

# Chapter 1 The Nature of Science Guided Reading

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Hr: \_\_\_\_\_

*Please answer the following questions in the spaces provided. Note: Many questions are multiple parts.*

What Latin word does the word science come from? What does it mean?

Nature is followed by a set of \_\_\_\_\_.

What are the three main categories of science?

- 1.
- 2.
- 3.

New information can be gathered by performing \_\_\_\_\_.

What are the six steps of the scientific method according to your textbook?

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

\_\_\_\_\_ helps visualize concepts.

Distinguish between a scientific law and a scientific theory and give an example of each.

What is the difference between science and technology and give an example of when science followed technology?

What does **SI** stand for?

What is this system based on?

Finish Filling in the chart below.

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**Table 1 SI Base Units**

Quantity Measured	Unit	Symbol
Length		
	kilogram	
		s
Electric Current		
		K
	mole	
Intensity of light		

**Table 2 Common SI Prefixes**

Prefix	Symbol	Multiplying Factor
Kilo-		
	d	
		0.01
Milli-		
		0.000001
Nano-		

What is the unit used to measure length?

What is the unit used to measure volume?

What is the unit used to measure matter?

Looking at Table 3 in Section 2, what is the density of water? (Hint: Do not forget to list units.)

How is density determined?

Fill in the chart below through reading on page 21.

**Table 3 Scales of temperature.**

	Freezing	Boiling
Fahrenheit		
Celsius		
Kelvin		

What is another name for the horizontal axis on a graph?

What is another name for the vertical axis on graph?

What are the three common types of graphs?

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- 1.
- 2.
- 3.

Describe possible data where using a bar graph would be better than using a line graph.

Which type of variable is plotted on the y-axis?

Which type of variable is plotted on the x axis?

## Reviewing Main Ideas

### **Section One:**

1. Science is a way of learning about the natural world, such as a hurricane through investigation.
2. Scientific investigations can involve making observations, testing models, or conducting experiments.
3. Scientific experiments investigate the effect of one variable on another. All other variables are kept constant.
4. Scientific laws are repeated patterns in nature. Theories attempt to explain how and why these patterns develop.

### **Section Two:**

1. A standard of measurement is an exact quantity that people agree to use as a basis of comparison. The International System of Units, or SI, was established to provide a standard and reduce confusion.
2. When a standard of measurement is established, all measurements are compared to the same exact quantity- the standard. Therefore, all measurements can be compared with one another.
3. The most commonly used SI units include length-meter, volume-liter, mass-kilogram and time-second.
4. Any SI unit can be converted to any other related SI unit by multiplying by the appropriate conversion factor.
5. Precision is the description of how close measurements are to each other. Accuracy is comparing a measurement to the real or accepted value.

### **Section Three:**

1. Graphs are visual representations of data that make it easier for scientists to detect patterns.
2. Line graphs show continuous changes among related variables. Bar graphs are used to show data collected by counting. Circle graphs show how a fixed quantity can be broken into parts.
3. To create a circle graph, you have to determine the angles for your data.
4. In a line graph, the independent variable is always plotted on the horizontal axis. The dependent variable is always plotted on the vertical y-axis.