



WORK BACKWARD		
UNDERSTAND	<b>Definition</b>	Students start with the solution to a problem and, using their knowledge of inverse operations, check their work for accuracy.
	<b>When to Teach This Strategy</b>	Teach this strategy when students have arrived at a solution but are unsure whether they have made a mistake in their calculations. This strategy helps them check that the work they have done makes sense and is accurate.
PREPARE	<b>Why We Teach It</b>	Mathematically proficient students understand that accuracy is important when solving math problems. This strategy supports students with checking their solution.
	<b>Secrets to Success</b>	For students to be successful with this strategy they must be able to <ul style="list-style-type: none"><li>• visualize the problem or draw a picture,</li><li>• successfully write and solve equations, and</li><li>• have a solid understanding of inverse operations.</li></ul>
TEACH	<b>How We Teach It</b>	Modeling a think-aloud during the “I Do” focus lesson:  Explain to students that they are going to learn a math strategy that will help them check their work once they have arrived at a solution.  We use this strategy when we’ve found a solution to make sure we didn’t make any mistakes in our calculations. This helps us check our work for accuracy.  Working backward looks like this:  First, read through the problem. Then ask yourself what the problem is asking you to do. Consider which method you will use to find a solution. Once you’ve solved the problem, you will start with the solution and use your knowledge of inverse operations to make sure the work you did to arrive at your solution is accurate, which means free of mistakes.  Example: <i>Let’s say my problem is <math>17 + 4 = \underline{\quad}</math>. When I solve this problem, I find the solution to be 21. To work backward, I will begin with the solution, 21. I need to reorder the problem and use subtraction, because it is the opposite (<b>inverse</b>) operation of addition. If I work backward, I see that the problem could be <math>21 - 4 = 17</math> or <math>21 - 17 = 4</math>. Because these solutions match the original addends (the numbers I added together in the original problem), I know my work is accurate.</i>  After modeling this strategy three or four times with several different math problems, we provide students with chances to practice during the “We Do” focus lesson. Students practice the strategy Work Backward using several different types of math problems.
		<b>Suggested Language</b> <ul style="list-style-type: none"><li>• <i>What is the problem asking me to solve? Start with your solution to the problem. Now work backward, using the opposite (inverse) operations you used before to see that your answer makes sense.</i></li></ul>

<b>SUPPORT</b>	<b>Instructional Pivots</b>	<ul style="list-style-type: none"> <li>• Teach students how to reverse the problem using inverse operations.</li> </ul>
	<b>Partner Strategies</b>	<p>These strategies may provide support before, during, and after teaching this strategy:</p> <ul style="list-style-type: none"> <li>• Draw a Picture</li> <li>• Estimate</li> <li>• Use a Math Formula</li> <li>• Think Aloud</li> <li>• Look for a Pattern</li> <li>• Create an Organized List</li> <li>• Monitor and Adjust</li> </ul>

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