

Questions to Develop Mathematical Thinking Based on Standards for Mathematical Practice

Standard 1: Make sense of problems and persevere in solving them.

- How would you describe the problem in your own words?
- What information is given in the problem?
- What are some other strategies you might try?

Standard 2: Reason abstractly and quantitatively.

- What do the numbers in the problem represent?
- What is the relationship of the quantities?
- What properties might we use to find a solution?

Standard 3: Construct viable arguments and critique the reasoning of others.

- What mathematical evidence would support your solution?
- How did you decide to try that strategy?
- Did you try another method that did not work? Why didn't it work? Would it ever work? Why or why not?

Standard 4: Model with mathematics

- What number model could you construct to represent the problem?
- How would it help to create a diagram, graph, table ... ?
- What formula might apply in this situation?

Standard 5: Use appropriate tools strategically.

- What mathematical tools could we use to visualize and represent the situation?
- In this situation would it be helpful to use ... a graph ..., number line ..., ruler ..., diagram ..., calculator ..., manipulative? Why was it useful to use?
- What can using a ___ show us that ___ may not?

Standard 6: Attend to precision.

- Explain how you might show that your solution answers the problem.
- What symbols or mathematical notations are important in this problem?
- How could you test your solution to see if it answers the problem?

Standard 7: Look for and make use of structure.

- What ideas that we have learned before were useful in solving this problem?
- What are some other problems that are similar to this one? How does this relate to ...?
- In what ways does this problem connect to other mathematical concepts?

Standard 8: Look for and express regularity in repeated reasoning.

- Explain how this strategy works in other situations?
- What predictions or generalizations can this pattern support?
- What mathematical consistencies do you notice?