



Plan & Analyze

Make Sense of the Problem

What is this problem asking me to do/solve?

WRITE AN EQUATION		
UNDERSTAND	Definition	Students use the information in a given problem to build an expression or equation that will help them find the solution.
	When to Teach This Strategy	<p>If you see students who . . .</p> <ul style="list-style-type: none"> consistently display a proficient understanding of a mathematical concept regularly identify an equation as a strategy for solving, but choose a different method for solving that is not as efficient
PREPARE	Why We Teach It	<p>Mathematically proficient students understand that math problems generally have multiple entry points; that is, there is more than one way to arrive at the solution. Looking for symbols and patterns helps students make sense of the problem and find an entry point to the solution.</p> <p>One word of caution: <i>Efficient</i> does not necessarily mean <i>fast</i>.</p>
	Secrets to Success	For this strategy to work, students must first recognize that there are multiple ways to solve a given problem. Then, they must understand that although a problem can be solved using multiple strategies, some of those strategies waste little or no time. We call these <i>efficient strategies</i> . Writing an equation is an efficient strategy.
TEACH	How We Teach It	<p>Writing an equation is one that we model throughout the school year. Students who are proficient mathematicians understand the importance of using an efficient strategy to arrive at a solution. As students develop a deep understanding of a mathematical concept, they will naturally progress from a concrete model as a method for solving to a more abstract model (such as an equation).</p> <ul style="list-style-type: none"> Modeling a think-aloud during the “I Do” Focus Lesson: “We stop after reading through a given math problem and ask ourselves, <i>What is this problem asking me to solve?</i> Then, <i>What are some ways in which I could solve this problem?</i>” (Think aloud about the various strategies you could possibly use.) “Once you have identified a few different ways that you would solve the problem, ask, <i>Which of these strategies would use the least amount of time (that is, be the most efficient)?</i>” (Select the strategy where you write an equation to solve, modeling how you knew it would be the most efficient strategy.) After modeling this strategy three or four times with several different types of math problems, we provide student practice during the “We Do” focus lesson by using several more math problems. We have students practice answering the questions <i>What are some ways in which I could solve this problem?</i> And, <i>Which of these strategies would use the least amount of time (that is, be the most efficient)?</i>
		<p>Suggested Language</p> <ul style="list-style-type: none"> What are some ways in which I could solve this problem? Which strategy would use the least amount of time (be the most efficient)? What is the question I need to answer? What do I already know about this problem? What do I still need to find out to solve this problem? Have I solved a problem like this before?
SUPPORT	Instructional Pivots	Give students an organizer to help them map out their thinking. (<i>What are some ways in which I could solve this problem? Which strategy would use the least amount of time—that is, be the most efficient?</i>) This student work can be used as a launching point for discussion or reteaching during individual or small-group conferring sessions.
	Partner Strategies	<p>These strategies may provide support before, during, and after teaching this strategy:</p> <ul style="list-style-type: none"> Check for Understanding: Restate the Problem Write an Equation Make a Connection Use Manipulatives Look for Symbols or Patterns to Help You Break Down the Problem