# Where to find Problem Solving Strategies(Heuristics) in PR1ME and Math Pro

SCHOLASTIC PR1ME Mathematics — SCHOLASTIC MATH PRO
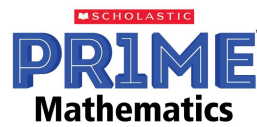
| | Strategy | PR1ME 1 | PR1ME 2 | PR1ME 3 | PR1ME 4 | PR1ME 5 | PR1ME 6 |
|---|---|---|---|---|---|---|---|
| **Use a representation** | **Draw a Picture**<br>Most commonly use when:<br>* The problem involves spatial relationships or geometry.<br>* Visual representation can simplify the problem.<br>* Students need to understand the layout or arrangement of elements.<br>* Situations where objects are being compared or placed in a specific order. | Chapters 5, 6, 10, 11, 13, 14, 16, 20 | Chapters 1, 3, 6, 7, 8, 10A, 12, 13, 16 | Chapters 4, 12 | Chapters 6, 6A, 14, 15 | Chapters 3A, 12, 14A, 15, 16, 16B | Chapters 10, 14, 14A, 14B |
| | **Draw a Bar Model**<br>Most commonly used when:<br>* The problem involves parts, wholes, or comparisons.<br>* Visualizing the problem helps students see relationships.<br>* Situations require a model to organize information.<br>* Fraction, ratio, or proportional reasoning problems benefit from visualization. | | Chapters 4, 11, 15 | Chapters 2, 7, 9, 10, 12A | Chapters 2, 3, 5, 6B | Chapters 3, 3A, 11, 14, 16, 17 | Chapters 2, 4A, 5, 7, 11, 12, 13, 16, 18, 18A, 18B |
| | **Make a List**<br>Most commonly use when:<br>* There are multiple possible solutions or combinations.<br>* The problem involves organizing information systematically.<br>* Enumeration of possibilities can lead to the solution.<br>* Listing out possible outcomes in probability problems. | Chapters 17, 19 | Chapters 1, 2, 8, 10 | Chapters 4, 12, 13 | Chapters 6, 6A, 6B, 9, 10, 11, 13 | Chapters 8, 14A, 17 | Chapters 1, 4, 8, 12, 14 |
| | **Form an Equation**<br>Most commonly used when:<br>* The problem can be represented with variables and relationships.<br>* A mathematical expression or formula can simplify the solution.<br>* Solving for an unknown is central to the problem.<br>* Algebraic manipulation provides a straightforward solution. | | | | | | Chapters 17, 18A |
| **Make a calculated guess** | **Guess and Check**<br>Most commonly use when:<br>* The solution can be verified easily.<br>* There are a limited number of possible solutions.<br>* Students can use trial and error to narrow down the correct answer.<br>* Problems with numerical solutions that can be quickly calculated. | Chapters 7, 9, 10, 14, 15A, 16, 17, 18 | Chapters 3, 4, 6, 8, 9, 11 | Chapters 2, 3, 5, 9, 11 | Chapters 2, 3, 12 | Chapters 2, 7, 8, 9, 10, 12, 16 | Chapters 3A, 4A, 8, 9, 12 |
| | **Look for a Pattern**<br>Most commonly use when:<br>* The problem involves sequences or recurring relationships.<br>* Identifying regularities can simplify the problem-solving process.<br>* Students need to predict future outcomes based on observed patterns.<br>* Number patterns, such as arithmetic or geometric sequences.<br>* Problems involving growth patterns or repeated operations. | Chapters 7, 19 | Chapters 10, 10A, 16, 17 | Chapters 3, 4, 8 | Chapter 1 | | Chapters 3, 4, 6 |
| | **Make a Supposition**<br>Most commonly use when:<br>* The problem requires assuming to simplify the solution process.<br>* Hypotheses can lead to generalizations or insights.<br>* Students need to explore different scenarios or conditions.<br>* Algebraic problems where assuming a variable can simplify calculations.<br>* Situations where testing different hypotheses can lead to the correct solution. | | Chapters 2, 11 | Chapters 7, 12A | | Chapter 4 | Chapters 14A, 18 |
| | **Use Logical Reasoning**<br>Most commonly used when:<br>* The solution involves deductive thinking or elimination of possibilities.<br>* Students need to identify relationships or dependencies.<br>* Situations require step-by-step analysis to reach a conclusion.<br>* Problems involving "if-then" statements or logical sequences. | Chapters 9, 14, 15A, 17, 18 | Chapters 3, 5, 9, 13, 15 | Chapters 1, 7, 11, 13 | Chapters 3, 6, 6A, 7, 9, 10, 11, 12 | Chapters 1, 2, 4, 6, 8, 9, 14A, 16B | Chapters 1, 3, 3A, 4A, 5, 6, 13, 14, 14A, 14B, 18, 18A, 18B |
| **Walk through the process** | **Act it Out**<br>Most commonly use when:<br>* The problem involves dynamic processes or actions.<br>* Physical representation can help understand the problem.<br>* Students benefit from kinesthetics learning.<br>* Situations where role-playing can illustrate the problem. | Chapters 5, 8, 11, 16, 20 | Chapters 5, 7, 12, 17 | Chapters 13, 14 | Chapters 8, 13, 14 | Chapters 5, 7, 12, 15, 15A, 16A | Chapters 9, 10 |
| | **Work Backwards**<br>Most commonly use when:<br>* The problem provides the final outcome, and students need to determine the starting point.<br>* The solution involves reversing a series of steps or operations.<br>* Students need to trace back through the problem to find the answer.<br>* Problems involving reverse calculations, such as finding original values given final results.<br>* Situations where the end result is known, but the steps to reach it need to be discovered. | Chapter 18 | Chapters 2, 3, 9 | Chapters 2, 5, 9, 10 | Chapters 2, 3, 5 | Chapters 3, 3A, 10 | Chapters 8, 10, 18, 18B |
| **Change the problem** | **Restate the Problem in a Different Way**<br>Most commonly used when:<br>* The wording or context of the problem may be confusing.<br>* Simplifying language can help clarify the requirements.<br>* Translating the problem into students' own words improves understanding.<br>* Problems with complex instructions or layered information. | Chapters 11, 13 | | | | Chapter 14A | Chapter 3 |
| | **Solve Part of the Problem**<br>Most commonly used when:<br>* The solution can be found step-by-step by solving smaller parts first.<br>* Breaking the problem into sections is necessary for clarity.<br>* Situations where each solution leads to a new part of the problem.<br>* Multi-step problems or real-world scenarios. | Chapters 5, 7, 8, 10 | Chapter 9 | Chapters 3, 11, 14 | Chapters 6B, 7, 8, 9, 11, 12, 15 | Chapter 4 | Chapters 4A, 5, 6, 9, 14A, 17, 18B |
| | **Simplify the Problem**<br>Most commonly used when:<br>• The problem can be broken down into smaller, more manageable parts.<br>• Reducing complexity can reveal underlying patterns or insights.<br>• An easier version of the problem can provide clues for solving the full problem.<br>• Large numbers or complex expressions are involved. | | | | | Chapters 5, 6, 16 | Chapter 16 |