

GED 2002 Teachers' Handbook of Lesson Plans

Area/Skill - Math	Cognitive Skill Level - Application	Correlation to Framework - 05.10/05.16	Lesson Number - 06
<p>Activity Title Using Algebra to Solve Puzzles</p> <p>Goal/Objective</p> <p>To provide students to utilize algebraic operations to solve real life situation.</p> <p>Lesson Outline</p> <p>Introduction</p> <p>The ability to solve seemingly unsolvable problems using algebraic operations is a useful skill. Individuals are often presented with seemingly unsolvable problems that can be solved using some basic algebra.</p> <p>Activity</p> <p>Display a copy of the calendar to the class. Explain that you can pinpoint any 4-day square on the calendar using only the sum of the four days. Prompt the students to speculate on how this could be done. After allowing students to speculate, ask for a total of a four day square. Ask students to note the highlighted the squares. Write the following formula on the board or overhead: $N + N + 1 + N + 7 + N + 8 =$ Chosen total. Simplify the equation by adding like terms: $4N + 16 =$ Chosen total. Subtract 16 from both sides of the equation. Divide both sides of the equation by 4. This will produce the number in the upper left hand of the box. Plug in the numbers from the sample calendar and do the equation.</p> <p>Debriefing/Evaluation Activity</p> <p>Ask the students to explain why this works. Place a sample calendar on the board or overhead and walk students through the process. Discuss how math can represent complex tasks with numbers rather than models or actual objects.</p>		<p>Materials/Texts/Realia/Handouts</p> <ul style="list-style-type: none"> • Handout - Worksheet Math Lesson 6 • Handout - Large sample month calendar • Handout - Small sample calendar page for each student • Calculator 	
<p>Real-Life Connection</p> <p>Provide students with this scenario and instruct them to solve the problem showing all of their work.</p> <p>A faucet leaks at a rate of 1 pint every 2 hours for 4 full days. How many gallons of water leaked from this faucet?</p>		<p>Extension Activity</p> <ul style="list-style-type: none"> • Have students utilize their own sample calendar pages and try other dates. • Assign students to solve a Distance = Rate X Time problem. • Ask students to brainstorm any practical application of this formula. <p>ESE/ESOL Accommodations</p> <ul style="list-style-type: none"> • Allow students to physically use a calendar to work out the problems. • Let the student use a calculator for routine computations. • Use real-life scenarios for problem solving. 	

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<p>Activity Title - Using Algebra to Solve Puzzles</p> <p>Introduction</p> <p><i>Say:</i> Math can be used to solve many everyday problems. Many things that cannot be physically measured or represented by other means can be measured and represented by numbers. Complex multi-step problems can also be broken into small operations and solved by several mathematical operations. We will introduce this concept by having a bit of fun by doing the seemingly impossible.</p> <p>Main Activity</p> <p>Distribute sample calendar pages to each class member.</p> <p><i>Say:</i> I would like someone to select four adjacent dates on the page that form a square. Add these four dates together and tell me the total only. I will now compute the square you have chosen using math.</p> <p>Allow students to select one total and provide some time to speculate if it can really work. After a total number is agreed upon continue.</p> <p><i>Say:</i> You have chosen the total of 4 calendar dates as (insert number). I will now write a formula on the board using that number as the solution. Write this formula . $N + N + 1 + N + 7 + N + 8 =$ (insert number). Simplify the equation by adding like terms - $4N + 16 =$ (insert number). Subtract 16 from both sides of the equation.</p> <p>Divide both sides of the equation by 4.</p> <p>This will produce the correct number in the upper left hand of the box. Display a copy of the student calendar page and show that you have correctly computed the result.</p> <p><i>Say:</i> At this time we will plug in the numbers from the sample calendar and do the equation.</p> <p>Closure/Conclusion</p> <p><i>Say:</i> Math can solve a variety of seemingly unsolvable problems. During the next few days be aware of all the ways you solve problems in your daily life.</p> <p>Follow-Up Lessons/Activities</p> <p><i>Say:</i> You have a leaky faucet in your sink. The faucet leaks at a rate of 1 pint every 2 hours for 4 full days. How many gallons of water did this leak waste? This is a multi-step problem using several operations.</p> <p>Divide the class into small work groups and instruct each group to solve the problem After each group has completed their work, ask a representative to explain how they solved the problem. <i>Say:</i> At this time I would like to walk everyone through the problem once more using the worksheet. Display worksheet and solve problem together.</p> <p>For an extension activity, ask the class to consider how they could use math operations to figure out problems such as how far a car can go if it is traveling 60 mph for 2.5 hours. Suggest that the class use the formula of Distance = Rate X Time.</p>			

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

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Math Lesson Plan 6 Worksheet

A faucet leaks at a rate of 1 pint every 2 hours for 4 full days. How many gallons of water leaked from this faucet?

Break down the problem into steps.

- Determine how many 2-hour periods are in 4 full days.
- Multiple 24 X 4 to determine the total number of hours.
- Divide this total by 2 to determine the total number of 2-hour units
- Multiple this answer by 1 pint, which will yield the number of total pints.
- Divide the total number of pints by 8 to determine total number of gallons.
 - $24 \times 4 = 96$ hours
 - $96 / 2 = 48$ 2-hour units
 - $48 \times 1 = 48$ Pints total
 - $48 / 8 = 6$ Gallons total