

Engineering Challenge.... Capture the Gingerbread man! Design and create a tasty gingerbread house that the sneaky gingerbread man cannot resist going into!



Lesson: We Can Engineer : Gingerbread Houses

Lesson Objectives

1. To model and teach communication, critical thinking, collaboration and creative skills.
2. To Introduce the concept of engineering through architecture and the engineering design process. To understand that plans can be engineered then modified to have a better outcome.
3. To collaborate and create a decorative gingerbread house.

Academic Standards

9.1.3.H.1

Handle materials, equipment and tools safely at work and performance spaces: Identify materials used

9.1.3.B.4.

Recognize, know, use and demonstrate a variety of appropriate arts elements and principles to produce, review and revise original works in the arts. Visual Arts: paint; draw; craft; sculpt; print; design for environment, communication, multi-media

ETS1.B: Developing Possible Solutions (K-2-ETS1-2)

Designs can be conveyed through sketches, drawings, or physical models.

Sequence

Week 1: Introduce Architecture as a concept:

Big Ideas and Essential Questions Poster

Gallery Walk and discussion

Draw an idea for a gingerbread house.(Kindergarten)

Write out Plan sheet and draw a picture. Use Worksheet template.

Share out ideas and discuss in groups / as a class. Coloring page if done early.

Week 2

Review big ideas and essential questions.

Watch story about gingerbread man. Assign Groups

Students will work in groups at tables to glue pieces together for gingerbread house.

Kindergarten: will decorate small brown paper pieces, cut out and glue to carton.

Glue carton to the base. Add chimney. Add windows and doors.

Week 3

Discuss design process and working together.

Add candy decorations and decorate base.

Discuss projects last 5-10 of class.

First grade complete worksheet. What problems did we have ? What can we change?

Big Idea

Architecture are forms and structures built by people that serve a specific function.

Essential Questions

Why do people design and build structures?

1. For protection : safe from elements or enemies
2. (house or castle or wall)
3. For religious reasons (church, pyramids, temples)
4. To show wealth or power or influence (castle)
5. To demonstrate engineering expertise (Eiffel Tower)

Assessments

Assessment

4 Advanced Demonstration of communicating and collaborating with others without conflict. Planning is evident. Group work is neatly done with functional purpose of added elements in correct places. Evidence of planning and modifications as needed. Student is able to reflect on outcomes.

3 Proficient Demonstrates ability to work with team members. Evidence of planning and modifications as needed. Student is able to reflect on outcomes.

2 Basic Student work demonstrates lack of planning. Student has difficulty working with team members. Student is not willing to make modifications as needed.

ESSENTIAL QUESTIONS

Why do people design and build structures?

Big Ideas

Architecture are forms and structures built by people that serve a specific function.

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What is FORM? WHAT IS FUNCTION?

Form is the shape a building takes.

WHAT IS FUNCTION?

Function is the reason the structure exists.



WE ARE ENGINEERS! First Grade

What is our plan:

NAME

What does it look like?

What problems did we have ?

What can we change?

WE ARE ARCHITECTURAL ENGINEERS! Name:

Design your
own candy
house!
Don't forget
windows and
doors!

