

Standards for Mathematical Practice “Look Fors”

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SMP.1: Make sense of problems and persevere in solving them.	
The Student:	The Teacher:
<ul style="list-style-type: none"> • Analyzes information given • Looks for different ways to solve the problem (i.e. situation vs. solution) • Knows and uses different representations (i.e. equation vs. table or graph) and/or manipulative • Evaluates progress and changes plan if needed • Explains using both pictures and words • Makes connection to the way they solved the problem and how others solved the problem • Uses basic fact fluency or fact strategies 	<ul style="list-style-type: none"> • Promotes visible thinking using pictures and equations • Gives time for students to discuss with others or class • Encourages students to keep trying and builds supportive math community • Uses explicit and precise language when using representations and definitions and expects students to do the same in their discussions • Helps students make connections between representations, equations, and student thinking • Engages students in metacognition • Models problem situation, not problem solution.
SMP.2: Reason abstractly and quantitatively.	
The Student:	The Teacher:
<ul style="list-style-type: none"> • Makes sense of quantities and their relationship in problem situations • Recognizes that quantities can be represented in different ways • Uses numbers and words to make sense of a problem • Gives attention to the meaning of the numbers and knows which operation to choose • Performs operations flexibly, accurately, and efficiently • Uses multiple representations • Connects numbers, symbols or units to quantities • Justifies solutions • Makes connections to how they solved a problem and how others solved the problem • Reasons with attributes of geometric figures 	<ul style="list-style-type: none"> • Promotes visible thinking using pictures and equations • Uses physical representations (manipulatives, drawings) to model what happens to a variable when it changes and how that effects the other variable • Gives time for students to discuss with others or class • Encourages students to keep trying • Uses explicit and precise language when using representations and definitions and expects students to be the same in their discussion • Builds a supportive math community • Helps make connections between representations, equations, student thinking, and content standard
SMP.3: Construct viable arguments and critique the reasoning of others.	
The Student:	The Teacher:
<ul style="list-style-type: none"> • Communicates by using mathematical reasoning with objects, drawings, diagrams, equations ... • Justifies solutions • Makes connections between their own thinking and that of others • Demonstrates actively listening by asking questions of others • Makes statements to prove or disprove concepts or presented ideas • Students understand different forms of reasoning (ie. deductive reasoning) and when to apply them • Uses accurate vocabulary 	<ul style="list-style-type: none"> • Promotes math talk and the critiquing of presented solutions • Asks higher-order questions to facilitate discussion and presses for justification • Gives time for students to construct their own ideas before small or large group discussions • Expects students to be explicit and precise when using representations, definitions, and symbols • Builds a supportive math community • Helps make connections between the reasoning of students and content standard
SMP.4: Model with mathematics	
The Student:	The Teacher:
<ul style="list-style-type: none"> • Identifies important elements and quantities needed for a model • Describes relationships of models and equation • Chooses a representation • Applies formulas/equations • Uses models to draw conclusion • Explains why it is a good model for the problem • Recognizes and uses parts of a graph (i.e. title, labels, symbols, key) 	<ul style="list-style-type: none"> • Expects students to justify their choice in models • Gives students opportunity to evaluate the appropriateness of their model and that of others • Helps make connections with the relationships between representation, equation, answer, student thinking, and content standard

SMP.5: Use appropriate tools strategically.**The Student:**

- Uses mental computations fluently
- Knows which tools are appropriate for the task
- Knows when to use a tool
- Understands and uses properties of operations
- Uses estimation to find errors and check answer for reasonableness
- Justifies tool selection

The Teacher:

- Allows students to choose appropriate learning tools
- Uses appropriate tools to represent, explore and deepen student understanding
- Models how different representations are tools
- Uses technology tools to deepen students' understanding of a concept
- Helps make connections between tool, equation, student thinking, and content standard

MP.6: Attend to precision.**The Student:**

- Uses appropriate math vocabulary
- Uses clear definitions in discussion
- Calculates accurately and efficiently
- Explains their reasoning with accurate mathematical language
- Uses proper unit labels with measuring
- Uses appropriate labels when graphing and solving story problems
- Determines when different levels of precision are needed and how precision affects results

The Teacher:

- Communicates precisely using clear definitions
- Emphasizes the importance of precise communication
- Emphasizes the importance of precision of measurement
- Helps make connections between vocabulary, student thinking, unit labels, calculations, and content standard

MP.7: Look for and make use of structure.**The Student:**

- Recognizes that quantities can be represented in different ways
- Uses properties of operations to make sense of problems
- Recognizes how numbers and shapes are organized
- Looks for patterns and structures in the number system
- Justify strategy for basic facts
- Uses models to prove equations
- Recognize how symbols help represent relationships and can be applied to new situations

The Teacher:

- Gives students time to discuss connections
- Brings students back to the rule or properties being used
- Helps students look for patterns and structures in the number system
- Helps make connections between the structure used, equation, student thinking, and content standard
- Helps make connections to real world

MP #8: Look for and express regularity in repeated reasoning.**The Student:**

- Notices number patterns
- Notices if calculations are repeated
- Applies more efficient computation strategies using number patterns
- Looks both for general methods and for shortcuts

The Teacher:

- Encourages students to connect task to prior concepts taught
- Helps make connections between pattern, equation, student thinking, and content standard