each of the following items that apply to Goertzen Ltd. for December, 2017:
_ The company has received a $\$ 3,000$ loan from the bank that was deposited into its bank account but was not recorded in the company records.

- A $\$ 250$ check was not returned with the bank statement though it was paid by the bank.
_ Checks amounting to $\$ 4,290$ shown as outstanding on the November reconciliation still have not been returned by the bank.
_ A collection of a note receivable for $\$ 1,000$ made by the bank has not been previously reported to Goertzen. This includes interest earned of $\$ 50$.
- The bank has erroneously charged Goertzen with a \$1,100 check, which should have been charged to Gagetown Ltd.
_ A $\$ 350$ check made out by Fynn Company and deposited by Goertzen has been returned by the bank marked NSF; this is the first knowledge Goertzen has of this action.
_ A check for \$840 was erroneously recorded as \$730 in the company records.
- A $\$ 600$ bank deposit of December 31 does not appear on the bank statement.
_ Bank service charges amounting to $\$ 75$ were deducted from the bank statement but not yet from the company records.

2. Prepare a bank reconciliation using the data given above. On December 31, the Cash account in the general ledger of Goertzen Ltd. showed a balance of $\$ 84,293$. The bank statement showed a balance of $\$ 90,568$.
3. Prepare journal entries required to adjust the general ledger Cash account of Goertzen Ltd. to the reconciled balance.

## P 8-3

Gibson Energy Ltd. controls its cash by depositing receipts on a daily basis and making all disbursements by check. After all the posting for the month of November 2018 was completed, the Cash balance in the general ledger account at November 30 was $\$ 4,213$. The bank statement for the month ended November 30 received from the First National Bank showed the balance to be $\$ 4,440$. The following data are available for the purpose of reconciling these balances:
a. Cash receipts for November 30 amounting to $\$ 611$ have been placed in the night depository and do not appear on the bank statement.
b. Bank memos previously not available to Gibson Energy are included with the bank statement. A memo for an NSF check, originally received as payment for an account receivable of $\$ 130$, is included. A memo for bank charges of $\$ 10$ is also included. Another memo advizes Gibson Energy Ltd. that $\$ 494$ has been deposited to the account, ( $\$ 500$ less a bank charge of $\$ 6$ ). This represents the net proceeds of a collection the bank had made on behalf of Gibson Energy Ltd. on a $\$ 500$ note receivable.
c. Checks written during November but not included with the bank statement are no. 1154, \$32; no. 1192, \$54; no. 1193, \$83; no. 1194, \$109.
d. Check no. 1042 is returned with the bank statement. The check was made for $\$ 494$, the correct amount owing for office expense. The check was recorded in the company records as $\$ 548$.
e. Checks outstanding at the end of October included checks no. 1014 for $\$ 152$ and no. 1016 for $\$ 179$. Check no. 1016 was paid in the bank statement; check no. 1014 was not.

## Required:

1. Prepare a bank reconciliation at November 30.
2. Prepare the necessary adjusting journal entries required to make the Cash account in the general ledger agree with the adjusted cash balance on the November 30 bank reconciliation.

## CHAPTER 9

Receivables

## CHAPTER NINE

## Receivables

This chapter focuses on one type of current assets - receivables. Receivables may be uncollectible. To match the cost of uncollectible accounts and the related revenue, bad debts must be estimated using either the income statement method or balance sheet method. Actual account receivables are written off when judged to be uncollectible. Write-offs can be subsequently recovered. The journalizing of notes receivable and related interest revenue is also discussed in this chapter.

## Chapter 9 Learning Objectives

L01 - Types of Receivables.
LO2 - Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.
LO3 - Explain and record short-term notes receivable and calculate related interest.

## A. Types of Receivable

> LO4 - Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

Account Receivable - Amounts due from credit customers. Result from prior sales on account, are normally expected to be collected within a relatively short period, such as 30 or 60 days.

Notes Receivable - Amounts due from borrowers who have taken out loans, or issued Promissory Notes.

## Other receivables

Receivables such as interest receivable which are not a result of business operations.

Unfortunately, not all receivables are collected. This section discusses issues related to accounts receivable and their collection.

## Uncollectible Accounts Receivable

Extending credit to customers results in increased sales and therefore profits. However, there is a risk that some accounts receivable will not be collected. A good internal control system is designed to minimize bad debt losses. One such control is to permit sales on account only to credit-worthy customers; this can be difficult to determine in advance. Companies with credit sales realize that some of these amounts may never be collected. These uncollectible accounts, commonly known as bad debts, are an expense associated with selling on credit.

Two methods are used in accounting for uncollectible accounts:

1. The direct write-off method
2. The allowance method

## The Direct Method

Under the Direct Method, there is no need to estimate how much is going to be written off during the upcoming year because the actual write-off of a customer's account takes place only when the company decides to write-off a specific customer's account.

## To Write Off a Specific (Customer) Account

Example: Assume that we write one of our customers account receivable, John Doe's $\$ 500$ off because he left the country without paying.

When a customer account is written off using this method, the journal entry is:

Bad debt expense 500
A/R - J. Doe 500
To write off John Doe account
This journal entry is repeated as often as accounts are written off.

## What happens if payment is received after a customer has been written off?

Let's say John Doe came back and he decided to pay us, how would we record the journal entry:

In this case, the journal entry that was made to write the account off is simply reversed:

$$
\text { A/R - J. Doe } 500
$$

Bad debt expense ..... 500
To reinstate a previously written off account

After the above reversing entry is made, just simply create the journal entry to record the payment,

Cash 500
A/R - J. Doe 500

## Received payment from customer.

The direct write-off method violates the matching principle which requires that the expense of uncollectable accounts to be matched with the related revenue for any specific period. Therefore, many companies can't use the direct write-off method because it violate GAAP and these companies must use a different method, "the allowance method".

## The Allowance Method

When companies use the allowance method, they estimate bad debt expenses at the end of the period. Under the Allowance Method, it is necessary for a company to estimate the dollar amount of its account receivables that it expects may not be collected during the following accounting year. At this point, the entire amount is
expensed (this is not the same as writing off a specific customer account.

Bad debt expense should be matched to the credit sales of the same period. For example, assume BDC recorded a $\$ 1,000$ credit sale to XYA Company in April, 2017. Assume further that in 2018 it was determined that the $\$ 1,000$ receivable from XYA Company would never be collected. The bad debt arising from the credit sale to XYA Company should be matched to the period in which the sale occurred, namely, April, 2017. But how can that be done if it is not known which receivables will become uncollectible until a future date? A means of estimating and recording the amount of sales that will not be collected in cash is needed. This is done by establishing a contra current asset account called Allowance for Doubtful Accounts in the general ledger to record estimated uncollectible receivables. This account is a contra account to accounts receivable and is disclosed on the balance sheet as shown below using assumed values.


Accounts receivable (net of \$1,400 allowance for doubtful accounts)
\$ 23,600
The Allowance for Doubtful Accounts contra account reduces accounts receivable to the amount that is expected to be collectedin this case, $\$ 23,600$.

## Estimating Uncollectible Accounts Receivable

The allowance for doubtful accounts is used to reflect how much of the total Accounts Receivable is estimated to be uncollectible. To record estimated uncollectible accounts, the following adjusting entry is made.

## Bad Debts Expense

The bad debt expense is shown on the income statement. Allowance for doubtful accounts appears on the balance sheet and is subtracted from accounts receivable resulting in the estimated net accounts receivable.

Two different methods can be used to estimate uncollectible accounts. One method focuses on estimating Bad Debt Expense on the income statement (\% of sales), while the other focuses on estimating the desired balance in allowance for doubtful accounts on the balance sheet ( $\%$ of receivables).

To estimate how much of the account receivables may not be collected, the company may use one of the following methods:
\% of sales (credit) method or,
\% of receivables method

## The Income Statement Method (percentage of sales)

The objective of the income statement method (\% of sales) is to estimate bad debt expense based on credit sales. Bad debt expense is calculated by applying an estimated loss percentage to credit sales for the period.

Assuming all sales are credit sales, then net credit sales is equal to sales less sales discounts less sales returns and allowances.

In either case, the company expenses the estimated amount by debiting the operating expense "bad debt expense" and credits the account titled "Allowance For Doubtful Accounts" or AFDA.

The journal entry for this is:

## Bad debt expense D <br> AFDA C <br> To expense estimated uncollectible accounts and create the AFDA.

1. Assume the $\%$ of Sales method was used.

Example: Say there is credit balance of $\$ 500$ in the AFDA account at yearend and the company estimates that next year's uncollectible accounts based on next year's sales will be $\$ 5,000$.

AFDA
500

In this case, expense next year's \$5,000 estimated uncollectible amount and credit the AFDA account as follows:

Bad debt expense 5,000
AFDA 5,000
To record bad debt expense for the following year.
The new balance in the AFDA is $\$ 5,500$.
2. Assume the $\mathbf{\%}$ of Sales method was used.

Example: Say there is debit balance of $\$ 500$ in the AFDA account at yearend and the company estimates that next year's uncollectible accounts based on next year's sales will be $\$ 5,000$.


As in the previous case, expense next year's \$5,000 estimated uncollectible amount and credit the AFDA account as follows:

Bad debt expense 5,000
AFDA 5,000
To record bad debt expense for the following year.
The new balance in the AFDA is $\$ 4,500$.

The percentage is typically based on actual losses experienced in prior years. For instance, a company may have the following history of uncollected sales on account:

\left.|  |  | Amounts |
| :--- | ---: | ---: |
| Year | Credit |  |
| sales | not |  |
| collected |  |  |$\right\}$

The average loss over these years is $\$ 3,000 / \$ 600,000$, or $1 / 2$ of $1 \%$. If management anticipates that similar losses can be expected in 2020 and credit sales for 2020 amount to $\$ 300,000$, bad debts expense would be estimated as $\$ 1,500(\$ 300,000 \times 0.005)$.

Under the income statement method, the \$1,500 represents estimated bad debt expense and is recorded as:

## Bad Debts Expense 1,500

Allow. For Doubt. Acct. 1,500
To record estimated bad debts expense.
This estimated bad debt expense is calculated without considering any existing balance in the allowance for doubtful accounts.
Allowance for doubtful account
before posting adjustment
Assume the balance remaining
in Allowance for doubtful
accounts from the previous
period is $\$ 250$.

Allowance for Doubtful Accounts

## When the \% of Sales Method is used:

1. The $\%$ of sales method is considered an income statement approach because it is based on credit sales, which are shown on the income statement.
2. The $\%$ of sales method affects the income statement and balance sheet when the estimated amount of uncollectable is determined.
3. When an account is written off, only balance sheet accounts are affected.
4. Yearend or end of period adjustments do not take into account the balances in the AFDA account before adjusting.

## The balance sheet Method (percentage of receivable)

Assume the \% of Receivables method was used.
Example: Say there is credit balance of $\$ 500$ in the AFDA account at yearend and the company estimates that uncollectible accounts based on next year's receivables will be \$5,000.


In this case, $\$ 4,500$ must be expensed since the AFDA account already has a $\$ 500$ credit balance originally based on estimated uncollectible receivables. Thus, the journal entry becomes:

## Bad debt expense 4,500

AFDA 4,500
To record bad debt expense for the following year.
The new balance in the AFDA is $\$ 5,000$.
Assume the $\%$ of Receivables method was used.
Example: Say there is debit balance of $\$ 500$ in the AFDA account at yearend and the company estimates that uncollectible accounts based on next year's receivables will be \$5,000.

AFDA

In this case, $\$ 5,500$ must be expensed since the AFDA account has a $\$ 500$ debit balance which was never expensed. Thus, the journal entry becomes:

Bad debt expense 5,500
AFDA 5,500
To record bad debt expense for the following year.

The new balance in the AFDA is $\$ 5,000$.
Estimated uncollectible accounts can also be calculated by using the balance sheet method (\% of receivable) where a process called aging of accounts receivable is used. At the end of the period, the total of estimated uncollectible accounts is calculated by analyzing accounts receivable according to how long each account has been outstanding. An aging analysis approach assumes that the longer a receivable is outstanding, the less chance there is of collecting it. This process is illustrated in the following schedule.

|  |  | Number Of Days Outstanding |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Customer | Total | $1-30$ | $31-60$ | $61-90$ | $91-120$ | Over 120 |
| Bendix Inc. | $\$ 1,000$ |  |  |  |  | $\$ 1,000$ |
| Devco Marketing Inc | 6,000 | $\$ 1,000$ | $\$ 3,000$ | $\$ 2,000$ |  |  |
| Horngren Corp. | 4,000 | 2,000 | 1,000 |  | $\$ 1,000$ |  |
| Perry Co. Ltd. | 5,000 | 3,000 | 1,000 |  | 1,000 |  |
| Others | 9,000 | 4,000 |  |  | 5,000 |  |
| Totals | $\$ 25,000$ | $\$ 10,000$ | $\$ 5,000$ | $\$ 2,000$ | $\$ 7,000$ | $\$ 1,000$ |

In this example, accounts receivable total $\$ 25,000$ at the end of the period. These are classified into five time periods: those receivables that 1-30 days past due; 31-60 days past due; 61-90 days past due; $91-120$ days past due; and over 120 days past due.

Based on past experience, assume management estimates a bad debt percentage for each time period as follows:

| Number Of Days Outstanding |  |  |  |  |
| :---: | ---: | ---: | ---: | ---: |
| $1-30$ | $31-60$ | $61-90$ | $91-120$ | Over 120 |
| $1 \%$ | $3 \%$ | $5 \%$ | $10 \%$ | $40 \%$ |

The calculation of expected uncollectible accounts receivable at December 31, 2017 would be as follows:

## Calculation of Uncollectible Amounts

December 31, 2017

| Age <br> (days) | Accounts receivable | Estimated bad debt percentage | Estimated uncollectible amount |
| :---: | :---: | :---: | :---: |
| 1-30 | \$10,000 | 1\% | \$ 100 |
| 31-60 | 5,000 | 3\% | 150 |
| 61-90 | 2,000 | 5\% | 100 |
| 91-120 | 7,000 | 10\% | 700 |
| Over 120 | 1,000 | 40\% | 400 |
| Totals | \$25,000 |  | \$1,450 |

A total of $\$ 1,450$ of accounts receivable is estimated to be uncollectible at December 31, 2017.

Under the balance sheet method, the estimated bad debt expense consists of the difference between the opening allowance for doubtful accounts balance ( $\$ 250$, as in the prior example) and the estimated uncollectible receivables $(\$ 1,450)$ required at year-end.


The adjustment is recorded by the following journal entry: Bad Debts Expense 1,200

Allow. For Doubt. Acct.
1,200

## To record estimated bad debts expense.

As an alternative to using an aging analysis to estimate uncollectible accounts, a simplified balance sheet method can be used. The simplified balance sheet method calculates the total estimated uncollectible accounts as a percentage of the outstanding accounts receivables balance. For example, assume an unadjusted balance in the allowance for doubtful accounts of $\$ 250$ as in the preceding example. Also assume the accounts receivable balance at the end of the period was $\$ 25,000$ as in the previous illustration. If it was estimated that $6 \%$ of these would be uncollectible based on historical data, the adjustment would be:

Bad Debts Expense
1,250
Allow. For Doubt. Acct. 1,250

## To record estimated bad debts expense.

The total estimated uncollectible accounts was \$1,500 (\$25,000× $6 \%$ ). Given an unadjusted balance in allowance for doubtful accounts of $\$ 250$, the adjustment to allowance for doubtful accounts must be a credit of $\$ 1,250(\$ 1,500-\$ 250)$.

Regardless of whether the income statement method or balance sheet method is used, the amount estimated as an allowance for doubtful accounts seldom agrees with the amounts that actually prove uncollectible. A credit balance remains in the allowance account if fewer bad debts occur during the year than are estimated. There is a debit balance in the allowance account if more bad debts occur during the year than are estimated. By monitoring the balance in the Allowance for Doubtful Accounts general ledger account at each year-end, though, management can determine whether the estimates of uncollectible amounts are accurate. If not, they can adjust these estimates going forward.

## When the \% of Receivables Method is used:

1. The $\%$ of receivables method is considered a balance sheet approach because it is based on accounts receivables, which are shown on the balance sheet.
2. The $\%$ of receivables method affects the income statement and balance sheet when the estimated amount of uncollectables is determined.
3. When an account is written off, only balance sheet accounts are affected.
4. Yearend or end of period adjustments must take into account whether there are debit or credit balances in the AFDA account before adjusting.

## Writing Off Accounts Receivable Under the Allowance Method

When recording the adjusting entry to estimate uncollectible accounts receivable at the end of the period, it is not known which specific receivables will become uncollectible. When a specific account is determined to be uncollectible, it must be removed from the accounts receivable account. This process is known as a writeoff. To demonstrate the write-off of an account receivable, assume that on January 15, 2018 the $\$ 1,000$ credit account for customer Bendix Inc. is identified as uncollectible because of the company's bankruptcy. The receivable is removed by this entry:

$$
\begin{array}{lc}
\text { Allow. For Doubt. Acct. } & 1,000 \\
\text { Acct. Rec. - Bendix Inc. } & 1,000 \\
\text { To write-off Bendix Inc.'s account receivable }
\end{array}
$$

The $\$ 1,000$ write-off reduces both the accounts receivable and allowance for doubtful accounts. The write-off does not affect net realizable accounts receivable, as demonstrated below.

|  | Before write-off | Write-off | After write-off |
| :---: | :---: | :---: | :---: |
| Accounts receivable | \$25,000 | Cr 1,000 | \$24,000 |
| Less: Allowance for doubtful accounts | 1,450 | Dr 1,000 | 450 |
| Net accounts receivable | \$23,550 |  | \$23,550 |

A write-off does not affect bad debt expense. Recall that the adjusting entry to estimate uncollectible accounts was:

Bad Debts Expense
Allow. For Doubt. Acct.
To record estimated uncollectible accounts receivable.
This adjustment was recorded because GAAP requires that the bad debt expense be matched to the period in which the sales occurred even though it is not known which receivables will become uncollectible. Later, when an uncollectible receivable is identified, it is written off as:

## Allow. For Doubt. Acct.

Accounts Receivable
To record estimated uncollectible accounts receivable.
The allowance for doubtful accounts entries cancel each other out so that the net effect is a debit to bad debt expense and a credit to accounts receivable. The use of the allowance for doubtful accounts contra account allows us to estimate uncollectible accounts in one period and record the write-off of bad receivables as they become known in a later period.

## Recovery of a Write-Off

When Bendix Inc. went bankrupt, its debt to Big Dog Carworks Co. was written off in anticipation that there would be no recovery of the amount owed. Assume that later, an announcement was made that $25 \%$ of amounts owed by Bendix would be paid. This new information indicates that BDC will be able to recover a portion of the receivable previously written off. A recovery requires two journal entries. The first entry reinstates the amount expected to be collected by BDC - $\$ 250$ ( $\$ 1,000 \times 25 \%$ ) in this case - and is recorded as:


The second entry records the collection of the reinstated amount as:


Acct. Rec. - Bendix Inc. 250
To record recovery of collectible portion of account previously written off.

The various journal entries related to accounts receivable are summarized below.

| Sale on account |  | XXX XXX | XXX XXX |
| :---: | :---: | :---: | :---: |
| Adjusting entry estimating uncollectible accounts | Bad Debts Expense $\qquad$ Allow. For Doubt. Acct. $\qquad$ | XXX | XXX |
| Write-off of uncollectible account | $\left\{\begin{array}{r} \text { Allow. For Doubt. Acct. .................. } \\ \text { Accounts Receivable .............. } \end{array}\right.$ | XXX | XXX |
| Partial recovery of account | $\int \begin{aligned} & \text { Accounts Receivable....................... } \\ & \text { Allow. For Doubt. Acct............ }\end{aligned}$ | XXX | XXX |
| previously written off | Cash Accounts Receivable | XXX | XXX |

## E. Notes Receivable

LO5 - Explain and record short-term notes receivable and calculate related interest.

Notes receivable are formalized accounts receivable. They are recorded as current assets if they are due within twelve months of the date of issue. A note receivable is a signed, legally-enforceable document. The customer who owes the money promises to pay the company the principal plus interest on the due date. The principal is the amount of the account receivable. Interest is calculated as: (principal $\times$ annual Interest rate $\times$ length of time outstanding).

Notes receivable can arise at the time of sale or when a customer's account receivable becomes overdue. For example, assume that BDC provided $\$ 4,000$ of services to customer Woodlow on August 1, 2017, but this amount is still unpaid at November 30. Because of the length of time that has elapsed, BDC and the customer agree to sign a 4\%,3-month note receivable on December 1. The journal entry on August 1 would be:
Account Rec. - Woodlow 4,000
$\quad$ Service Revenue
To record service revenue from Woodlow.

Then entry on December 1 to record the conversion of the account receivable to a note receivable would be:

Note Receivable - Woodlow 4,000
Account Rec. - Woodlow 4,000
To record conversion of the account receivable from Woodlow to a 4\%, 3-month note receivable due February 28, 2018.

If a year-end occurred on December 31, 2017, an adjusting entry would be made to record accrued interest from December 1 to December 31:

Interest Receivable 13
Interest Revenue
13
To record interest accrued on the Woodlow note receivable at year-end $(\$ 4,000 \times 4 \% \times 1 / 12$ mos. $=\$ 13)$.

The maturity date is three months from the date of issue, or February 28, 2018. On that date, BDC would record the collection of the note receivable and related interest as:

Cash 4,040
Note Rec. -Woodlow 4,000
Interest Receivable 13
Interest Revenue 27
To record the collection of the note receivable and interest from January 1 to February 28, 2018 ( $\$ 4,000 \times 4 \% \times 2 / 12$ mos. $=\$ 27$ ).

ASSIGNMENTMATERIALS<br>Concept Self-check

1. How does use of allowance for doubtful accounts match expenses with revenue?
2. How does the income statement method calculate the estimated amount of uncollectible accounts?
3. What is an ageing schedule for bad debts, and how is it used in calculating the estimated amount of uncollectible accounts?
4. How are credit balances in accounts receivable reported on the financial statements?
5. What is an example of a journal entry to create a note receivable?

## Comprehension Problems

CP 9-4
Koss Co. Ltd. began operations on January 1, 2017. It had the following transactions during 2017, 2018, and 2019.

2017 Dec. 31 Estimated uncollectible accounts as \$5,000 (calculated as $2 \%$ of sales)
2018 Apr. 15 Wrote off the balance of N. Lang, \$700 under the direct write-off method.
Aug. 8 Wrote off $\$ 3,000$ of miscellaneous customer accounts as uncollectible under the allowance method
Dec. 31 Estimated uncollectible accounts as $\$ 4,000$ ( $1 \%$ of sales)
2019 Mar. 6 Recovered $\$ 200$ from N. Lang, whose account was written off in 2018; no further recoveries are expected
Sept. 4 Wrote off as uncollectible $\$ 4,000$ of miscellaneous customer accounts under the allowance method
Dec. 31 Estimated uncollectible accounts as $\$ 4,500$ ( $1 \%$ of sales).
Required:

1. Prepare journal entries to record the above transactions.

## CP 9-5

Impulse Inc. had the following unadjusted account balances at December 31, 2017, its year-end.

|  | Account Balances |  |
| :--- | :---: | :---: |
|  | Debit | Credit |
| Accounts Receivable | $\$ 125,000$ |  |
| Allowance for Doubtful Accounts |  | $\$, 000$ |
| Sales |  | 750,000 |

Impulse estimates its uncollectible accounts as 5 per cent of its December 31 accounts receivable balance.

## Required:

1. Calculate the amount of estimated uncollectible accounts that will appear on Impulse's balance sheet at December 31, 2017.
2. Calculate the amount of bad debt expense that will appear on Impulse's income statement at December 31, 2017.
3. Prepare a partial balance sheet at December 31,2017 showing accounts receivable, allowance for doubtful accounts, and the net accounts receivable.

## CP 9-7

Sather Ltd. had the following unadjusted account balances at December 31, 2017:

| Accounts Receivable | $\$ 150,000$ |
| :--- | ---: |
| Allowance for Doubtful Accounts | 3,000 |
| Sales | 750,000 |

Required:

1. Assume that Sather Ltd. estimated its uncollectible accounts at December 31, 2017 to be 2 per cent of sales.
a. Prepare the appropriate adjusting entry to record the estimated uncollectible accounts at December 31, 2017.
b. Calculate the balance in the Allowance for Doubtful Accounts account after posting the adjusting entry.

CP 9-8
Elliot Inc. has the following unadjusted account balances at December 31, 2017:

|  | Account Balances |  |
| :--- | ---: | ---: |
|  | Debit | Credit |
| Accounts Receivable | $\$ 50,000$ |  |
| Allowance for Doubtful | 1,000 |  |
| Accounts |  | $\$ 200,00$ |
| Sales |  | 0 |

## Required:

1. Assume Elliot estimates that two per cent of its sales will not be collected.
a. What amount of bad debt expense will be reported on Elliot's income statement at December 31, 2017?
b. What amount of allowance for doubtful accounts will be reported on Elliot's balance sheet at December 31, 2017 ?
2. Assume Elliot estimates that five per cent of accounts receivable will not be collected.
a. What amount of bad debt expense will be reported on Elliot's income statement at December 31, 2017?
b. What amount of allowance for doubtful accounts will be reported on Elliot's balance sheet at December 31, 2017 ?
3. Which calculation provides better matching: that made in question 1 or in question 2 ? Why?

A \$12,000 account receivable owing from Smith Co. to Jones Inc. was converted into a 6\%,3-month note receivable on November 1, 2017.

Required:

1. Prepare the entry needed to record the note receivable in Jones' accounting records.
2. Prepare the entry needed to record accrued interest on the note receivable in Jones' accounting records at December 31, 2017.
3. Record the cash received from the note in Jones' accounting records on February 1, 2018.

## CP 9-10

Matt Co. has the following transactions related to notes receivable during the last 2 months of 2017. The company does accrue interest at the end of the year December 31 only.

- Nov. 1 Loaned \$40,000 cash to Sami INC on a 12 month, $10 \%$ note.
- Dec. 11 Sold goods to John Hatala, Inc., receiving a \$10,000, 90-day, 8\% note.
- Dec. 16 Received a $\$ 8,000,180$ days, $9 \%$ note in exchange for Lee Co.'s outstanding accounts receivable.
- Dec. 31Accrued interest revenues on all notes receivable. Required
(a) Journalize the transactions for Matt Co.
(b) Record the collection of the Sami note at its maturity in 2018.


## Problems

## P 9-4

The balance of the accounts receivable account of Griffin Ltd. at December 31, 2017 was $\$ 74,460$. Included in this balance are the credit balances of two customers, amounting to $\$ 3,200$ and $\$ 1,800$.

## Required:

1. What amount for accounts receivable would be shown as assets on the balance sheet?
2. How would the credit balances in the customers' accounts be disclosed?

## P 9-5

The following balances appear in the unadjusted trial balance of Lapointe Inc. at its year-end, December 31, 2017.

|  | Account |  |
| :--- | :---: | :---: |
|  | Debitances |  |
| Accounts Receivable | Credit |  |
| Allowance for Uncollectible | $\$ 100,000$ |  |
| Accounts |  | $\$, 000$ |
| Sales (all on credit) |  | 600,000 |

Lapointe uses the balance sheet method of calculating its allowance for doubtful accounts account. At December 31, 2017, it estimates that three per cent of accounts receivable would not be collected.Lapointe had the following transactions during 2018:
a. Accounts receivable worth $\$ 9,000$ were written off.
b. Credit sales amounted to $\$ 800,000$.
c. Collections of accounts receivable amounted to $\$ 700,000$.
d. Lapointe collected $\$ 2,000$ in 2018 that was previously written off in 2017. This amount is not included in the collection of accounts receivable described in $c$.
e. At year-end, Lapointe estimated that the amount of doubtful accounts at December 31, 2018 was $\$ 10,000$.

## Required:

1. Prepare all journal entries required for 2017 and 2018.
2. If Lapointe had used the income statement method of estimating uncollectible accounts, calculate the balance in the Allowance for Doubtful Accounts general ledger account at December 31,

Link to Original Link to Original

2017 and 2018. Assume that Lapointe estimated doubtful accounts to be one per cent of sales for both years.

## P9-6

The following balances are taken from the unadjusted trial balance of Penner Inc. at its year-end, December 31, 2017.

|  | Account |  |
| :--- | ---: | ---: |
|  | Dalances |  |
| Accouit | Credit |  |
| Allowance for Doubtful Accounts | $\$ 150,000$ |  |
| Sales |  | $\$ 1,500$ |
| Sales Returns and Allowances | 50,000 |  |

An ageing of accounts receivable at December 31, 2017 reveals the following information:

| Age | Accounts receivable, Dec 31 | Estimated uncollectible percentage |
| :---: | :---: | :---: |
| (days) |  |  |
| 1-30 | \$ 50,000 | 2\% |
| 31-60 | 27,000 | 4\% |
| 61-90 | 40,000 | 5\% |
| 91-120 | 30,000 | 10\% |
| Over 120 | 3,000 | 50\% |
| Total | \$150,000 |  |

## Required:

1. Determine the total estimated uncollectibles.
2. Prepare adjusting entry at December 31 to record bad debt expense.

## P 9-7

Tarpon Inc. made $\$ 1,000,000$ in sales during 2018. Thirty per cent of these were cash sales. During the year, $\$ 25,000$ of accounts receivable were written off as being uncollectible. In addition, $\$ 15,000$ of the accounts that were written off in 2017 were unexpectedly collected. At its year-end, December 31, 2018, Tarpon had $\$ 250,000$ of accounts receivable. The balance in the Allowance for Doubtful Accounts general ledger account was $\$ 15,000$ credit at December 31, 2017.

## Accounts

| Age <br> (days) | receivable |
| :--- | ---: |
| $1-30$ | $\$ 100,000$ |
| $31-60$ | 50,000 |
| $61-90$ | 25,000 |
| $91-120$ | 60,000 |
| Over 120 | 15,000 |
| $\quad$ Total | 250,000 |

## Required:

1. Prepare journal entries to record the following 2018 transactions:
a. The write-off of $\$ 25,000$
b. The recovery of $\$ 15,000$.
2. Recalculate the balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2018.
3. Prepare the adjusting entry required at December 31, 2018 for each of the following scenarios:
a. The estimated uncollectible accounts at December 31, 2018 is three per cent of credit sales.
b. The estimated uncollectible accounts at December 31, 2018 is estimated at five per cent of accounts receivable.
c. The estimated uncollectible accounts at December 31, 2018 are calculated as follows: Estimated
loss
Age percentage
(days)
1-30 2\%

31-60 4\%
61-90 5\%
91-120 10\%
Over 120 50\%

Link to Original Link to Original

## P 9-8

The Arcand Co. Ltd. has estimated its bad debts at 1 per cent of net credit sales. During 2018, Arcand decided to calculate the required balance for the allowance for doubtful accounts at year-end, December 31, by ageing its accounts receivable. The review suggested a required balance of $\$ 7,200$. The following data, which already have been recorded in the company's general ledger, are also available:

20172018
Accounts written off
On March 14, 2017 (Boven) \$600
On March 30, 2018 (Seaton)
Recoveries of accounts written off On June 5, 2018 (Boven) 400

The Allowance for Doubtful Accounts general ledger account reported the following balances: January 1, 2017-\$1,500 credit; January 1, 2018-\$3,900 credit.

Required: Prepare journal entries to record

1. The amount of bad debt expense for the year 2017
2. The bad debt expense on December 31, 2018
3. The collection from Boven on June 5, 2018.

## P 9-9

On January 1, 2017, the Brown Company had Accounts Receivable $\$ 145,000$, and Allowance for Doubtful Accounts $\$ 15,000$. The Brown Company prepares financial statements annually at December 31. During the year, the following selected transactions occurred.

1. Jan. 6 Sold $\$ 25,000$ of merchandise to Henry Company, terms n/10.
2. 16 Accepted Henry Company's $\$ 25,000,3$-month, $8 \%$ note for balance due.
3. Feb. 18 Sold $\$ 12,000$ of merchandise to Adam Company and accepted Adam's \$12,000, 6-month, $9 \%$ note for the amount due.
4. April 16 Collected Henry Company note in full.
5. 30 Accepted Larry Inc.'s $\$ 5,000,3$-month, $7 \%$ note in settlement of a past-due balance on account.
6. Aug. 18 Received payment in full from Adam Company on note due.
7. Aug. 30 The Larry Inc. note was dishonored. Larry Inc. is not bankrupt; future payment is anticipated.
8. Sept. 9 Sold $\$ 15,000$ of merchandise to Smith Company and accepted a $\$ 15,000,6$-month, $10 \%$ note for the amount due.

Required
Journalize the transactions.

## P 9-10

The accounts receivable listing of Grant Corporation shows the following on December 31, 2017. The general ledger showed a $\$ 200$ credit balance in Allowance for Doubtful Accounts before adjustment.

## Name of customer

Greenwood Fruit Packers Ltd.
Granville Ltd.
Kutcher Inc.
Kutcher Inc.
Lamb Fruit Inc.
Grimm Fruit Company
Fehr Produce Corp.
Fehr Produce Corp.
Fehr Produce Corp.
Golden Fruit Ltd.

| Invoice date | Amount |
| :--- | ---: |
| May 2 | $\$ 600$ |
| August 15 | 335 |
| October 2 | 720 |
| December 8 | 275 |
| March 3 | 445 |
| November 11 | 822 |
| November 20 | 250 |
| September 4 | 465 |
| July 10 | 922 |
| December 5 | 500 |

## Required:

1. Prepare an aging of accounts receivable at December 31, 2017, divided into five time periods as follows:

Age
(days)
1-30
31-60
61-90
91-120
121-150
Over 150
2. Compute the estimated loss (rounded to two decimal places) based on the following:

|  | Estimated |
| :--- | :---: |
| Age | loss |
| (days) | percentag |
| $1-30$ | $0.5 \%$ |
| $31-60$ | $1 \%$ |
| $61-90$ | $3 \%$ |
| $91-120$ | $10 \%$ |
| $121-150$ | $25 \%$ |
| Over 150 | $50 \%$ |

2. Prepare the journal entry to record the bad debt expense for the year.

## P 9-11

Zajic Corp. had the following transactions relating to uncollectible accounts during 2018:

Feb. 15 Wrote off F. Young's account of $\$ 200$ as uncollectible
Apr. 30 Collected from G. Yopek Inc. $\$ 100$ that had been written off in 2017
June 26 Received \$300 from Wong Machine Ltd. (Wong's previous balance was $\$ 700$ ); no further payments are expected and the balance was written off
Sept. $7 \quad$ Wrote off H. Wolfe's account of $\$ 350$
Dec. 31 Analysed accounts receivable, revealing the following: a. Accounts to be written off:
S. Wuff $\$ 300$
P. Levesque 400
T. White 100
b. Ageing of accounts receivable:

|  | Accounts | Estimated <br> loss |
| :--- | ---: | :---: |
| Age (days) | receivable | percentage |
| $1-30$ | $\$ 20,000$ | $2 \%$ |
| $31-60$ | 12,000 | $4 \%$ |
| $61-90$ | 5,000 | $5 \%$ |
| $91-120$ | 3,000 | $10 \%$ |
| Over 120 | 10,000 | $50 \%$ |
| $\quad$ Total | $\$ 50,000$ |  |

Required:

1. Assume that there was a credit balance of $\$ 1,735$ in the Allowance for Doubtful Accounts general ledger account at December 31, 2017. Prepare the entry to write off the uncollectible accounts at December 31, 2018.
2. Prepare the appropriate adjusting entry to set up the required balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2018.

## P 9-12

A \$120,000 account receivable owing from Baron Cabinets Ltd. to Glimmer Enterprises was converted into a $12 \%$, 12-month note receivable on August 1, 2017. Principal of $\$ 10,000$ per month plus accrued interest on the outstanding balance was to be paid on the note on the last day of each month.

## Required:

1. Prepare the entry needed to record the note receivable in Glimmer's accounting records on August 1.
2. Prepare the entry needed to record accrued interest on the note receivable in Glimmer's accounting records at December 31, 2017.
3. Record the cash received from the note in Glimmer's accounting records on February 28, 2018.

## CHAPTER 10

 LONG-LIVED ASSETS
## CHAPTER TEN

## Long-lived Assets

Long-lived assets or property, plant, and equipment (PPE) assets are used in the normal operating activities of the business and are expected to provide benefits for a period in excess of one year. Long-lived assets covered in this chapter consist of three types: property, plant, and equipment (PPE), intangible assets, and goodwill. Also discussed are depreciation and amortization, techniques to allocate the cost of most long-lived assets over their estimated useful lives.

## Chapter 10 Learning Objectives

L01 - Describe how the cost of property, plant, and equipment is determined.

LO2 - Explain, calculate, and record depreciation using the units-ofproduction, straight-line, and double-declining balance methods.

LO3 - Explain, calculate, and record the impairment of long-lived assets.
LO4 - Account for the derecognition of PPE assets.
LO5 - Explain and record the acquisition and amortization of intangible assets.

L06 - Explain goodwill and identify where on the balance sheet it is reported

L07 - Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

## A. Establishing the Cost of Property, Plant, and Equipment (PPE)

LO1 - Describe how the cost of property, plant, and equipment is determined.

Property, plant, and equipment ( $P P E$ ) are long-lived assets that are acquired for the purpose of generating revenue either directly or indirectly. They are held for use in the production or supply of goods and services, have been acquired for use on a continuing basis, and are not intended for sale in the ordinary course of business. Examples of PPE assets include land, office and manufacturing buildings, production machinery, trucks, ships or aircraft used to deliver goods or transport passengers, salespersons' automobiles owned by a company, or a farmer's production machinery such as tractors and field equipment. PPE assets are tangible assets because they can be physically touched. There are other types of non-current assets that are intangibleexisting only as legal concepts-such as copyrights and patents. These will be discussed later in this chapter.

A long-term asset can be considered a bundle of future benefits that will be used up over a period of years. Each year, a pre-determined portion of these benefits is allocated to expense on the income statement. This concept was briefly introduced in Chapter 3. It will be examined more fully in this chapter.

## Capital Expenditures

Any cash disbursement is referred to as an expenditure. A capital expenditure results in the acquisition of a non-current asset, including any additional costs involved in preparing the asset for its intended use. Examples of various costs that may be incurred to prepare PPE for use are listed below.

| Costs to acquire PPE | Capital expenditures |  |  |
| :---: | :---: | :---: | :---: |
|  | Land | Building | Equipment |
|  | Purchase price | Purchase price | Invoice cost |
|  | ```Commission to real estate agent Legal fees``` | Commission to real estate agent Legal fees | Transportation Insurance (during transportation) |
| Costs to prepare PPE for use | Costs of draining, clearing, and landscaping; demolition Assessments for streets and sewage system | Repair and remodelling costs before use Payments to tenants for premature termination of lease | Assembly |
|  |  |  | Installation |
|  |  |  | (including wages |
|  |  |  | paid to company employees) |
|  |  |  | Special floor foundations or supports |
|  |  |  | Wiring |
|  |  |  | Inspection |
|  |  |  | Test run costs |

To demonstrate, assume that equipment is purchased for $\$ 20,000$. Additional costs include transportation costs $\$ 500$, installation costs $\$ 1,000$, construction costs for a cement foundation $\$ 2,500$, and test run(s) costs to debug the equipment $\$ 2,000$. The total capitalized cost of the asset to put it into use is $\$ 26,000$.

Determining whether an outlay is a capital expenditure or a revenue expenditure is a matter of judgment. A revenue expenditure does not have a future benefit beyond one year. The concept of materiality enters into the distinction between capital and revenue expenditures. As a matter of expediency, an expenditure of $\$ 20$ that has all the characteristics of a capital expenditure would probably be expensed rather than capitalized, because the time and effort required by accounting staff to capitalize and then depreciate the item over its estimated useful life is much greater than the benefits derived from doing so. Capitalization policies are established by many companies to resolve the problem of distinguishing between capital and revenue expenditures. For example, one company's capitalization policy may state that all capital expenditures equal to or greater than $\$ 1,000$ will capitalized, while all capital expenditures under $\$ 1,000$ will be expensed when incurred. Another company may have a capitalization policy limit of $\$ 500$.

Not all asset-related expenditures incurred after the purchase of an asset are capitalized. An expenditure made to maintain PPE in satisfactory working order is a revenue expenditure and recorded as a debit to an expense account. Examples of these expenditures
include: (a) the cost of replacing small parts of an asset that normally wear out (in the case of a truck, for example: new tires, new muffler, new battery); (b) continuing expenditures for maintaining the asset in good working order (for example, oil changes, antifreeze, transmission fluid changes); and (c) costs of renewing structural parts of an asset (for example, repairs of collision damage, repair or replacement of rusted parts).

Although some expenditures for repair and maintenance may benefit more than one accounting period, they may not be material in amount or they may have uncertain future benefits. They are therefore treated as expenses. These three criteria must all be met for an expenditure to be considered capital in nature.

1. Will it benefit more than one accounting period?
2. Will it enhance the service potential of the asset, or make it more valuable or more adaptable?
3 . Is the dollar amount material?
If the expenditure does not meet all three criteria, then it is a revenue expenditure and is expensed.

## Land

The purchase of land is a capital expenditure when the land is used in the operation of a business. In addition to the costs listed in the schedule above, the cost of land should be increased by the cost of removing any unwanted structures on it. This cost is reduced by the proceeds, if any, obtained from the sale of the scrap. For example, assume that the purchase price of land is $\$ 100,000$ before an additional $\$ 15,000$ cost to raze an old building: $\$ 1,000$ is expected to be received for salvaged materials. The cost of the land is calculated as $\$ 114,000(\$ 100,000+\$ 15,000-\$ 1,000)$.

Frequently, land and useful buildings are purchased for a lump sum. That is, one price is negotiated for their entire purchase. A lump sum purchase price must be apportioned between the PPE assets acquired on the basis of their respective market values, perhaps established by a municipal assessment or a professional land appraiser. Assume that a lump sum of $\$ 150,000$ cash is paid for land and a building, and that the land is appraised at $25 \%$ of the total purchase price. The Land account would be debited for $\$ 37,500$ ( $\$ 150,000 \times 25 \%$ ) and the Building account would be debited for the remaining $75 \%$ or $\$ 112,500$ ( $\$ 150,000 \times 75 \%=\$ 112,500$ or $\$ 150,000-\$ 37,500=\$ 112,500$ ) as shown in the following journal entry.

| Land | 37,500 |
| :--- | ---: |
| Building | 112,500 |
| Cash |  |

150,000
To record the purchase of land and building for a lump sum of $\$ 150,000$; land: $\$ 150,000 \times 25 \%=\$ 37,500$; building: $\$ 150,000 \times 75 \%=\$ 112,500$.

## Building and Equipment

When a capital asset is purchased, its cost includes the purchase price plus all costs to prepare the asset for its intended use. However, a company may construct its own building or equipment. In the case of a building, for example, costs include those incurred for excavation, building permits, insurance and property taxes during construction, engineering fees, the cost of labour incurred by having company employees supervise and work on the construction of the building, and the cost of any interest incurred to finance the construction during the construction period.

## B. Depreciation

LO2 - Explain, calculate, and record depreciation using the units-ofproduction, straight-line, and double-declining balance methods.

The role of depreciation is to allocate the cost of a PPE asset (except land) over the accounting periods expected to receive benefits from its use. Depreciation begins when the asset is in the location and condition necessary for it to be put to use.
Depreciation continues even if the asset becomes idle or is retired from use, unless it is fully depreciated. Land is not depreciated, as it is assumed to have an unlimited life.

Depreciation is an application of the matching principle.
According to generally accepted accounting principles, a company should select a method of depreciation that represents the way in which the asset's future economic benefits are estimated to be used up.

There are many different ways to calculate depreciation. The most frequently used methods are:

1. Straight-line method.
2. Units of production (Activity) method.
3. Double declining balance method.

There are three factors necessary to calculate depreciation of PPE:

- cost of the asset
- salvage value
- estimated useful life or productive output.

Salvage value is the estimated worth of the asset at the end of its estimated useful life. This concept was not introduced when depreciation was briefly discussed in Chapter 3. A long-lived asset is not depreciated below its salvage value.

Useful life is the length of time that a long-lived asset is estimated to be of benefit to the current owner. This is not necessarily the same as the asset's economic life. If a company has a policy of replacing its delivery truck every two years, its useful life is two years even though it may be used by the next owner for several more years.

Productive output is the amount of goods or services expected to be provided. For example, it may be measured in units of output, hours used, or miles driven.

Regardless of depreciation method chosen, it must be applied consistently from year to year. Different depreciations methods can be applied to different types of depreciable assets, however.

## Units-of-Production Depreciation Method

Units-of-Production depreciation methods, such as the units-ofproduction method, are used when the output of an asset varies from period to period.

> Units-of-Production method assume that the asset will contribute to the earning of revenues in relation to the amount of output during the accounting period. Therefore, the depreciation expense will vary from year to year.

To demonstrate, assume that Big Dog Carworks Co. purchased a $\$ 20,000$ piece of equipment on January 1, 2017 with a $\$ 2,000$ salvage value and estimated productive life of 10,000 units.

If 1,500 units were produced during 2017, the depreciation expense for the year ended December 31, 2017 would be calculated using the following formula:

| Cost-salvage value <br> output$=$Depreciation <br> per unit$\mathrm{x} \quad$Number of <br> units <br> produced |
| :--- |$=$| Depreciation |
| :---: |
| expense |

The following adjusting entry would be made on December 31, 2017:

2017
Dec. 31 Depreciation Expense 2,700
Accumulated Depreciation 2,700
To record depreciation expense using the units-of-production method; ( $\$ 20,000-\$ 2,000$ )/10,000 units $=\$ 1.80 /$ unit;
$\$ 1.80 /$ unit x 1,500 units $=\$ 2,700$.
The carrying amount or net book value (NBV) of the asset is its cost less accumulated depreciation. On the December 31, 2017 balance sheet, the book value would be $\$ 17,300(\$ 20,000-2,700)$.

Note that the salvage value is only used to calculate depreciation expense. It is not recorded in the accounts of the company or included as part of the book value on the balance sheet.

If 2,000 units were produced during 2018, depreciation expense for that year would be $\$ 3,600$ ( $\$ 1.80$ per unit x 2,000 units). At December 31, 2018, the following adjusting entry would be recorded:

2018
Dec. 31 Depreciation Expense 3,600
Accumulated Depreciation 3,600
To record depreciation expense using the units-of-production method; (\$20,000-\$2,000)/10,000 units = \$1.80/unit;
$\$ 1.80 /$ unit x 2,000 units $=\$ 3,600$.
The carrying amount or book value at December 31, 2018 would be \$13,700 (\$20,000-2,700-3,600).

If the equipment produces 1,000 units in 2019, 2,500 units in 2020, and 3,000 units in 2021, depreciation expense and carrying amounts each year would be as follows:

| (a) | (b) | (c) | (d) | (e) | (f) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Carrying amount at start of year | Usage (units) | Rate* | Dep'n expense | Book value at end of year (b) - (e) |
| 2017 | \$20,000 | 1,500 | \$1.80 | \$2,700 | \$17,300 |
| 2018 | 17,300 | 2,000 | 1.80 | 3,600 | 13,700 |
| 2019 | 13,700 | 1,000 | 1.80 | 1,800 | 11,900 |
| 2020 | 11,900 | 2,500 | 1.80 | 4,500 | 7,400 |
| 2021 | 7,400 | 3,000 | 1.80 | 5,400 | 2,000 |
|  |  | 10,000 |  | \$18,000 |  |

*(\$20,000-2,000)/10,000 units = \$1.80 per unit
If the equipment produces exactly 10,000 units over its useful life and is then retired, depreciation expense over all years will total $\$ 18,000(10,000$ units $x \$ 1.80)$ and the carrying amount or book value will equal salvage value of $\$ 2,000(\$ 20,000-18,000)$.

It is unlikely that the equipment will produce exactly 10,000 units over its useful life. Assume instead that 4,800 units were produced in 2021. Depreciation expense and carrying amounts or book value would be as follows each year:

| (a) | (b) | (c) | (d) | (e) | (f) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Year | Carrying amount at start of year | Usage (units) | Rate | Dep'n expense | Carryin <br> $g$ amount at end of year <br> (b) - <br> (e) |
| 2017 | \$20,000 | 1,500 | \$1.80 | \$2,700 | \$17,300 |
| 2018 | 17,300 | 2,000 | 1.80 | 3,600 | 13,700 |
| 2019 | 13,700 | 1,000 | 1.80 | 1,800 | 11,900 |
| 2020 | 11,900 | 2,500 | 1.80 | 4,500 | 7,400 |
| 2021 | 7,400 | 4,800 | 1.80 | 5,400 $\longleftrightarrow 2,000$ |  |
|  |  | 11,800 |  | \$18,000 |  |

Although the 2021 depreciation expense would otherwise be $\$ 8,640$ ( 4,800 units $\times \$ 1.80$ ), only $\$ 5,400$ is recorded to bring the carrying amount or book value of the asset down to its salvage value of $\$ 2,000$.

## Straight-Line Depreciation Method

A simplified method of straight-line depreciation was introduced in Chapter 3. This method assumes that the asset will contribute to the earning of revenues equally each time period. Therefore, equal amounts of depreciation are recorded during each year of the asset's useful life. To calculate depreciation expense under the straight-line method, we need to determine depreciable cost.

Depreciable Cost $=$ Cost - Salvage Value
Straight-line depreciation is calculated as:
Depreciable Cost $=$ Depreciation expense each period Useful life
$\underline{\mathrm{Or}}$
(Cost-salvage value) $=$ Depreciation expense each period Useful life

To demonstrate, assume the same $\$ 20,000$ piece of equipment used earlier, with a useful life of five years and a salvage value of $\$ 2,000$. Straight-line depreciation would be $\$ 3,600$ per year calculated as:
$(\$ 20,000-\$ 2,000)=\$ 3,600$ depreciation expense each year 5 years
(Depreciable Cost $=\$ 20,000-\$ 2,000=\$ 18,000)$
Over the five-year useful life of the equipment, depreciation expense and carrying amounts or book value will be as follows:

| (a) | (b) | (c) | (d) |
| :---: | :---: | :---: | :---: |
| Year | Carrying amount at start of year | $\begin{gathered} \text { Dep'n } \\ \text { expense } \end{gathered}$ | Carrying amount at end of year (b) - (c) |
| 2017 | \$20,000 | \$3,600 | \$16,400 |
| 2018 | 16,400 | 3,600 | 12,800 |
| 2019 | 12,800 | 3,600 | 9,200 |
| 2020 | 9,200 | 3,600 | 5,600 |
| 2021 | 5,600 | 3,600 | 2,000 |
|  |  | \$18,000 |  |

The carrying amount or book value at December 31, 2021 will be the salvage value of $\$ 2,000$.

Under the straight-line method, depreciation expense for each accounting period remains the same dollar amount over the useful life of the asset.

What about If the firm purchase the equipment anytime during the year rather than at the beginning of the year? According to our previse example, let's assume that we purchased the equipment on July 1, 2017. We would own the equipment for six months of the first year from July 1 to December 31. Depreciation for the first year 2017 would be $\$ 1,800$ ( $\$ 3,600^{*} 6$ months / 12 months).

## Accelerated Time-Based Depreciation Method - DoubleDeclining Balance (DDB)

An accelerated depreciation method assumes that a capital asset will contribute more to the earning of revenues in the earlier stages of its useful life than in the later stages. This means that more depreciation is recorded in earlier years with the depreciation expense decreasing each year. This approach is most appropriate where assets experience a high degree of obsolescence (such as computers) or where the value of the asset is highest in the first years when it is new and efficient and declines significantly each year as it is used and becomes worn (such as mining equipment).

Under an accelerated depreciation method, depreciation expense decreases each year over the useful life of the asset.

One type of accelerated depreciation is the double-declining balance (DDB) method. To calculate, the percentage cost of the asset ( $100 \%$ ) is divided by its estimated useful life, without regard to salvage value. The resulting rate is doubled. The doubled rate is applied at the end of each year to the carrying amount of the asset.

For example, assume the same $\$ 20,000$ equipment with an estimated useful life of five years. The straight-line rate is 20 per cent, calculated by dividing 100 per cent by five years, the useful life ( $100 \% / 5=20 \%$ ). This straight-line rate of $20 \%$ is then doubled to $40 \%$. A simpler way to calculate this is using the formula $2 / \mathrm{n}$. Using this example, $n=5$ years; $2 / 5=40 \%$.

Regardless of which depreciation method is used, a capital asset cannot be depreciated below its carrying amount, which in this case is $\$ 2,000$.

The DDB depreciation for the five years of the asset's useful life follows:

| (a) | (b) | (c) | (d) | (e) |
| :---: | :---: | :---: | :---: | :---: |
| Year | Carrying amount at start of year | $\begin{aligned} & \text { DDB } \\ & \text { rate } \end{aligned}$ | Dep'n expense <br> (b) $x(c)$ | Carrying amount at end of year $\text { (b) }-(d)$ |
| 2017 | \$20,000 | 40\% | \$8,000 | \$12,000 |
| 2018 | 12,000 | 40\% | 4,800 | 7,200 |
| 2019 | 7,200 | 40\% | 2,880 | 4,320 |
| 2020 | 4,320 | 40\% | 1,728 | 2,592 |
| 2021 | 2,592 | 40\% | 592 | $\rightarrow 2,000$ |
|  |  |  | \$18,000 |  |

Although the 2021 depreciation expense would otherwise be $\$ 1,037$ ( $\$ 2,592 \times 40 \%$ ), only $\$ 592$ is recorded to bring the carrying amount of the asset down to its salvage value of $\$ 2,000$.

## E. Impairment of Long-lived Assets

LO3 - Explain, calculate, and record the impairment of long-lived assets.

Under generally accepted accounting principles, management must compare the recoverable amount of a depreciable asset with its carrying amount at the end of each reporting period. The recoverable amount is the estimated fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an impairment loss must be recorded.

An impairment loss may occur for a variety of reasons: technological obsolescence, an economic downturn, or a physical disaster, for example. When an impairment is recorded, subsequent years' depreciation expense must also be revised.

Recall again our \$20,000 equipment purchased January 1, 2017 with an estimated useful life of five years and a salvage value of $\$ 2,000$. Assume straight-line depreciation has been recorded for 2017 amounting to \$1,800. At December 31, 2018 and before 2018 depreciation is calculated, the carrying amount of the equipment is $\$ 18,200(\$ 20,000-1,800)$. At that point management determines
that new equipment with equivalent capabilities can be purchased for much less than the old equipment due to technological changes. As a result, the recoverable value of the original equipment at December 31, 2018 is estimated to be $\$ 7,000$, with no salvage value. Because the recoverable amount is less than its carrying amount of $\$ 18,200$, an impairment loss of $\$ 11,200(\$ 18,200-7,000)$ is recorded in the accounting records as follows:

## 2018

Dec. 31 Impairment Loss . 11,200
Acc. Dep'n - Equip.
11,200
To record impairment loss on equipment.
This reduces the carrying amount of the equipment to \$7,000 ( $\$ 20,000-1,800-11,200$ ). Revised depreciation expense of $\$ 2,333$ per year would be recorded at the end of 2019, 2020, and 2021, calculated as follows, assuming no change to original useful life:
$\frac{(\text { Revised carrying amount - revised salvage value) }}{\text { Remaining useful life }}$
$=\frac{\$ 7,000-0}{3 \text { years }}$
$=\$ 2,333$ per year (rounded)

## F. Derecognition of Property, Plant, and Equipment

LO4 - Account for the derecognition of PPE assets.

Property, plant, and equipment is derecognized when it is sold or when no future economic benefit is expected. The cost and any related accumulated depreciation are removed from the accounting records. To account for the disposal of a PPE asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by this type of adjusting entry:

Depreciation Expense XXX
Accumulated Depreciation. XXX To adjust depreciation to date of disposal.
2. The disposal, including any resulting gain or loss, is recorded by this type of adjusting entry:

|  | Cash (or other assets received) | XXX |  |
| :---: | :---: | :---: | :---: |
|  | Accumulated Depreciation | XXX |  |
|  | Loss on Disposal | XX |  |
|  | Gain on Disposal |  | XXX |
|  | PPE Asset (such as Equip <br> To record disposal of asset. |  | XXX |

A loss results when the carrying amount of the asset is greater than the proceeds received. A gain results when the carrying amount is less than proceeds received.

## Sale or Retirement of PPE

When a PPE asset is sold or has reached the end of its useful life, the asset's cost and accumulated depreciation must be removed from the records, after depreciation expense has been recorded up to the date of disposal.

Recall the calculation of straight-line depreciation for the equipment purchased January 1, 2017 for $\$ 20,000$, with an estimated useful life of five years and a salvage value of $\$ 2,000$. Assume that the equipment is sold on November 30, 2021. First, depreciation would be calculated to the date of disposal. The $1 / 2$ year rule applies on disposal, so the depreciation expense would be $\$ 1,800$ in 2021 ( $\$ 3,600 \times 1 / 2$ ).

After this entry is posted, the general ledger T-accounts at December 31, 2021 for Equipment and Accumulated Depreciation would show the following entries:

| Equipment | Accumulated Depreciation <br> - Equipment |
| :---: | :---: |
| 2017 20,000 | 2017 1,800* |
|  | 2018 3,600 |
|  | 2019 3,600 |
|  | 2020 3,600 |
|  | 2021 1,800* |
|  | 14,600 |
|  | * 1122 year rule applies |

The carrying amount at this date is $\$ 5,600(\$ 20,000$ cost - 14,400 accumulated depreciation). Three different situations are possible.

## 1. Sale at carrying amount

Assume the equipment is sold for its carrying amount of $\$ 5,600$. No gain or loss on disposal would occur.


## 2. Sale above carrying amount

Assume the equipment is sold for $\$ 7,000$. A gain of $\$ 1,400$ would occur.


## 3. Sale below carrying amount

Assume the equipment is sold for $\$ 500$. A loss on disposal of $\$ 5,100$ would occur.

| Cost | \$ 20,000 | The adjusting entry would be: |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Accumulated depreciation $(14,400)$ |  | 2021 |  |  |
| Carrying amount | 5,600 | Nov. 30 | Cash | 500 |
| Proceeds of disposition | (500) |  | Accum. Dep'n - E | 14,400 |
| Loss on disposal | \$ 5,100 |  | Loss on Disposal | 5,100 |
|  |  |  | Equipment |  |

In each of these cases, the cash proceeds must be recorded (by a debit) and the cost and accumulated depreciation must be removed from the accounts. A credit difference represents a gain on disposal while a debit difference represents a loss.

## Disposal Involving Trade-In

It is a common practice to exchange a used PPE asset for a new one. This is known as a trade-in. The value of the trade-in agreed by the purchaser and seller is called the trade-in allowance. This amount is applied to the purchase price of the new asset, and the purchaser pays the difference. For instance, if the cost of a new asset is
$\$ 10,000$ and a trade-in allowance of $\$ 6,000$ is given for the old asset, the purchaser will pay $\$ 4,000(\$ 10,000-6,000)$.

Sometimes as an inducement to the purchaser, the trade-in allowance is higher than the fair value of the used asset on the open market. Regardless, the cost of the new asset must be recorded at its fair value, calculated as follows:

$$
\text { Cost of new asset = Cash paid }+ \text { Fair value of asset traded }
$$

If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results. For example, assume again that equipment was purchased for $\$ 20,000$ on January 1, 2017. At that time, it had a salvage value of $\$ 2,000$ and a useful life of five years. It is traded on November 30, 2021 for new equipment with a list price of $\$ 25,000$. A trade-in allowance of $\$ 6,000$ is given on the old equipment, so cash paid is $\$ 19,000(\$ 25,000-6,000)$. At the time, the old asset has a fair value of only $\$ 4,000$. In this case, the cost of the new asset is calculated as follows:

Cost of new asset $=$ Cash paid + Fair value of asset traded
$=\$ 19,000+4,000$
$=\$ 23,000$
There will be a loss on disposal of $\$ 1,600$ on the old equipment, calculated as follows:

| Cost | $\$ 20,000$ |
| :--- | :---: |
| Accumulated dep'n | $(14,400)$ |
| $\quad$ Carrying amount | 5,600 |
| Fair value | $(4,000)$ |
| Loss on disposal | $\underline{\$ 1,600}$ |

The journal entry on November 30, 2021 to record the purchase of the new equipment and trade-in of the old equipment is:

2021
Nov. 30 Equipment (new) 23,000
Acc. Dep'n -Equip (old) 14,400
Loss on Disposal 1,600
Equipment (old) 20,000
Cash 19,000
To record purchase of new equipment and trade-in of old equipment

By this entry, the cost of the new equipment $(\$ 23,000)$ is entered into the accounts, the accumulated depreciation and cost of the old equipment is removed from the accounts, and the amount of cash paid is recorded. The debit difference of $\$ 1,600$ represents the loss on disposal of the old equipment.

## G. Intangible Assets

LO5 - Explain and record the acquisition and amortization of intangible assets.

Another major category of long-lived assets is intangible assets. These arise from legal rights. They do not have physical substance. The characteristics of various types of intangible assets are discussed below.

## Patents

A patent grants a company an exclusive legal privilege to produce and sell a product or use a process for a specified period. This period varies depending on the nature of the product or process patented, and on the legislation in effect. Modifications to the original product or process can result in a new patent being granted, in effect extending the life of the original patent.

Patents are recorded at cost. If purchased from an inventor, the patent's cost is easily identified. If developed internally, the patent's capitalized costs include all expenditures incurred in the development of the product or process, including salaries and benefits of staff involved.

## Copyrights

A copyright confers on the holder an exclusive legal privilege to publish a literary or artistic work. In this case, the state grants control over a published or artistic work for the life of the copyright holder (usually the original artist) and for a specified period afterward. This control extends to the reproduction, sale, or other use of the copyrighted material.

## Trademarks

A trademark is a symbol or a word used by a company to identify itself or one of its products in the marketplace. Symbols are often logos printed on company stationery or displayed at company offices, on vehicles, or in advertising. A well-known example is Coke ${ }^{\circledR}$. The right to use a trademark can be protected by registering it with the appropriate government agency. The symbol ‘ $\circledR$ 'denotes
that a trademark is registered. Its use by others is thereby restricted.

## Franchises

A franchise is a legal right granted by one company (the franchisor) to another company (the franchisee) to sell particular products or to provide certain services in a given region using a specific trademark or trade name. In return, the franchisee pays a fee to the franchisor. McDonald's ${ }^{\circledR}$ is an example of a franchised fast-food chain.

In addition to the payment of an initial franchise fee, which is capitalized, a franchise agreement usually requires annual payments. These payments are considered operating expenses.

## Computer Software

Computer software programs may be developed by a company, patented, and then sold to customers for use on their computers. Productivity software like Microsoft Office ${ }^{\circledR}$ is an example. The cost of acquiring and developing computer software programs is recorded as an intangible asset, even if it is stored on a physical device like a computer. However, computer software that is integral to machinery-for instance, software that is necessary to control a piece of production equipment-is included as the cost of the equipment and classified as PPE.

## Capitalization of Intangible Assets

Normally, intangible assets are measured at cost at the time of acquisition and are reported in the asset section of a company's balance sheet under the heading "Intangible Assets." The cost of an acquired intangible asset includes its purchase price and any expenditures needed to directly prepare it for its intended use. Only rarely are subsequent expenditures added to the initial cost of a purchased intangible asset. Instead, these are expensed as they are incurred.

## Amortization of Intangible Assets

Plant and equipment assets are depreciated. Intangible assets are also depreciated but the term used is amortization. Amortization is the systematic process of allocating the cost of intangible assets over their estimated useful lives. The straight-line method is usually used but other methods are permitted under GAAP.

Like PPE, useful lives and salvage values of intangible assets are estimated by management and must be reviewed annually for reasonableness. As well, any effects on amortization expense because of changes in estimates are accounted for prospectively. That is, prior accounting periods' expenses are not changed.

To demonstrate the accounting for intangibles, assume a patent is purchased for $\$ 20,000$ on April 1, 2017. The entry to record the purchase is:

2017
$\begin{array}{ccc}\text { Apr. } 1 & \text { Patent } & \text { Cash } 20,000 \\ \text { 20,000 }\end{array}$
To record the purchase of a patent as an intangible asset.
Assuming the patent will last 40 years with no salvage value and the $1 / 2$ year rule applies, amortization expense will be recorded at the December 31, 2017 year-end as:

## 2017

Dec. 31 Amortization Expense 250
Patent 250
To record patent amortization: $(\$ 20,000 / 40$ yrs. $=\$ 500 \times 1 / 2=$ $\$ 250$ ).

Notice that the Patent general ledger account is credited and not Accumulated Amortization. There is no accumulated amortization account maintained for intangible assets.

In other respects, impairment losses, and gains and losses on disposal of intangible assets are calculated and recorded in the same manner as for property, plant, and equipment.

## H. Goodwill

LO6 - Explain goodwill and identify where on the balance sheet it is reported.

Assume that Big Dog Carworks Co. purchases another company for $\$ 10$ million (\$10M). BDC takes over all operations, including management and staff. There are no liabilities. The fair values of the assets consist of the following:

| Patents | $\$ 2 \mathrm{M}$ |
| :--- | :--- |
| Machinery | $\underline{\$ 7 M}$ |
| Total | $\underline{\$ 9 M}$ |

Why would BDC pay $\$ 10 \mathrm{M}$ for assets with a fair value of only $\$ 9 \mathrm{M}$ ? The extra $\$ 1 \mathrm{M}$ represents goodwill. Goodwill is the excess paid over the fair value of the net assets when one company buys another. It is an estimate of the ability of the company to generate superior earnings in the future compared to other companies in the same industry.

Goodwill is the combination of the acquired company's assets which cannot be separately identified-such as a well-trained workforce, better retail locations, superior products, or excellent senior managers - the value of which is recognized only when a significant portion of the shares of another company are purchased.

Recall that among other characteristics, intangible assets must be separately identifiable. Because components of goodwill are not separately identifiable, goodwill is not considered an intangible asset and not amortized. However, it does have future value and therefore is recorded as a long-lived asset under its own heading of "Goodwill" on the balance sheet. Its fair value is estimated by management at the end of each fiscal year. If its value has been impaired it is reported at this lower amount.

## I. Disclosure

LO7 - Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives
- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses
- whether the assets are constructed by the company for its own use (if PPE) or internally developed (if intangible assets).

Examples of appropriate disclosure of long-lived assets were shown in notes 3(d) and 4 of BDCC's financial statements in Chapter 4.

## Summary of Chapter 10 Learning Objectives

## L01 - Describe how the cost of property, plant, and equipment is determined.

Property, plant, and equipment (PPE) are tangible, long-lived assets that are acquired for the purpose of generating revenue either directly or indirectly. A capital expditure is debited to a PPE asset account because it results in the acquisition of a non-current asset and includes any additional expenditures to prepare the asset for its intended use at or after initial acquisition. A revenue expenditure does not have a future benefit beyond one year so is expensed. The details regarding a PPE asset are maintained in a PPE subsidiary ledger.

## LO2 - Explain, calculate, and record depreciation using the units-of-production, straight-line, and double-declining balance methods.

Depreciation allocates the cost of a PPE asset (except land) over the accounting periods expected to receive benefits from its use. A PPE asset's cost, salvage value, and useful life or productive output are used to calculate depreciation. There are different depreciation methods. Units-of-production is a usage-based method. Straightline and double-declining balance are time-based methods. The formulas for calculating yearly depreciation expense using these methods are:

Units of production:
_(Cost - salvage value) $x$ units of actual output for year
Estimated total output
Straight-line:
(Cost - salvage value) Useful life

Double-declining balance:
Carrying amount $X\left\{\frac{100 \%}{\text { Useful life }}\right\} X 2$
Under DDB, depreciation expense in subsequent years is calculated based on the prior year's carrying amount.

Under all methods, carrying amount cannot be less than salvage value.

## LO3 - Explain, calculate, and record the impairment of longlived assets.

The recoverable amount of a long-lived asset must be compared with its carrying amount at the end of each reporting period. The recoverable amount is the fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an impairment loss is recorded as:

| Impairment Loss | XXX |  |  |
| :--- | :--- | :--- | :--- |
| Equipment... | $\cdot$ |  | XXX |
| To record impairment loss. |  |  |  |

## LO4 - Account for the derecognition of PPE assets.

Property, plant, and equipment is derecognized when it is sold or when no future economic benefit is expected. To account for the disposal of a PPE asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by this type of adjusting entry:

| Depreciation Expense...... $\quad$ XXX |  |
| :---: | :---: |
| Accumulated Depreciation. | XXX |
| To adjust depreciation to date of disposal. |  |

2. The disposal, including any resulting gain or loss, is recorded by this type of adjusting entry:


A loss results when the carrying amount of the asset is greater than the proceeds received, if any. A gain results when the carrying amount is less than any proceeds received.

It is a common practice to exchange a used PPE asset for a new one, known as a trade-in. The value of the trade-in is called the trade-in
allowance and is applied to the purchase price of the new asset so that the purchaser pays the difference. Sometimes the trade-in allowance is higher than the fair value of the used asset.

The cost of the new asset must be recorded at its fair value, calculated as:

Cost of new asset $=$ Cash paid + Fair value of asset traded
If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results.

## LO5 - Explain and record the acquisition and amortization of intangible assets.

Intangible assets are long-lived assets that arise from legal rights and do not have physical substance. Examples include patents, copyrights, trademarks, and franchises. Intangibles are amortized using the straight-line method. The entry to record amortization is a debit to amortization expense and a credit to the intangible assetthere is no accumulated amortization account.

## L06 - Explain goodwill and identify where on the balance sheet it is reported.

Goodwill is a long-lived asset that does not have physical substance but it is not an intangible. When one company buys another company, goodwill is the excess paid over the fair value of the net assets purchased and represents the ability to generate superior future earnings compared to other companies in the same industry. Goodwill appears in the asset section of the balance sheet under its own heading of "Goodwill." It is not amortized.

## L07 - Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives
- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses
- whether the assets are constructed by the company for its own use (if PPE) or internally developed (if intangible assets).


## ASSIGNMENTMATERIALS

## Concept Self-check

1. The cost of a long-lived asset is said to be capitalized. What does this mean?
2. How does a capital expenditure differ from a revenue expenditure?
3. Assume that you have purchased a computer for business use; illustrate, using examples, capital and revenue expenditures associated with its purchase.
4. What is depreciation?
5. Long-lived assets can be considered future benefits to be used over a period of years. The value of these benefits in the first years may not be the same as in later years. Using a car as an example, indicate whether you agree or disagree.
6. Assume that you have recently purchased a new sports car. Is a usage or a time-based method preferable for recording depreciation? Why?
7. What is the effect on the carrying amount of an asset over its useful life when it is depreciated using the declining balance method? the straight-line method?
8. What is the double-declining balance rate of depreciation for an asset that is expected to have a ten-year useful life?
9. How is partial-year depreciation expense calculated?
10. What changes in estimates affect calculation of depreciation expense using the straight-line method? Explain the appropriate accounting treatment when there is a revision of an estimate that affects the calculation of depreciation expense.
11. Explain the effect on the calculation of depreciation expense for capital expenditures made subsequent to the initial purchase of property, plant, or equipment.
12. Explain the process for determining whether the value of a long-lived asset has been impaired, and the required adjustments to the accounting records.
13. Your friend is concerned that the calculation of depreciation and amortization relies too much on the use of estimates. Your friend believes that accounting should be precise. Do you agree that the use of estimates makes accounting imprecise? Why or why not?
14. Why are the significant parts of property, plant, and equipment recorded separately?
15. When does the derecognition of PPE not result in a gain or loss on disposal?
16. What is a trade-in? Explain whether a trade-in is the same as the sale of an asset.
17. Why might a trade-in allowance, particularly in the case of a car, be unrealistic? Why would a dealer give more trade-in allowance on a used car than it is worth?
18. How is the cost of a new capital asset calculated when a tradein is involved?
19. How are intangible assets different from property, plant, and equipment? the same?
20. What is a patent? Assume a patent's legal life is twenty years. Does a patent's useful life correspond to its legal life? Why or why not? Support your answer with an example.
21. How does a copyright differ from a trademark? Give an example of each.
22. How are intangible assets valued, and what are their financial statement disclosure requirements?
23. What is goodwill? How does it differ from an intangible asset? Why is a company's internally-generated goodwill not recorded in its accounting records?

## Comprehension Problems

## CP 10-1

Accountants distinguish between capital and revenue expenditures for some types of transactions. The entries for such transactions can be made to any one of the following accounts:

## Balance sheet accounts

a. Land
b. Buildings
c. Equipment
d. Trucks
e. Automobiles
f. Accumulated depreciation

Income statement accounts
g. A revenue account
h. An expense account.

Required: For each transaction below, indicate the account to be adjusted. Explain your answers and state any assumptions you make.

## Example:

b Architect fees to design building Battery purchased for truck
_ Cash discount received on payment for equipment
__ Commission paid to real estate agent to purchase land
__ Cost of equipment test runs
__ Cost to remodel building
_ Cost to replace manual elevator with automatic elevator
__ Cost of sewage system
_ Equipment assembly expenditure
_ Expenditures for debugging equipment
_ Installation of air-conditioner in automobile
_ _ Insurance paid during construction of building
__ Legal fees associated with court case to defend title to land purchased
_ Oil change for truck
__ Payment for landscaping
__ Proceeds received on demolition of derelict building on land purchased
Expenditures for removal of derelict structures

Link to Original Link to Original
__ Repair made to building after moving in
_ Repair of collision damage to truck
__ Repair of torn seats in automobile
_ Replacement of rusted fender on automobile

- Replacement of transmission in automobile
_ Special floor foundations for installation of equipment
_ Tires purchased for truck
_ Transportation expenditures to bring equipment to plant.


## CP 10-2

Ekman Corporation purchased a new laser printer to be used in its business. The printer had a list price of $\$ 4,000$, but Ekman was able to purchase it for $\$ 3,250$. The company expects it to have a useful life of five years, with an estimated salvage value of $\$ 250$. Ekman is paying the delivery costs of $\$ 100$, set-up and debugging costs of $\$ 300$, and the costs of purchasing an appropriate table for $\$ 50$. There was sales tax of 10 per cent on the purchase price of the printer but not on the other costs.

## Required:

1. Calculate the total cost of the laser printer.
2. Compute the depreciable cost.
3. Compute the depreciation expense using straight-line method.

## CP 10-4

Mayr Inc. purchased a machine for its factory on June 6, 2018 for $\$ 110,000$. The machine is expected to have an estimated useful life of ten years with a salvage value of $\$ 10,000$.

Required: Compute the depreciation for 2018 and 2019 using

1. The straight-line method
2. Calculate the book value for 2018

## CP 10-5

Penny Corp. purchased a new car on March 1, 2018 for $\$ 25,000$. The estimated useful life of the car was five years or 400,000 miles. Estimated salvage value was $\$ 5,000$. The car was driven 120,000 miles. in 2018 and 150,000 miles. in 2019.

Required: Calculate the depreciation for 2018 and 2019 using

1. The straight-line method
2. Unit of production (Activity)
3. Double-declining balance method.

## CP 10-6

Global Flow Inc. purchased a computer on January 1, 2018 for $\$ 3,000$ cash. It had an estimated useful life of three years and no salvage value. Global Flow made the following changes to the computer:

Mar. 1, 2018 Added storage capacity at a cost of \$1,000. This had no effect on salvage value or estimated useful life.
Apr. 1, 2019 Added a new processing board for \$2,000, which extended the estimated useful life of the computer another three years but did not affect salvage value.

## Required:

1. Prepare a journal entry to record each of the above expenditures. Assume all amounts are material. Descriptions are not necessary.
2. Calculate and prepare journal entries to record depreciation expense for 2018 and 2019 using the double-declining balance method. Assume a December 31 fiscal year-end and that the company uses the $1 / 2$ year rule to calculate depreciation expense in the year of acquisition and disposal.

## CP 10-8

Refer to the information in CP 8-4 and 8-7. Assume Mayr disposed of the machine on May 31, 2021.

Required: Using the straight-line method of depreciation, record the disposal assuming

1. The equipment was sold for $\$ 60,000$
2. The equipment was sold for $\$ 85,000$
3. The equipment was sold for $\$ 71,250$.

Show all calculations.

## CP 10-9

Refer to the information in CP 10-4 and 10-7. Assume that on May 31, 2021 Mayr traded in the machine on an improved model with a listed selling price of $\$ 150,000$. The company received a trade-in allowance of $\$ 100,000$ on the old machine. The fair value of the old machine was $\$ 95,000$.

Required: Prepare the journal entry to record the trade-in on the equipment. Assume the straight-line method of depreciation is used.

## CP 10-10

Murphy Limited purchased a $\$ 30,000$ asset with a five-year life expectancy and no salvage value. Two alternative methods of calculating depreciation expense are presented below.

## Method $A \quad$ Method $B$

## Year

| 1 | $\$ 3,000$ | $\$ 6,000$ |
| :--- | ---: | ---: |
| 2 | 6,000 | 9,600 |

## Required:

1. Identify the method of depreciation and compute the depreciation expense for the third year under each method.
2. The chief financial officer of Murphy considers depreciation to be nothing more than an arbitrary calculation, based on unreliable estimates. She proposes to use method B for years 1 and 2 and method $A$ for years 3,4 , and 5 . In this way, she can deduct the maximum depreciation each year over the life of the asset. Is her proposal acceptable? Why or why not?
3. What factors should be considered in choosing a method of depreciation?

## CP 10-11

The Savage Corporation purchased three milling machines on January 1, 2015 and immediately placed them in service. The following information relates to these purchases:

|  | Machine 1 | Machine 2 | Machine 3 |
| :--- | ---: | ---: | ---: |
| Cost | $\$ 7,500$ | $\$ 7,500$ | $\$ 7,500$ |
| Salvage value | $-0-$ | 1,200 | 300 |
| Useful life | 5 Years | 6 Years | 8 Years |

The company uses the straight-line method of depreciation, and records $1 / 2$ year depreciation in the years of acquisition and disposal. On January 1, 2020, machine 1 was sold for $\$ 500$. On the same day, management re-evaluated the estimated useful lives and the salvage values of the remaining machines. They came to the conclusion that machine 2 had a remaining useful life of two years (that is, to December 31, 2021), while salvage value remained unchanged. Machine 3 had a remaining useful life of five years (that is, to December 31, 2024) but now no salvage value.

## Required: Prepare journal entries

1. To record the sale of machine 1 on January $1,2020$.
2. To record the revised 2020 depreciation expense for machine 2.
3. To record the revised 2020 depreciation expense for machine 3.

## CP 10-12

The following Equipment and Accumulated Depreciation accounts appear in the general ledger of the Sadler Corporation at December 31, 2018.

GENERAL LEDGER
Equipment
Acct. No. 183

| Date <br> 2016 |  | Description | Folio | Debit | Credit |  | Balance |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Aug. | 1 | Purchase | GJ7 | 15,000 |  | DR | 15,000 |
|  |  |  |  |  |  |  |  |

Accumulated Depreciation - Equipment
Acct. No. 193

| Date <br> 2018 |  | Description | Folio | Debit | Credit |  | Balance |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | ---: |
|  |  | Balance forward |  |  |  | CR | 2,250 |
| Dec. | 31 | Depreciation 2018 | GJ9 |  | 1,500 | CR | 3,750 |
|  |  |  |  |  |  |  |  |

The company uses the $1 / 2$ year rule to calculate depreciation expense in the years of acquisition and disposal. At the time of purchase, the equipment had an estimated useful life of ten years with no salvage value. The straight-line method of depreciation is used. On January 1, 2019, it was estimated that the equipment would last only four more years (to December 31, 2022).

## Required:

1. Calculate the depreciation expense for 2019.
2. Prepare the journal entry to record 2019 depreciation expense.
3. Post the accumulated depreciation part of the entry in 2 above to the general ledger and calculate the new balance in the account.
4. How much should the depreciation amount have been in each year if the actual four-year useful life of the equipment had been known in 2018?
5. Given the substantial difference between the depreciation amounts in 2018 and 2019, is the information conveyed to the reader of Sadler Corporation's 2019 financial statements reasonable?

## CP 10-13

St. Laurent Limited purchased a truck for cash on January 1, 2018. The company's fiscal year-end is December 31. The following details apply:

$\frac{\text { Cost }}{\$ 10,500} \frac{$|  Useful  |
| :---: |
|  life  |}{5 years}$\frac{$|  Salvage  |
| :---: |
|  value  |}{$\$ 500$}$\xrightarrow{\text { Depreciation method }}$| Straight-line method |
| :--- |

On March 1, 2019, the company paid $\$ 3,500$ for gas and oil, a tuneup, new tires, and a battery. It also paid $\$ 4,000$ to install a lift on the back of the truck.

## Required:

1. Prepare journal entries to record
a. the purchase of the truck
b. depreciation for 2018
c. the 2019 expenditures relating to the truck
d. depreciation for 2019.

## CP 10-14

Brown Company paid $\$ 900,000$ cash to purchase the following tangible and intangible assets of Coffee Company on January 1, 2018:

| Land | $\$ 300,000$ |
| :--- | ---: |
| Building | 200,000 |
| Patents | 100,000 |
| Machinery | 250,000 |

The building is depreciated using straight-line method, has an estimated useful life of ten years, and a salvage value of $\$ 10,000$. The machinery has an estimated useful life of five years and a salvage value of $10 \%$ of cost. Depreciation expense is calculated on the basis of units of productive. The machinery's units of productive was estimated to be 60,000 units. Actual production was as follows:

| 2018 | 10,000 |
| :--- | :--- |
| 2019 | 15,000 |
| 2020 | 20,000 |

The patents have an estimated useful life of twenty years and are amortized on a straight-line basis. They have no salvage value.

Required: Prepare journal entries to record in the records of Brown:

1. Depreciation and amortization expense for 2018

## Problems

## P 10-2

The following items relate to the acquisition of a new machine by the Bohn Group Inc. On the right-hand side are a number of possible accounting treatments; on the left-hand side are a number of independent accounting situations:

## Situation

$\qquad$ Invoice price of new machine, net of cash discount offered

Cash discount on the above, which has not yet been taken
__ Anticipated first year's savings in operating costs from use of new machine
$\qquad$ Two-year service contract on operations of new machine paid in full
__ Cost of materials used while testing new machine Cost of installing sound insulation in wall near machine so that nearby office employees will not be disturbed by it
Cost of removing machine that new machine replaces.

Required: Indicate the appropriate accounting treatment for each situation. Record any assumptions that you think might be necessary for any given situation.

## P 10-4

Janz Corporation purchased a piece of machinery on January 1, 2017. The company's year-end is December 31. The following information is applicable:

| Cost | Useful life | Salvage <br> value | Depreciation <br> method |  |
| :---: | :---: | :---: | :---: | :---: |
| $\$ 90,000$ |  | -000 units |  | Unit of Activity |

Output during 2018 and 2019 was 2,000 and 3,000 units, respectively.

Required:

1. Calculate the depreciation expense for 2018 and 2019.
2. What is the balance of accumulated depreciation at the end of 2019?
3. What is the carrying amount (book value) of the machinery shown on the
balance sheet at the end of 2019 ?
4. Prepare a partial comparative balance sheet for Janz Corporation at the end of 2019.

## P 10-5

Livingston Corp. purchased printer on January 1, 2018. The company year-end is December 31. The following information is applicable:

| Cost | Estimated useful life | Salvage value | Usage (units) |  |
| :---: | :---: | :---: | :---: | :---: |
| \$5,000 | 4 years | \$1,000 | 2018 | 10,000 |
|  |  |  | 2019 | 15,000 |
|  |  |  | 2020 | 20,000 |
|  |  |  | 2021 | 5,000 |

## Required:

1. Calculate the depreciation expense for the four-year period under each of these depreciation methods: straight-line, doubledeclining balance, and units of production. Present your solution in the following format:

| Year | Depreciation expense |  |  |
| :---: | :---: | :---: | :---: |
|  | Straight-line | Doubledeclining balance | Units of production |
| 2018 |  |  |  |
| 2019 |  |  |  |
| 2020 |  |  |  |
| 2021 |  |  |  |
| Total |  |  |  |

2. Which method of depreciation would you recommend in this case? Why?

## P 10-6

Roberto Trucks Inc. purchased a delivery van on January 1, 2018. The following information is available.


The truck was driven 20,000 miles in 2018.

## Required:

1. Calculate the depreciation for 2018 under each of the following methods:
a. Units of production
b. Straight-line
c. Double-declining balance
2. Compare the depreciation expense and carrying amount (book value) for 2018 under each of these methods.

## P 10-7

Wynne Ltd. purchased a machine on January 1, 2018 for \$23,000. Transportation charges paid by Wynne amounted to $\$ 600$ and another $\$ 1,400$ cost was incurred for installation. Useful life is three years. The salvage value of the machine is $\$ 1,000$.

## Required:

1. Calculate the amount of the machine on which depreciation will be calculated (that is, the depreciable amount not the carrying amount).
2. In journal entry form, record the depreciation for each year of the expected useful life of the machine under
a. straight-line method
b. double-declining balance method.

Assume that the $1 / 2$ year rule is not used in the years of acquisition and disposal.
3. On January 1, 2019, Wynne changed the estimated useful life on the machine from a total of three years to a total of five years from the date of purchase. Salvage value remains at $\$ 1,000$. Calculate the depreciation that should be recorded in 2019 and each year thereafter assuming the company used the straightline method.

## P 10-8

On January 1, 2017, Young Inc. purchased a machine for $\$ 30,000$. Its engineers had estimated useful life for the machine at 8 years and salvage value is 6,000 . Assume that the straight-line method of depreciation is used.

## Required:

1. Calculate the carrying amount (book Value) of the machine at December 31, 2019.
2. Calculate the amount of depreciation expense to be recorded at December 31, 2020, and prepare the necessary journal entry.

## P 10-9

Davies Fabricating Inc. started business on May 1, 2018. The yearend of the company is December 31. On May 5, 2018, the company purchased equipment for $\$ 130,000$ cash. The equipment had an estimated useful life of four years, an estimated total production output of 100,000 units, and a salvage value of $\$ 10,000$. The equipment was depreciated using the units-of-production (usage) method. Actual units of output over three years were: 201812,000; 2019-30,000; and 2020-20,000.

Required: Prepare journal entries to record the transactions on the following dates:

1. May 1,2018
2. Calculate depreciation expense for 2018, 2019, and 2020.

## P 10-10

Robbins Inc. purchased the following assets of Marine Company for $\$ 500,000$ cash on September 30, 2018:

| Land | $\$ 300,000$ |
| :--- | ---: |
| Building | 100,000 |
| Computer software | 75,000 |

The building will be depreciated using the straight-line method. It has an estimated useful life of forty years and a salvage value of $10 \%$ of cost.

The computer software has an estimated useful life of three years and no salvage value. It will be amortized using the doubledeclining balance method. On January 2, 2019, the value of the computer software was estimated at $\$ 50,000$. The computer software was sold on September 15, 2020 for \$65,000.

Robbins Inc. uses the $1 / 2$ year rule to calculate depreciation and amortization expense in the year of acquisition and disposal. Its fiscal year-end is December 31.

## Required:

1. Prepare journal entries to record
a. the $\$ 500,000$ purchase
b. depreciation and amortization expense for 2018
c. the change in the value of the computer software at January 2, 2019
d. the sale of the computer software on September 15, 2020.
2. Calculate the carrying amounts of the assets at December 31, 2020.

Link to Origina

CHAPTER 11

## CHAPTER ELEVEN

## Current and Non-current Liabilities

A corporation often has liabilities - amounts owing to creditors. These liabilities must be classified on the balance sheet as current or non-current. Current liabilities can include known liabilities such as payroll liabilities, interest payable, and bank loans that must be paid in the near future. Non-current debt includes amounts owing to creditors that will be paid over many years, like some kinds of notes payable.

## Chapter 11 Learning Objectives

L01 - Identify and explain the difference between current and noncurrent liabilities.

LO2 - Record and disclose known current liabilities.
LO3 - Record and disclose estimated current liabilities.
LO4 - Explain, calculate, and record non-current liabilities.

## A. Current versus Non-current Liabilities

LO1 - Identify and explain the difference between current and non-current liabilities.

Current or short-term liabilities are a form of debt that is expected to be paid within the longer of one year of the balance sheet date or the next operating cycle, whichever is longer. Examples include accounts payable, salaries payable, unearned revenues, notes payable, and short-term notes payable.

Non-current liabilities (long-term liabilities) are forms of debt expected to be paid beyond one year of the balance sheet date or the next operating cycle, whichever is longer. Long-term notes payable are secured by real estate (mortgages) are examples of non-current liabilities.

As discussed in Chapter 4, current and non-current liabilities must be shown separately on the balance sheet. Doing so helps financial statement readers assess the liquidity of a corporation - its ability to satisfy current liabilities (generally with cash) as they come due.

## B. Known Current Liabilities

LO2 - Record and disclose known current liabilities.

Known current liabilities are those where the payee, amount, and timing of payment are known. Examples include accounts payable, unearned revenues, and payroll liabilities. These are different from estimated current liabilities where the amount is not known and must be estimated. These may arise when a supplier's invoice has not been received by the time the financial statements have been prepared, for instance. Estimated current liabilities are discussed later in this chapter.

## Payroll Liabilities

Short-term notes payable, accounts payable and unearned revenues were introduced in previous chapters. Payroll liabilities are amounts owing to various agencies on behalf of employees. These include items withheld from employees' pay checks. Common withholdings are personal income taxes, employment insurance, pension and health insurance contributions, and union dues. These withheld amounts are remitted by the employer to agencies like the government, a private pension plan administrator, a union, or a health care provider, and usually within a few days of being
deducted. Gross pay is the amount of salaries or wages ${ }^{1}$ to which employees are entitled before any deductions. Net pay is the actual cash payment that the employees receive at the end of a pay period after deductions are made.

## Payroll - Basic Theory

In general, payroll takes into account the gross wages and/or salaries of all employees, less payroll deductions, leaving net wages and/or salaries to be paid to the employees.

On a more detailed level, payroll is shown on a comprehensive payroll schedule showing detailed records for each employee's wages and/or salaries, and payroll deductions.

When learning about payroll, it is best to look at the big picture first, then work one's way down to the detail level, as follows:

## For employees:

1. Calculate the separate and gross wages and/or salaries taking into consideration any overtime pay to hourly workers who worked more than 40 hours per week.
2. Calculate the separate and total payroll tax deductions (social security and Medicare) and separate and total income tax deductions (federal and State) for each employee.
3. Calculate other payroll deductions (mandatory or discretionary).
4. Calculate net pay
5. Make payments to the appropriate employees and entities for which deductions were withheld.
[^4]| Row | Employee | Gross pay | Payroll Deductions |  |  |  |  |  |  | Net pay |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Withho <br> lding <br> taxes <br> (15\%) | Employ <br> insur. <br> (2\%) | Gov't pension (5\%) | Comp. health <br> plan | Union dues (1\%) | Comp. pension (3\%) | Total. deduct. |  |
| 1. | S. Smith | 1,560.00 | 234.00 | 31.20 | 78.00 | 55.00 | 15.60 | 46.80 | 460.60 | 1,099.40 |
| 2. | J. Jones | 975.00 | 146.25 | 19.50 | 48.75 | 55.00 | 9.75 | 29.25 | 308.50 | 666.50 |
| 3. | Emp'ee deductions |  | 380.25 | 50.70 | 126.75 | 110.00 | 25.35 | 76.05 | 769.10 |  |
| 4. | Emp'er contributions |  | -0- | 70.98 | 126.75 | -0- | -0- | 38.03 |  |  |
| 5. | Total remittances |  | 380.25 | 121.68 | 253.50 | 110.00 | 25.35 | 114.08 |  |  |

Figure 11-1: December 15-31, 2017 Payroll Record Example


The journal entry to record the check paid to J. Jones would be:

| Dec. 31 | Salaries Expense | 975.00 |
| :--- | :--- | ---: |
|  | Employee Inc. Withholding Pay. | 146.25 |
|  |  |  |
|  |  |  |
|  |  | 48.75 |
|  | Gov't Pension Payable | 55.00 |
|  | Company Health Plan Pay. | 9.75 |
|  | Union Dues Payable | 29.25 |
|  | Company Pension Payable | 666.50 |

To record payment to J. Jones, net of deductions.

The journal entry to record the company's matching contributions would be:


The deductions payable accounts would be recorded as current liabilities on the December 31, 2018 balance sheet since they will be remitted to various agencies within the next few weeks. When these payments are made, say on January 15,2018 , the following four entries would be made to eliminate these current liability accounts:

$$
2018
$$

Jan. 15 Employee Inc. Taxes Pay. 380.25
Employment Insur. Pay.
121.68

Gov't Pension Payable 253.50
Cash
755.43

To record remittances for December 31, 2017 paid to Government of Canada.

Jan. 15 Company Health Plan Payable 110.00 Cash
110.00

To record payment of employee deductions to $A B C$ Healthcare.

Jan. 15 Union Dues Payable 25.35 Cash
25.35

To record payment of employee deductions to Union X, Local 251.

Jan. 15 Company Pension Payable 114.08

Cash
To record payment of employee deductions and employer contributions to Greenview Private Pension Plan Administrator.

## Sales Taxes

Another type of known current liabilities is a sales tax. Sales taxes are common sources of government revenues in most countries.

Sales tax is a fee imposed by State government and sometimes subdivisions on certain retail items. In some States, food items and clothing may not be taxed, for example. The tax itself is usually a percent of the sales price of the item. Retailers impose it, collect it on behalf of the government, and periodically remit it to the government revenue department along with any appropriate required documentation.

Example: Say a customer purchases a $\$ 100.00$ item and there is a $7 \%$ sales tax. The retailer collects the $\$ 100$ for the sale and the additional $\$ 7.00$ for the sales tax. The journal entry to record this sale is as follows:

Cash* \$107.00

Sales
Sales Tax Payable
\$100.00
\$7.00
*The account $\mathrm{A} / \mathrm{R}$ would replace cash if the sale had been made on account.

When the sales tax is paid to the State, the retailer makes the following journal entry:
Sales Tax Payable
\$7.00
Cash
$\$ 7.00$


Promissory Note by Nick Youngson CC BY-SA 3.0 Alpha Stock Images

## Short-term Notes Payable

Short-term notes receivable were discussed in Chapter 9. A note receivable can arise when an account receivable is overdue and the debtor and creditor agree to enter into a formal legal agreement for payment. A short-term note payable is the flip side of a note receivable. It is an arrangement to formalize repayment of an account from the creditor's point of view. It is recorded as a current liability if it is expected to be paid within one year from the balance sheet date.

In Chapter 9, BDC provided \$4,000 of services on August 1, 2017 to customer Woodlow. Woodlow was unable to pay this amount in a timely manner. The receivable was converted in BDC's accounting records on December 1, 2017 to a 4\%, three-month note receivable, meaning that the $\$ 4,000$ was to be repaid with interest on February 28, 2018.

The following example compares the entries recorded by BDC for the note receivable to the entries recorded by Woodlow to establish and then satisfy a note payable for the same transaction.

2017
Dec. 1

Dec. 31

2018
Feb. 28

| BDC record |  |
| :---: | :---: |
| Note Rec. - Woodlow | 4,000 |
| Account Rec. - | 4,000 |
| Woodlow |  |
| To record conversion of the account receivable from Woodlow to a 4\%, 3-month note receivable due February 28, 2018. |  |
| Interest Receivable | 13 |
| Interest Earned | 13 |
| To record interest revenue accrued on the Woodlow note receivable at year-end (\$4,000 x $4 \% \times 1 / 12$ mos. $=\$ 13$ ). |  |
|  |  |
| Cash | 4,040 |
| Interest Receivable | 13 |
| Interest Earned | 27 |
| Note Rec. - Woodlow | 4,000 |
| To record the collection of and interest revenue from 28, 2018 ( $\$ 4,000 \times 4 \% \times 1$ | te receivable <br> y 1 to February s. = \$27). |

Notice that the dollar amounts in the entries for BDC are mirrors of those for Woodlow. BDC records interest earned; Woodlow records interest expense. BDC will report two current assets in its balance sheet at December 31 (note receivable; interest receivable); Woodlow will report two current liabilities (note payable; interest payable).

## Income Tax Liabilities

Besides sales taxes and payroll deductions, a company must also remit corporate income taxes to the government. A company's income taxes are based on the amount of income, net of expenses, reported on its annual income statement. ${ }^{2}$ It is one of the last adjusting entries made at a company's year-end.

Often, profitable companies are required to remit income tax instalments for the current year to the government on a monthly or quarterly basis, and before the fiscal year-end. Instalment calculations are beyond the scope of this text but are often

[^5]influenced by the amount of corporate income taxes paid in the prior year by a company.

Assume that BDC is required to make monthly corporate income tax instalments during 2017 of $\$ 1,500$ and that these amounts must be paid to the government by the $15^{\text {th }}$ day of the following month. If the payment for January 2017 was made by February 15, the journal entry would be:

## 2017 <br> Feb. 15 Corporate Income Taxes Payable 1,500 <br> Cash 1,500 <br> To record payment of January income tax instalment.

After the payment on December 15, 2017, the balance in the Corporate Income Taxes Payable general ledger account would be a $\$ 16,500$ debit balance ( $\$ 1,500 \times 11$ mos.).

Various adjusting entries would be made to prepare the BDC financial statement for the year ended December 31, 2017. Assume that after all these adjustments, BDC reported revenues of $\$ 500,000$ and expenses before corporate income taxes of $\$ 400,000$ for the year ended December 31, 2017. Income before income taxes would be $\$ 100,000$. This figure is used as a basis to prepare the corporate tax return for the year. If the corporate income tax rate is $20 \%$, BDC would pay corporate income taxes of $\$ 20,000$ [(\$500,000 $400,000) \times 20 \%=\$ 20,000]$.

The adjusting entry to record the corporate income taxes expense and adjust the amount owing would be:


## To record 2017 corporate income tax expense.

Since the company has already paid $\$ 16,500$ in corporate income tax instalments for the 2017 fiscal year, it only owes an additional \$3,500 at December 31, 2017.

The condensed BDC income statement at December 31 would show:

Big Dog Carworks Co.
Income Statement
For the Year Ended December 31, 2017

| Revenue | $\$ 500,000$ |
| :--- | ---: |
| Operating expenses | $\underline{400,000}$ |
| Income before income taxes | 100,000 |
| $\quad$ Income taxes | $\underline{20,000}$ |
| Net income | $\underline{\$ 80,000}$ |

The $\$ 3,500$ balance in the Corporate Income Taxes Payable general ledger account would be shown as a current liability on the balance sheet at December 31, 2017. BDCC will pay this amount in cash sometime in 2018 after the income tax return has been filed with the government and assessed.

## C. Estimated Current Liabilities

LO3 - Record and disclose estimated current liabilities.

An estimated current liability is an obligation that exists at the balance sheet date. However, its amount can only be approximated - for because an invoice has not yet been received from a supplier. Two common examples of estimated liabilities are warranties and fees for services rendered by professionals like lawyers and auditors related to year-end financial statement preparation.

## Warranty Liabilities

A warranty is a guarantee offered by the seller to replace or repair defective products. Warranties typically apply for a limited period of time. The seller does not know which product will require warranty work, when it might occur, or the amount. However, based on past experience, warranty expense can be estimated. Often this is based on a percentage of sales revenue. The adjustment is done at year -end. Doing this matches warranty expenses with revenue in the year of sale.

As an example, assume High Road Appliances Corp. estimated its warranty expense to be $5 \%$ of its sales revenue. Sales amounted to $\$ 500,000$ for its first year ended December 31, 2017.

To match the warranty expense to the period in which the revenue was realized, the following adjusting entry would be recorded at the year-end:


Prior to this year-end adjusting entry, parts and labour are used to perform warranty work during the year. The following type of entry is recorded many times as each piece of warranty work is completed:
Estimated Warranty Liability XXX
Parts Inventory
Wages Payable
To record the actual costs of parts and labour for warranty
work, job 1234.

These many small entries gradually increase the debit balance in the Estimated Warranty Liability account until the estimated liability account is adjusted as above to record the estimated expense.

Over time, the year-end balance in the Estimated Warranty Liability account should be stable if actual expenditures are equal to estimated expenditures. If the balance gradually increases or decreases, the estimate of warranty expense as a percentage of sales revenue needs to be reviewed and perhaps adjusted.

## Professional Fess

An accounting firm may be contracted to prepare or audit the annual financial statements. Services of lawyers and pension actuaries may also be needed. Precise fees for these services will be unknown until an invoice is rendered by the supplier. However, this usually occurs after the financial statements have been issued. To match the expense to the year in which the services apply, the fees are estimated and recorded as part of the Estimated Current Liabilities general ledger account at year-end.

Assume BDC estimates that the audit fee for the 2017 financial statements will be $\$ 10,000$.

The following adjusting entry would be made (GST would not be recorded until the fees were actually invoiced by the supplier).

2017
Dec. 31 Professional Fees 10,000
Estimated Current Liabilities $\quad 10,000$
To record estimated audit fees for the year.

## D. Non-current Liabilities (Long-term Liabilities)

LO4 - Explain, calculate, and record noncurrent liabilities.

A corporation often incurs long-term debt to acquire property, plant, and equipment. These borrowing are repayable over many years. There are four main types of non-current borrowings:

1. Bonds pay only interest at regular intervals to bondholders. The original investment is repaid to bondholders when the bond matures (or comes due), usually after a number of years. Bonds issued by a company are generally purchased by many investors, including individuals, financial institutions, and other corporations. Bonds are discussed in detail in a later chapter.
2. Loans are also sums of money lent for interest. They differ from bonds in that they are repaid in equal payments on a regular basis, often monthly. The repayments usually consist of both interest and principal paid to creditors. Such payments are said to be blended. That is, each payment contains repayment of a certain amount of the original amount of the loan (the principal), as well as interest on the remaining principal balance. Loans are usually received from only one or a small number of financial institutions. After obtaining a loan, a company often purchases long-lived assets from a third party with the cash proceeds. The loan in turn may be secured by these purchased assets to reduce the risk of non-repayment to the lender. If the loan is not repaid, the lender can seize and legally sell the secured assets, and retain the funds owed to it. For instance a mortgage is a loan secured by specified real estate of the company, usually land with buildings on it.
3. A finance lease is similar to a loan in that a series of cash payments are also made over a specified period of time. However, these are not quite the same as repayment of a bank loan. Instead of payments to the bank, the payments are made to a leasing company, called the lessor. The payments give the lessee (the company making the payments) the right to use a long-lived asset owned by the leasing company for a specified period of time. Unlike a short-term rental agreement, the amount of the payments is so large as a percentage of the value of the related long-lived asset and the period of time over
which they are made is so long that the lessee in effect purchases the asset, even though legal title may not be transferred from the leasing company to the lessee.
4. Notes payable are written promises to pay specified dollar amounts, on specific dates, to the owners of the notes. The dollar amounts to be paid include the amount borrowed, called principal, and interest.

Non-current loans and finance leases are discussed further below.

## Loans Payable

As noted above, a loan is another form of long-term debt that can be used by a corporation to finance its operations.

Assume BDC obtained a \$100,000, 10\% loan on January 1, 2017 from First Bank to acquire a piece of production equipment. When the loan proceeds are deposited into the bank account of BDC, the company would make the following journal entry:

```
2017
Jan. 1 Cash 100,000
    Loan-Payable - First Bank
    To record 10% loan from First Bank.
```

When the equipment is purchased (assumed here to be the same day), this journal entry would be made:

2017
Jan. 1 Equipment 100,000
Cash 100,000
To record purchase of equipment with loan proceeds.
BDC will depreciate this long-lived asset as usual over its estimated useful life, as discussed in a previous chapter. Interest is calculated on the unpaid balance of the loan. This balance decreases over the life of the loan because each payment contains part interest and part principal payments. In the example above, assume the $\$ 100,000$ loan is repayable in three annual blended payment of $\$ 40,211$. Each payment is made on December 31, commencing in 2017. While the payments remain the same each year, the amounts of interest paid decrease while the amount of principal repaid increases.

Figure 11-2 illustrates this effect. Note particularly columns B, C, and $D$.

|  | $A$ | $B$ | $C$ | $D$ <br> Ending |
| :---: | :---: | :---: | :---: | :---: |
| Year | Beginning | Interest | Reduction of | loan <br> ended |
| loan | expense | principal | balance |  |
| Dec.31 | balance | $($ A x 10\% | $(\$ 40,211-B)$ | $(A-C)$ |
| 2017 | $\$ 100,000$ | $\$ 10,000$ | $\$ 30,211$ | $\$ 69,789$ |
| 2018 | 69,789 | 6,979 | 33,232 | 36,557 |
| 2019 | 36,557 | 3,654 | 36,557 | $-0-$ |
|  |  | $\uparrow$ | $\boxed{\$ 100,000}$ |  |

Interest expense decreases with each loan payment because the remaining principal ( A ) has decreased. Principal repaid plus interest each year $(B+C)$ always

Figure 11-2 Effect of blended interest and principal payments
Figure 11-2 can be used to construct the journal entries to record the loan payments at the end of each year:
2017
Dec. 31 Interest Expense (col. B) 10,000
Loan Payable (col. C) 30,211
Cash
2018
Dec. 31 Interest Expense (col. B) 6,979
Loan Payable (col. C) 33,232
Cash
2019
Dec. 31 Interest Expense (col. B) 3,654
Loan Payable (col. C) 36,557
Cash

40,211
2018
$\begin{array}{cr}\text { Dec. } 31 \text { Interest Expense (col. B) 6,979 } \\ \text { Loan Payable (col. C) } & 33,232\end{array}$ Cash

2019
$\begin{array}{lr}\text { Dec. } 31 \text { Interest Expense (col. B) } & 3,654 \\ \text { Loan Payable (col. C) } & 36,557\end{array}$ Cash

40,211
30,211
mounts in Figure 11-2 can also be used to present the related information on the financial statements of BDC at each year-end. Recall that assets and liabilities need to be classified as current and non-current on the balance sheet. Current liabilities are amounts paid within one year of the balance sheet date. Part of the loan payable to First Bank will be paid in the upcoming year. Therefore, it needs to be classified as a current liability on the balance sheet even though the full amount of the loan outstanding is reported in a single general ledger account called Loan Payable - First Bank. The
amount of the total loan outstanding at December 31, 2017, 2018, and 2019 and the current and non-current portions are shown in Figure 9-3:

| $A$ | $B$ <br> Ending loan | $C$ | $D$ |
| :---: | :---: | ---: | :---: |
| Year | balance per |  | $(B-C)$ |
| ended | general ledger | Current portion | Non-current |
| Dec. 31 | (Fig. 9-2, Col. D) | (Fig. 9-2, col. C) | portion |
| 2017 | $\$ 69,788$ | $\$ 33,232$ | $\$ 36,557$ |
| 2018 | 36,557 | 36,557 | $-0-$ |
| 2019 | $-0-$ | $-0-$ | $-0-$ |

Figure 11-3 Allocation of current and non-current portions of loan principal
The balance sheet presentation would be as follows at each yearend:

| Current liabilities | 2017 | 2018 | 2019 |
| :--- | :---: | :---: | :---: |
| Current portion of <br> borrowings | $\$ 33,232$ | $\$ 36,557$ | $\$$ |
| Non-current liabilities <br> Borrowings (Note X) | 36,557 | $-0-$ | $0-$ |

Details of the loan would be disclosed in a note to the financial statements. Only the principal amount of the loan is reported on the balance sheet. The interest expense portion is reported on the income statement as an expense. Because these payments are made at BDC's year-end (December 31), no interest payable is accrued or reported on the balance sheet in this example.

## Finance Leases

After obtaining a long-term loan, a company often purchases longlived assets from a third party with the cash proceeds. The mechanics of recording a finance lease are much the same as that of a loan. The value of the finance lease is determined by calculating the amount of a similar loan that could be paid off, given the period of time, interest rate, and amount of payments stated in the lease agreement, and the fair value of the leased asset.

For instance, assume that on January 1, 2017 Big Dog Carworks Co. agrees to pay First Leasing Company annual payments of $\$ 40,211$ on December 31 for the next three years for the use of a large truck that could be purchased elsewhere for $\$ 100,000$. BDCC is
responsible for insuring, maintaining, and repairing the truck, though title to the truck remains with the leasing company.

Even though BDC does not legally own the truck, the substance of the lease agreement is the same is if the company received a $10 \%$ loan from a bank and then purchased the truck from a third party (recall the example above). As a result, BDC is required under GAAP to record the finance lease as a liability and the truck as a long-lived asset on its balance sheet. When the lease agreement is signed on January 1, 2017 the following journal entry is made:

2017
Jan. 1 Truck 100,000
Finance Lease 100,000
To record First Leasing Company lease of a truck.
As in the first example, the truck asset is depreciated over its estimated useful life.

To record the loan payments, the implicit rate of interest within the lease agreement needs to be established. In the BDC example, this is $10 \%$ - the amount of annual interest that would need to be paid to a bank for a similar loan.

When each of the three payments is made on December 31 of 2017, 2018, and 2019, much the same journal entries are recorded as in the previous bank loan example:

## 2017

Dec. 31 Interest Expense
Finance Lease
Cash
2018
Dec. 31 Interest Expense
Finance Lease
Cash
2019
Dec. 31 Interest Expense
Finance Lease
Cash

10,000
30,211
40,211

6,979
33,232
40,211

3,654
36,557
40,211

Balance sheet of the finance lease liability would also be similar. The same current and non-current portions would be presented each year as in the bank loan example above.

Link to Original

Notes payable are written promises to pay specified dollar amounts, on specific dates, to the owners of the notes. The dollar amounts to be paid include the amount borrowed, called principal, and interest.
with Notes Payable, we need to know 3 things about a note:

1. Principal (the amount of money we owe)
2. Interest Rate (typically an annual interest rate)
3. Maturity term (or frequency of the year - how many days or months for the note)
In Notes Receivable, we were the ones providing funds that we would receive at maturity. Now, we are going to borrow money that we must pay back later so we will have Notes Payable. Interest is calculated as Principal x Interest x Frequency of the year (use 360 days as the base if note term is days or 12 months as the base if note term is in months).
Interest-bearing notes to receive short-term financing, a company may issue an interest-bearing note to a bank. An interest-bearing note specifies the interest rate charged on the principal borrowed. The company receives from the bank the principal borrowed; when the note matures, the company pays the bank the principal plus the interest.
Accounting for an interest-bearing note is simple. For example, assume the company's accounting year ends on December 31. Smith Company issued a \$10,000, 90-day, $9 \%$ note on December 1.
The following entries would record the loan, the accrual of interest on December 31 and its payment on March 1 of the next year:

| Date | Account | Debit | Credit |  |  |  |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: |
| Dec 1 | Cash | $\mathbf{1 0 , 0 0 0}$ |  |  |  |  |
|  | Notes Payable |  | $\mathbf{1 0 , 0 0 0}$ |  |  |  |
|  | To record borrowed 90-day, 9\% note. |  |  |  |  |  |
| Dec 31 | Interest Expense | $\mathbf{7 5}$ |  |  |  |  |
|  | Interest Payable |  | $\mathbf{7 5}$ |  |  |  |
|  | \$10,000 x 9\% x (30 days in Dec / 360 <br> days in year) |  |  |  |  |  |
| Mar 1 | To record accrued interest on note at <br> year end | Notes Payable (principal amount) | $\mathbf{1 0 , 0 0 0}$ |  |  |  |
|  | Interest Payable (from Dec 31 entry) | $\mathbf{7 5}$ |  |  |  |  |
|  | Interest Expense <br> \$10,000 x 9\% x (60 days remaining in <br> note / 360 days in year) | $\mathbf{1 5 0}$ |  |  |  |  |
|  | Cash (10,000 + 75 + 150) |  |  |  |  | $\mathbf{1 0 , 2 2 5}$ |
|  | To record principal and interest paid <br> on bank loan |  |  |  |  |  |

## ASSIGNMENTMATERIALS

## Concept Self-check

1. What is the difference between a current and non-current liability?
2. What are some examples of current liabilities?
3. How are known current liabilities different from estimated current liabilities?
4. What are some examples of estimated current liabilities?
5. How is a loan payable similar to a bond? How is it different?
6. How is a finance lease similar to a long-term loan from a bank? How is it different?

## Comprehension Problems

## CP 11-1

The following unadjusted accounts are taken from the records of Brown Corp. at December 31, 2018:

| Bank Loan | 201 |  | Interest Expense |  | 632 |
| :---: | ---: | :--- | :--- | :--- | :--- |
|  | 200 |  |  | 100 |  |

Additional Information: The bank loan bears interest at 6\% per year. It was obtained on April 1, 2018. Payment in full is due on March 31, 2019.

Required: Prepare the adjusting entry at December 31, 2018.

## CP 11-2

An extract from the trial balance of Selby Corp. at December 31, 2018 is reproduced below:
$\left.\left.\begin{array}{ccc} & & \text { Amount in } \\ \text { Amount in } \\ \text { anadjusted }\end{array}\right] \begin{array}{c}\text { trial }\end{array}\right\}$

Required: Prepare in general journal format the adjusting entries that were posted, including plausible descriptions. General ledger account numbers are not necessary.

## CP 11-3

During an early payroll period, an employer has a salaries and wages expense of $\$ 60,000$. Show the payroll journal entry for the period if social security is withheld at the rate of $6.2 \%$, Medicare at $1.45 \%$, federal income taxes at $15 \%$, State income taxes at $2 \%$, and union dues of $1.8 \%$.

Required: Show the required journal entry.

Smith Co. has the following selected accounts after posting adjusting entries:

| Accounts Payable | $\$ 35,000$ |
| :--- | ---: |
| Notes Payable, 3-month | 90,000 |
| Accumulated Depreciation-Equipment | 12,000 |
| FICA Taxes Payable | 23,000 |
| Notes Payable, 5-year, 8\% | 25,000 |
| Payroll Tax Expense | 8,000 |
| Interest Payable | 5,000 |
| Mortgage Payable | 350,000 |
| Sales Taxes Payable | 23,000 |

Required: Prepare the current liability section of Smith Company's balance sheet.

## CP 11-5

Paul's Roofing Corporation paid monthly corporate income tax instalments of $\$ 500$ commencing February 15, 2018. The company's income before income taxes for the year ended December 31, 2018 was $\$ 15,000$. The corporate income tax rate is $40 \%$. Paul's Roofing paid the 2018 corporate income taxes owing on January 31, 2019.

## Required:

1. Record the February 15, 2018 payment.
2. Record the 2018 corporate income tax expense.
3. Record the January 31, 2019 payment.

Descriptions and general ledger account numbers are not necessary. Show calculations where applicable.

## CP 11-6

On November 1, 2018 Branch Corporation converted a \$10,000 account payable owing to Tree Corp. to a note payable bearing interest at 10\% per year due on January 31, 2019.

## Required:

1. Record the November 1, 2018 transaction in the records of Branch.
2. Record the adjusting entry needed on December 31, 2018.
3. Record the journal entry for the January 31 payment.
4. Record the above journal entries in the records of Tree Corp.

Provide descriptions for journal entries. General ledger account numbers are not necessary.

## CP 11-7

Kourani Co. borrows $\$ 250,000$ cash on November 1, 2011, by signing a 90-day, $9 \%$ note with a face value of $\$ 250,000$.
Required: Prepare journal entries to record

1. issuance of the note,
2. accrual of interest at the end of 2011
3. payment of the note at maturity.

## CP 11-8

ClaimsRUs Corp. is the defendant in three lawsuits:
Claim 1: It is possible that the lawsuit will be successful. Damages are estimated at $\$ 1.5$ million.

Claim 2: It is probable that this lawsuit will be successful. Damages cannot be reasonably estimated as yet.

Claim 3: It is probable that this lawsuit will be successful. Damages are estimated at $\$ 1$ million.

Required: Identify the accounting treatment for each claim.

## CP 11-9

Rosedale Corp. obtained a \$50,000 loan from Second Capital Bank on January 1, 2021. It purchased a piece of heavy equipment for $\$ 48,000$ on the same day. The loan bears interest at $6 \%$ per year on the unpaid balance and is repayable in three annual blended payments of $\$ 18,705$ on December 31 each year.

## Required:

1. Prepare the journal entries to record the following transactions:
a. Receipt of loan proceeds from the bank
b. Purchase of the equipment.
2. Prepare the loan repayment schedule.
3. Prepare the journal entry to record the first loan payment.

Provide descriptions for journal entries. General ledger account numbers are not necessary.

## CP 11-10

Day Corp. entered into a finance lease agreement with Night Leasing Ltd. on January 1, 2018. Day Corp. agreed to pay Night annual payments of $\$ 24,154$ on December 31 for the next four years to lease a vehicle with a fair value of $\$ 80,000$. The interest rate implicit in the lease agreement was $8 \%$.

## Required:

1. Prepare the journal entries to record the assumption of the lease on January 1, 2018.
2. Prepare the lease repayment schedule.
3. Prepare the partial balance sheet of Day Corp. at December 31, 2018. Assume the first lease payment has been made.

Provide descriptions for journal entries. General ledger account numbers are not necessary.

## Problems

## P 11-1

Latex Paint Corporation started operations on January 1, 2018. It had the following transactions during the year.
a. Jan 1 Issued \$20,000 share capital to the shareholders in return for cash.
b. Jan 1 Obtained a bank loan totalling $\$ 30,000$. The interest rate is $4 \%$. The loan will be repaid in one year.
c. Jan. 2 Purchased merchandize on account from a supplier for $\$ 20,000$ plus GST (5\%).
d. Jan. 8 Sold \$8,000 of paint to a customer on credit and added GST. Cost of the pain sold was $\$ 3,000$. Latex uses the perpetual inventory method.
e. Jan 15 Paid an employee J. Jones \$1,560 cash for January 1-15 salary, calculated as follows:


The company's portion of contributions is:

$$
\begin{array}{ll}
\text { Employment insurance } & 1.4 \text { times } \\
\text { Government pension } & 1 \text { time }
\end{array}
$$

f. Unrecorded liabilities at January 31 include:
i. Salaries payable to J. Jones for January 16-31, amounting to \$1,560 (net). Employer contributions are as shown in e. above.
ii. Corporate income taxes amounting to $20 \%$ of income before income taxes.

## Required:

1. Prepare journal entries to record the above transactions. Show necessary calculations.
2. Prepare all adjusting entries needed at January 31, 2018. Show necessary calculations.
3. Calculate total current liabilities at January 31, 2018.

Descriptions and general ledger account numbers are not necessary.

## P 11-2

Murphy Co. entered into the following transactions involving shortterm liabilities in 2014 and 2015.

Apr. 20 Purchased \$38,500 of merchandise on credit from Pagan, terms are 1y10, ny30. Murphy uses the perpetual inventory system. May 19 Replaced the April 20 account payable to Pagan with a 90day, $\$ 30,000$ note bearing $9 \%$ annual interest along with paying $\$ 8,500$ in cash.
July 8 Borrowed $\$ 60,000$ cash from TD Bank by signing a 120day, $10 \%$ interest-bearing note with a face value of $\$ 60,000$.
_____ Paid the amount due on the note to Pagan at the maturity date.
$\qquad$ Paid the amount due on the note to TD Bank at the maturity date.
Nov. 28 Borrowed \$21,000 cash from PNC Bank by signing a 60day, $8 \%$ interest-bearing note with a face value of $\$ 21,000$.
Dec. 31 Recorded an adjusting entry for accrued interest on the note to PNC Bank.
__?___ Paid the amount due on the note to PNC Bank at the maturity date.

## Required

Prepare journal entries for all the preceding transactions and events for years 2014 and 2015.

## P 11-3

The following unadjusted trial balance has been taken from the records of Mudryk Wholesalers Corp. at December 31, 2018:

| No. | Account | Unadjusted TB |  | Adjustments |  | Adjusted TB |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Debit | Credit | Debit | Credit | Debit | Credit |
| 101 | Cash | 12,000 |  |  |  |  |  |
| 110 | Accounts receivable | 30,000 |  |  |  |  |  |
| 150 | Merch. inventory | 70,000 |  |  |  |  |  |
| 151 | Parts inventory | 10,000 |  |  |  |  |  |
| 210 | Accounts payable |  | 40,000 |  |  |  |  |
| 212 | Est. current liab. |  | -0- |  |  |  |  |
| 213 | Est. warranty liab. | 3,000 |  |  |  |  |  |
| 226 | Salaries payable |  | -0- |  |  |  |  |
| 227 | Emp'ee inc. tax pay. |  | -0- |  |  |  |  |
| 228 | Emp. insur. pay. |  | -0- |  |  |  |  |
| 229 | Gov't pension pay. |  | -0- |  |  |  |  |
| 230 | Co. health ins. pay. |  | -0- |  |  |  |  |
| 238 | GST payable |  | 1,000 |  |  |  |  |
| 248 | Unearn. rent rev. |  | -0- |  |  |  |  |
| 260 | Corp. inc. tax pay. |  | -0- |  |  |  |  |
| 320 | Share capital |  | 100 |  |  |  |  |
| 340 | Retained earnings |  | 3,000 |  |  |  |  |
| 440 | Rent earned |  | 13,000 |  |  |  |  |
| 500 | Sales |  | 791,900 |  |  |  |  |
| 570 | Cost of goods sold | 263,500 |  |  |  |  |  |
| 653 | Professional fees | -0- |  |  |  |  |  |
| 656 | Salaries expense | 400,000 |  |  |  |  |  |
| 658 | Gov't emp. insur. ex. | 8,000 |  |  |  |  |  |
| 659 | Gov't pension exp. | 20,000 |  |  |  |  |  |
| 660 | Co. health insur. exp. | 12,000 |  |  |  |  |  |
| 678 | Warranty exp. | 4,000 |  |  |  |  |  |
| 830 | Corp. inc. tax exp. | 16,500 |  |  |  |  |  |
|  |  | 849,000 | 849,000 |  |  |  |  |

The following additional information is available at the year-end. GST of $5 \%$ only applies when indicated.
a. The company has sublet space in its leased facilities to another company for $\$ 1,000$ per month since January 1.
b. A review of warranty claims indicates that the following amounts have been incorrectly recorded in income statement general ledger accounts:

Cost of goods sold $\quad \$ 500$ Salaries expense \$100
c. A $\$ 4,000$ purchase of parts inventory on account plus GST has not been recorded.
d. Warranty expense for the year is estimated at $1 \%$ of sales.
e. Unpaid gross salaries amount to $\$ 5,000$. Deductions from gross pay are as follows:

Employee income taxes 15\%
Government employment insurance 2\%
Government pension 5\%
Company health insurance 3\%
The company matches employee contributions to the employment insurance, government pension, and company health insurance plans on a 1 to 1 basis.
f. Audit fees are estimated to be $\$ 8,000$.
g. The corporate income tax rate is $25 \%$ of income before income taxes. Corporate income tax instalments during the year have been recorded as income taxes expense in the records.

## Required:

1. Prepare necessary adjusting entries at December 31, 2018. Include descriptions and general ledger account numbers, and calculations if necessary.
2. Post the entries to the worksheet and prepare an adjusted trial balance.
3. Prepare a classified income statement and statement of changes in equity for the year ended December 31, and a classified balance sheet at December 31. Consider salary, benefits, and warranty expenses to be selling expenses. No shares were issued during the year.

## P 11-4

Zinc Corp. obtained a $\$ 100,000$ loan from First Capital Bank on December 31, 2018. It purchased a piece of heavy equipment for $\$ 95,000$ on January 2, 2019. The loan bears interest at $8 \%$ per year on the unpaid balance and is repayable in four annual blended payments of $\$ 30,192$ on December 31 each year, starting in 2019.

## Required:

1. Prepare the journal entries to record the following transactions:
a. Receipt of loan proceeds from the bank
b. Purchase of the equipment.
2. Prepare the loan repayment schedule in the following format:

Zinc Corp.
Loan Repayment Schedule

|  | A | $B$ | C | D | E |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | ( $D-B$ ) |  | ( $A-C$ ) |
| Year ended | Beginning loan | Interest | Reduction of loan | Total loan | Ending loan |
| Dec. 31 | balance | expense | payable | payment | balance |
| 2019 |  |  |  |  |  |
| 2020 |  |  |  |  |  |
| 2021 |  |  |  |  |  |
| 2022 |  |  |  |  |  |

3. Prepare the journal entry to record the last loan payment.
4. Prepare a partial balance sheet showing the loan liability at December 31, 2020.

## P 11-5

East Corp. entered into a finance lease agreement with West Leasing Ltd. on April 1, 2018. East Corp. agreed to pay West an initial payment of $\$ 10,000$ on that date and annual payments of $\$ 71,081$ on March 31 for the next three years to lease a piece of equipment with a fair value of $\$ 200,000$. The interest rate implicit in the lease agreement was $6 \%$.

## Required:

1. Prepare the journal entry to record the purchase of the equipment and assumption of the lease on April 1, 2018.
2. Prepare the lease repayment schedule as follows:

|  | $A$ | East Corp. <br> Lease Repayment Schedule |  |  | E |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $B$ | C | D |  |
| Year ended | Beginning | ( $A \times 6 \%$ ) | $(D-B)$ | Total | ( $A-C$ ) |
| Dec. 31 | lease balance | interest expense | Reduction of finance lease | lease payment | Ending lease balance |
| 2019 |  |  |  |  |  |
| 2020 |  |  |  |  |  |
| 2021 |  |  |  |  |  |

3. Prepare the partial balance sheet of East Corp. at December 31, 2020 showing the finance lease balance assuming the December 31 lease payment has been made.

[^0]:    ${ }^{1}$ Equivalent designations for a corporation are "Corp.", "Incorporated", "Inc.", "Limited", and "Ltd."

[^1]:    ${ }^{1}$ When there is a net loss, the Income Summary account will have a debit balance after revenues and expenses have been closed. To close the Income Summary account when there is a net loss the Income Summary must be credited. The following closing entry is required:

[^2]:    ${ }^{1}$ An expense is debited instead of an asset like Unused Office Supplies. The need to purchase supplies through petty cash assumes the immediate use of the items.

[^3]:    ${ }^{2}$ Recall that a note receivable is a formalized document arising from an account receivable transaction. It specifies the terms of repayment of the amount owing to the company by a customer, as well as any interest that will be paid.

[^4]:    ${ }^{1}$ Salaries are fixed amounts paid to an employee on a regular basis (for example, monthly). Wages are calculated based on an hourly rate times the actual hours worked each day.

[^5]:    ${ }^{2}$ Corporate income taxation is complex and covered more thoroughly in advanced accounting courses.

