

CCSSM Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them

- ✎ Explain the meaning of a problem
- ✎ Describe possible approaches to a solution
- ✎ Consider similar problems to gain insights
- ✎ Use concrete objects or illustrations to think about and solve problems
- ✎ Monitor and evaluate their progress and change strategy if needed
- ✎ Check their answers using a different method

2. Reason abstractly and quantitatively

- ✎ Explain the relationship between quantities in problem situations
- ✎ Represent situations using symbols (e.g., writing expressions or equations)
- ✎ Create representations that fit the problem
- ✎ Use flexibly the different properties of operations and objects

3. Construct viable arguments and critique the reasoning of others

- ✎ Understand and use assumptions, definitions, and previous results to explain or justify solutions
- ✎ Make conjectures by building a logical set of statements
- ✎ Analyze situations and use counterexamples
- ✎ Justify conclusions in a way that is understandable to teachers and peers
- ✎ Compare two possible arguments for strengths and weaknesses

4. Model with mathematics

- ✎ Apply mathematics to solve problems in everyday life
- ✎ Make assumptions and approximations to simplify a problem
- ✎ Identify important quantities and use tools to map their relationships
- ✎ Reflect on the reasonableness of their answer based on the context of the problem

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5. Use appropriate tools strategically

- ✎ Consider a variety of tools and choose the appropriate tool (e.g., manipulative, ruler, technology) to support their problem solving
- ✎ Use estimation to detect possible errors
- ✎ Use technology to help visualize, explore, and compare information

6. Attend to precision

- ✎ Communicate precisely using clear definitions and appropriate mathematics language
- ✎ State the meanings of symbols
- ✎ Specify appropriate units of measure and labels of axes
- ✎ Use a degree of precision appropriate for the problem context

7. Look for an make use of structure

- ✎ Explain mathematical patterns or structures
- ✎ Shift perspective and see things as single objects or as composed of several objects
- ✎ Explain why and when properties of operations are true in a context

8. Look for and express regularity in repeated reasoning

- ✎ Notice if calculations are repeated and use information to solve problems
- ✎ Use and justify the use of general methods or shortcuts
- ✎ Self-assess to see whether a strategy makes sense as they work, checking for reasonableness prior to getting the answer

Van de Walle, Karp, & Bay-Williams (2013). *Elementary and Middle School Mathematics: Teaching Developmentally – Professional Development Edition*.

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