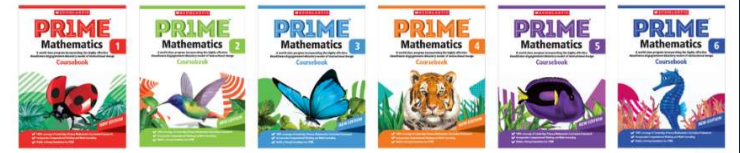


Where to find Problem Solving Strategies(Heuristics) in PR1ME and Math Pro



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