Name_____Date_____Class_____

INQUIRY SKILL FOCUS Practice

Create Bar Graphs

Answer the questions below. Use a sheet of graph paper to make the graph.

The table below shows the relative diameters of the planets in our solar system in Earth units. That means that Earth is represented as having a diameter of 1 Earth unit. The planet Uranus, which has a diameter that is four times the size of Earth's diameter, is represented by 4 Earth units. The planets are listed in order of their distance from the sun. Mercury is the closest, and Pluto is the farthest away.

Diameters of the Planets in Earth Units	
Planet	**Diameter in Earth Units**
Mercury	0.40
Venus	0.95
Earth	1.00
Mars	0.50
Jupiter	11.20
Saturn	9.50
Uranus	4.00
Neptune	3.90
Pluto	0.20

1. On which axis will you place the names of the planets? (*Hint:* The planets are similar to a category being studied, or a manipulated variable. List the planets in the same order as in the table, starting with Mercury.)

2. Notice that the measurements you need to represent include some numbers between 0 and 1, with the largest number between 11 and 12. What scale will you use to represent the planet diameters? (*Hint*: You may need to estimate the height of certain bars.)

3. On a sheet of graph paper, make a bar graph that displays the data in the table.

4. **Think It Over** Suppose you made a bar graph showing the planets' distances from the sun, and you listed them in the same order as in this graph. How would the new graph be similar to the graph you just made? How would it be different?

INQUIRY SKILL FOCUS Practice

Create Line Graphs

Use a sheet of graph paper to make a graph of the data given below. Then answer the questions that follow on a separate sheet of paper.

Time vs. Temperature for Unknown Substance		
Time (min)	**Temperature (°C)**	**Solid, Liquid or Gas**
0	−20	Solid
5	0	Solid (melting)
10	0	Solid (melting)
15	52	Liquid
20	100	Liquid (boiling)
25	100	Liquid (boiling)
30	100	Liquid (boiling)
35	100	Liquid (boiling)
40	100	Liquid (boiling)
45	100	Liquid (boiling)
50	100	Liquid (boiling)
55	100	Liquid (boiling)
60	100	Liquid (boiling)
65	100	Liquid (boiling)
70	100	Liquid (boiling)
75	110	Gas
80	120	Gas

A group of researchers were investigating the properties of an unknown substance. They decided to heat the material to study its melting and boiling behavior. They heated a 1-kg sample of the solid material at a steady rate. They measured and recorded the temperature of the sample every 5 minutes.

1 On a sheet of graph paper, make a line graph of the data the group collected.

2 What does the graph tell you about the temperature of the substance at different times during the investigation?

3 **Think It Over** Use the information from the third column of the data table to explain what is happening during the various sections of your graph.

INQUIRY SKILL FOCUS Practice

Create Circle Graphs

To complete this activity, you will need a compass and a protractor. Use those tools to answer Question 1 on a separate sheet of paper. Answer the remaining questions in the spaces below.

A middle school class surveyed 500 families who own pets. The data table below shows what kinds of pets the families own. Create a circle graph to display the data.

Kinds of Pets Owned by Families	
Pet	**Number of Families**
Dogs	180
Cats	160
Birds	25
Fish	25
*Other	110

* Includes gerbils, hamsters, rabbits, guinea pigs, and ferrets

1 Make a circle graph to display the data in this table. (*Hint*: You can round off numbers if you wish.)

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2 What are some facts you can learn by examining the graph?

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3 **Think It Over** Think about the process of creating a circle graph. Why might circle graphs be a less exact way of displaying data than bar graphs?

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