

## GED 2002 Teachers' Handbook of Lesson Plans

Area/Skill - Math	Cognitive Skill Level - Application	Correlation to Framework - Math 5.01/05.04	Lesson Number - 05
<p><b>Activity Title - Measuring</b></p> <p><b>Goal/Objective</b> Students will be able to convert basic measurement in English and Metric units .</p> <p><b>Lesson Outline</b> <b>Introduction</b></p> <p>The ability to make accurate measurements is a vital skill in today's world. This lesson covers basic linear measurement and conversions.</p> <p><b>Activity</b></p> <p>Provide a worksheet to all students. This worksheet contains conversions and information needed to work the following measurement activities.</p> <ul style="list-style-type: none"> <li>• Convert 7 feet to yards and inches. Convert 4 yards to feet, to inches.</li> <li>• Convert 3.4 centimeters to millimeters</li> <li>• Write each length in two ways 8.3 cm, 3 cm 6 mm, and 2.5 cm.</li> <li>• Write 4 feet in the metric system</li> <li>• Write 60 centimeters as feet</li> </ul> <p>According to environmentalists an average person will throw away trash equivalent to 600 times his/her adult weight. How much trash would a 200-pound adult throw away in his life? The heaviest domestic dog is the St. Bernard. It weighs up to 100 kilograms and stands 70 centimeters high at the shoulder. Express this weight in pounds and the height in inches. Refer to the worksheet guide.</p> <p><b>Debriefing/Evaluation Activity</b></p> <p>Have students discuss their use of English versus Metric systems.</p>		<p><b>Materials/Texts/Realia/Handouts</b></p> <ul style="list-style-type: none"> <li>• Handout - Worksheet 5</li> <li>• Paper</li> <li>• Pencil</li> <li>• Newspapers</li> <li>• Recycled containers from food-stuff and merchandise</li> <li>• Overhead projector</li> <li>• Chalk board</li> </ul>	
		<p><b>Extension Activity</b></p> <p>Utilize ads and/or articles found in newspaper and re-price the goods for sale using the metric system. Rather than listing at so much per pound, list the price as so much per gram.</p>	
		<p><b>ESE/ESOL Accommodations</b></p> <ul style="list-style-type: none"> <li>• Provide the student with a chart of conversions from the English to Metric system.</li> <li>• Use concrete materials and manipulatives to explore and learn about mathematical concepts.</li> <li>• Have students work in small groups to assist in cooperative learning.</li> </ul>	
<p><b>Real-Life Connection</b></p> <p>Distribute empty containers and packages from foodstuff and other merchandise that has weight and capacity printed on the label. Using these items ,convert the listed weight to other units or to measurement systems .</p> <p>Distribute newspapers and instruct class to find the various methods that goods are measured by. Pay close attention to any mention of the metric system of measure.</p>			

## GED 2002 Teachers' Handbook of Lesson Plans

Area/Skill - Math	Cognitive Skill Level - Application	Correlation to Framework - 5.01/05.04	Lesson Number - 05
<p><b>Activity Title - Measuring</b></p> <p><b>Introduction</b></p> <p><i>Say:</i> The ability to make accurate measurements and understand the basic measurement units is vital to survival in today's world. In this lesson we will cover several of the basic measurement units and look at some basic conversions.</p> <p><b>Main Activity</b></p> <p>Distribute a copy of Math Worksheet 5 to all members of the class. <i>Say:</i> Please review the worksheet that has been distributed. We will be using this information to complete the activities on this page. Our first activity is converting 7 yards to feet and inches. Remember that there are 3 feet to a yard so our first task is to divide 7 by 3. That was easy, but what do we do the foot that is left over? Easy, we convert that foot to 12 inches. Our answer is 2 yards, 12 inches.</p> <p>Now we will try some metric system problems. Change 3.4 centimeters to millimeters. Since 1 centimeter = 10 millimeters we multiply 3.4 by 10 and find that 3.4 cm = 34 millimeters. Try some samples on your own.</p> <p><i>Do:</i> Assist students with suggestions for solutions using guide. 8.3 cm = 83 millimeters &amp; .83 decimeters, 3 cm = .3 decimeter &amp; 30 millimeters, 6 mm = .6 centimeters &amp; .06 decimeters, and 2.5 cm = .25 meter &amp; 250 millimeters.</p> <p><i>Say:</i> To convert 4 feet to the metric system, multiply 4 feet by 30 centimeters. We find that 4 feet equals 120 centimeters. We can also convert back from centimeters by dividing centimeters by 30. With that in mind, 60 centimeters would become 2 feet.</p> <p><i>Say:</i> According to environmentalists, a 200 pound man will throw away the equivalent of 600 times his weight in a lifetime. How much is that? This starts out as multiplication. Multiply 200 X 600, which equals 120000 pounds. To determine the number of tons one only needs to divide by 2000, which gives us 60 tons.</p> <p><i>Say:</i> Finally, the St. Bernard is one of the largest domestic dogs. If the dog weighs 100 kilograms and stands 70 centimeters high, what would it weigh and measure in the English system? Your first task is to change kilograms to pounds. Since 1 kilogram = 2.2 pounds you must multiply. The weight is approximately 220 pounds. Since a centimeter = 0.375 inches we multiply 70 X .375 to find that our pup is approximately 26.25 tall.</p> <p><b>Closure/Conclusion</b></p> <p><i>Say:</i> Make a list of various methods that are used to measure things. Discuss why certain standards are used by different countries for the same product or to measure a specific distance.</p> <p><b>Follow-Up Lessons/Activities</b></p> <p>Distribute realia and instruct student to create alternative modes of measurement.</p>			

### **Linear Measurement: Metric System**

10 millimeters (mm) = 1 centimeter (cm)  
10 centimeters = 1 decimeter (dm)  
10 decimeters = 1 meter (m)  
10 meters = 1 decameter (dam) or decameter (dkm)  
10 decameters = 1 hectometer (hm)  
10 hectometers = 1 kilometer (km)

### **Linear Measurement: English System**

12 inches = 1 foot  
3 feet = 1 yard

### **Basic Conversions English to Metric**

1 inch (in) = 2.54 centimeters (cm)  
1 foot (ft.) = 30 centimeters (cm)  
1 centimeter = 0.375 inches  
1 meter (m) = 39.37 inches

### **Weight: Metric System**

10 milligrams (mg) = 1 centigram (cg)  
10 centigrams = 1 decigram (dg)  
10 decigrams = 1 gram (g)  
10 grams = 1 decagram (dag) or dekagram (dkg)  
10 decagrams = 1 hectogram (hg)  
10 hectograms = 1 kilogram (kg)

### **Weight: English System**

16 ounces (oz.) = 1 pound (lb.)  
2000 pounds = 1 ton (T.)

### **Weight Conversion**

1 kilogram = 2.2 pounds

Capacity: English system

8 fluid ounces = 1 cup  
2 cups = 1 pint  
2 pints = 1 quart  
4 quarts = 1 gallon

Capacity: Metric system

1 kiloliter (kL) = 1,000 liters (L)  
1 liter = 1,000 milliliters (mL)