

GED 2002 Teachers' Handbook of Lesson Plans

Area/Skill - Math	Cognitive Skill Level - Application	Correlation to Framework - 05.03/05.16	Lesson Number - 08
<p>Activity Title - Mental Math</p> <p>Goal/Objective</p> <p>To use mental math to estimate correct answers.</p> <p>Lesson Outline</p> <p>Introduction</p> <p>Being able to figure the distance from one point to another is a task most people take for granted. People use estimation skills everyday to figure such things as how much their grocery bill is going to be at the supermarket or how long it will take them to complete a list of errands.</p> <p>Activity</p> <p>Give students a list of things to estimate. Have each student turn in his/her written estimates. Next, assign the students to determine the exact answer to the problem. Award the student with the most accurate answer(s) with being "Top Estimator of the Week." Sample exercises are provided in the <i>Estimation Calculation Activities</i>.</p> <p>Debriefing/Evaluation Activity</p> <p>Have students use estimation skills in evaluating the correctness of their answers on worksheets or practice tests. Discuss the need for mental math in both real life situations as well as in successfully completing the GED Tests.</p>		<p>Materials/Texts/Realia/Handouts</p> <ul style="list-style-type: none"> • Handout - Estimation/Calculation Activities • Newspaper Ads for Flooring, i.e. tile, carpet, etc. • Tape Measurers (inches and metric) • Scales (ounces, pounds and grams) • Calculators 	
		<p>Extension Activity</p> <p>Have students develop their own estimation/calculation activities. Give each student a 3 x 5 inch card on which to write his/her activity. Place the activity ideas in a box. Select an activity each class period to continue practice on estimation skills.</p>	
<p>Real-Life Connection</p> <p>Bring in newspaper ads that feature flooring such as carpet, tile or linoleum. Have students estimate the cost to retiler or recarpet the classroom. Students must first estimate the length and width of the classroom in order to determine the area of the room. Then using estimation, students should determine the cost per square foot as well as the cost of flooring for the entire room. Have students check their calculations by using a tape measurer and calculator. Debrief the activity through sharing real-life uses for estimation skills.</p>		<p>ESE/ESOL Accommodations</p> <ul style="list-style-type: none"> • Let students use concrete materials or manipulative to learn about mathematical concepts. • Allow students to use a calculator. • Simplify directions for solving math problems by color-coding key math points or by numbering each step of a math process. • Provide the appropriate formulas in written form for geometric problems. 	

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Activity Title – Mental Math

Introduction

Ask: How far is it from your home to school? Answers may include such things as about four miles, eight blocks, etc. *Say:* We often use estimation skills in our daily lives instead of exact calculations. Estimating the approximate mileage to places, how long it will take us to complete some task, how much our grocery bill will be based on how full our shopping cart is or the cost of the most expensive item or even how tall, wide or heavy something is are all examples of mental math. Being able to estimate things such as the distance from one point to another is something that most of us take for granted. Let's take a look at how we can use mental math in our daily lives when figuring out such things as area, perimeter or volume. Review with the students the definitions for area, perimeter and volume. Show them the formulas for figuring each of these types of problems.

Main Activity

Say: We will be working on estimation skills throughout the course of this class. *Ask:* How do you use estimation in your daily life at home and at work? Write the students' answers on the board or chart paper. *Say:* Let's see how good our skills of estimation really are. Today, we will be using some common skills of estimation. Divide the students into small groups of 3-4. Provide each student with a short list of estimations to complete. You may wish to use some of the activities on the handout *Estimation/Calculation Activities*. After the students have estimated the length, width, perimeter, area or volume of the figures, have the students share their estimations with the class. Write the different estimations for each figure on the board or chart paper. *Ask:* Do you see any similarities or differences in the estimations from each group? Next have the students accurately measure the figures and calculate the length, width, perimeter, area or volume. Write the students' answers next to their estimations. Compare the differences between the estimations and the actual calculations.

Closure/Conclusion

Ask: How will the skill of estimation be helpful when completing a timed test? Discuss how estimation skills are important not only in real life situations but also in successfully completing the GED Tests by being able to use mental math in determining the accuracy of an answer.

Follow-Up Lesson/Activities

Ask: How many of you have ever completed a "home-improvement" project? Discuss the types of math skills necessary to complete such projects as wallpapering, laying flooring, building a deck, etc. Bring in newspapers and different measuring tools. Have students estimate how much it would cost to tile the classroom floor and then accurately calculate the cost.