

Name: \_\_\_\_\_

Foundations

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Earth Science

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## Lab Activity: Measurement

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### INTRODUCTION:

Measurements are comparisons with a known standard. They always include a number and the standard unit of measure. You are already familiar with many of these standard units such as: length, mass, temperature, time and volume.

Over the centuries, many different countries developed their own systems of measurement. This became confusing when scientist from different countries tried to communicate. Then in 1799 France adopted the metric system [SI]. Aside from the United Sates and a few other countries using Customary Measures, most of the world now uses the metric system.

### OBJECTIVE:

To become familiar with the metric system by measuring various lengths, volumes and masses.

### VOCABULARY:

Length

Meter

Volume

Liter

Mass

Gram

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## PROCEDURE A:

Using a centimeter ruler, find objects, in the classroom, that are approximately the lengths listed below. Be sure to find any objects that is as close as possible to the listed lengths within 1.0 cm.

Find this Length	Name of the Object	Your Measurement
4.7 cm		
8.0 cm		
11.5 cm		
15.5 cm		
29.3 cm		

## PROCEDURE B:

Using a meter stick, find objects, in the classroom, that are approximately the lengths listed below. Be sure to find any objects that is as close as possible to the listed lengths within 0.1 meters.

Find this Length	Name of the Object	Your Measurement
0.6 m		
1.5 m		
1.9 m		
2.1 m		
2.5 m		

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### PROCEDURE C:

Using an electric balance, find objects in the classroom that have an approximate mass listed below. Be sure to find any object that is as close as possible to the listed mass within 5.0 grams.

Find this Mass	Name of the Object	Your Mass
117.5 g		
228.8 g		
163.9 g		
20.6 g		
25.6 g		

### PROCEDURE D:

Using a graduated cylinder, measure the mass of water for the following volumes. Be sure to measure the amount of water to the nearest 1.0 ml and record the mass to the nearest 0.1 g.

Volume	Measured Mass
10.0 ml	
35.0 ml	
50.0 ml	
67.0 ml	
78.0 ml	

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## DISCUSSION QUESTIONS:

1. What units would you use to measure the distance from the High School to your house?
2. What units would you use to measure the width of a pencil?
3. Based on answers to 1 and 2, why would you use two different units to measure the lengths?
4. What metric base units would you use to measure the amount of liquid inside a bottle of soda?
5. What metric base units would you use to measure the amount of matter in a brick?

**CONCLUSION:** Explain why the metric system is easier to use than Customary Measures?