H-R Diagram - Exercise

Student Name: _____

Step 1.

1. Using the blank graph in Figure 3, label the Y-axis for Absolute Magnitude and the X-axis for Spectral Type scale.

Step 2.

2. Using the data in Table 2, plot the pertinent data using one color (You can also use different symbols for the data in each table). Make sure your graph has the brightest Absolute Magnitudes towards the top of the graph.

Star	Spectral Class	Luminosity Class	Absolute Magnitude
Sun	G2	V	+5.0
σPer A	B0	V	-3.7
λCet	A2	V	+2.0
αHyd	F0	V	+2.9
Kruger 60 B	M6	V	+13.2
61 Cyg A	K5	V	+7.5
γCet	G8	V	+5.7
αGru	B5	V	+03
Kapteyn's Star	M0	V	+10.9

Table 2.

Step 3.

3. Using the planetarium software, look up each of the stars in Tables 3 and 4 and complete missing data in those tables. Turn off the atmosphere and landscape to better read the star data in the upper left hand corner of the screen.

Step 4.

4. Plot the data from Table 3 using a different color (and/or a different symbol) on your emerging H-R Diagram.

Step 5.

5. Repeat Step 4 above, using the data from Table 4.

- **Question 1:** Do you observe any relationship between the nearby stars versus the bright stars and what could explain your observation?

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- **Question 2:** Which stars, if any, would you consider being Supergiant stars?

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- **Question 3:** Which stars, if any, would you consider being White Dwarf stars?

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- **Question 4:** How many of the stars you plotted from Tables 3 and 4, do you consider to be on the Main Sequence?

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Bright Stars

Common Name	Spectral Type	Luminosity Class	Distance (d) parsecs	Apparent Magnitude (m)	Absolute Magnitude (M)
Sirius	A1	V	2.7	-1.46	
Canopus	F0	Ib-II	30	-0,72	
Rigel Kentaurus	G2	V	1.3	-0.01	
Arcturus	K2	IIIp	11	-0,06	
Vega	A0	V	8	0.04	
CapeIIa	G2	III	14	0.05	
Rigel	B8	Ia	250	0.14	
Procyon	F5	IV- V	3.5	0.37	
Betelgeuse	M2	Iab	150	0.41	
Achernar	B5	V	20	0.51	
Hadar	B1	III	90	0.63	
Altair	A7	IV-V	5.1	0.77	
Alpha Crux	B1	IV	120	1.39	
Aldebaran	K5	III	16	0.86	
Spica	B1	V	80	0.91	
Antares	M1	Ib	120	0.92	
Pollux	K0	III	12	1.16	
Fomalhaut	A3	V	7	1.19	
Deneb	A2	Ia	430	1.26	
Mimosa	B0.5	IV	150	1.28	

Table 3

Nearby Stars (Within 15 ly)

CommonName	Spectral Type	Distance (d) parsecs	Apparent Magnitude (m)	Absolute Magnitude (M)
Sun	G2	0.00	-26.72	**+5**
Proxima Centauri	M5	1.29	11.05	
Rigil Kent	G2	1.35	0.1	
Barnard's Star	M4	1.83	9.54	
Sirius	A1	2.64	-1.46	
HIP 54035	M2	2.55	7.49	
HIP 92403	M4	2.94	10.37	
HIP 16537	K2	3.22	3.72	
HIP 114046	M2	3.29	7.35	
HIP 57548	M4	3.34	11.12	
Procyon	F5	3.50	0.37	
HIP 108870	K5	3.63	4.69	
HIP 8102	G8	3.65	3.49	
HIP 5643	M5	3.72	12.1	
HIP 105090	M1	3.95	6.65	
HIP 36208	M5	3.80	9.84	
HIP 24186	M0	3.92	8.86	
HIP 30920	M5	4.12	11.12	
HIP 439	M2	4.36	8.56	
HIP 3829	D7	4.41	12.37	

Table 4

H-R Diagram

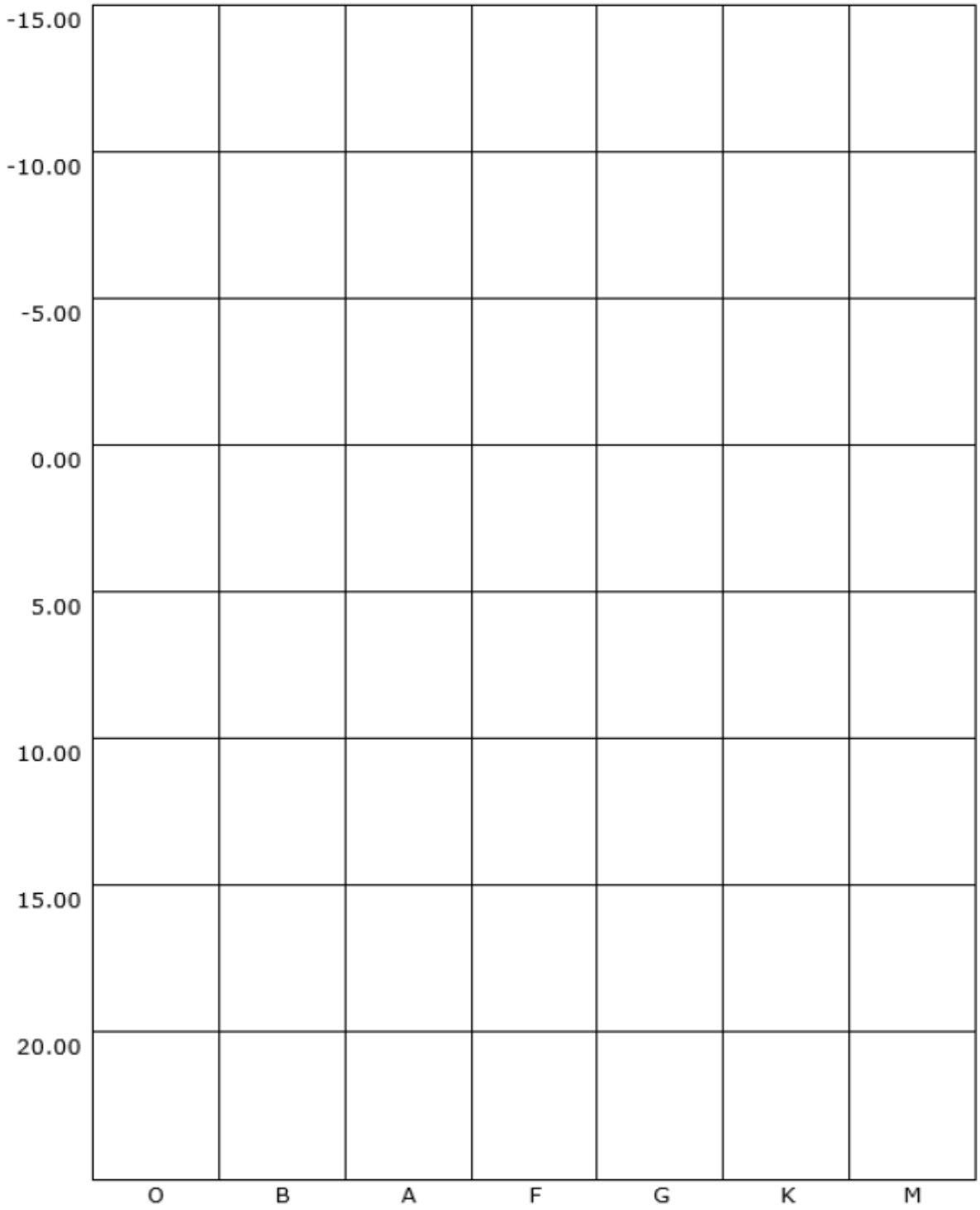

Figure 3