

Mathematical Process Skills -“Student Look-fors” Recording Form

Name: _____

Date: _____

Time: _____

Process Skill	Notes
1- Mathematical Problem Solving	
<ul style="list-style-type: none"> <input type="checkbox"/> Understand the meaning of the problem and look for entry points to its solution <input type="checkbox"/> Analyze information (givens, constrains, relationships, goals) <input type="checkbox"/> Make conjectures and plan a solution pathway <input type="checkbox"/> Monitor and evaluate the progress and change course as necessary <input type="checkbox"/> Check answers to problems and ask, “Does this make sense?” 	
2- Mathematical Communication	
<ul style="list-style-type: none"> <input type="checkbox"/> Use definitions and previously established causes/effects (results) in constructing arguments <input type="checkbox"/> Make conjectures and use counterexamples to build a logical progression of statements to explore and support their ideas <input type="checkbox"/> Communicate and defend mathematical reasoning using objects, drawings, diagrams, actions <input type="checkbox"/> Listen to or read the arguments of others <input type="checkbox"/> Decide if the arguments of others make sense and ask probing questions to clarify or improve the arguments 	
3- Mathematical Reasoning	
<ul style="list-style-type: none"> <input type="checkbox"/> Make sense of quantities and relationships in problem situations <input type="checkbox"/> Represent abstract situations symbolically and understand the meaning of quantities <input type="checkbox"/> Create a coherent representation of the problem at hand <input type="checkbox"/> Consider the units involved <input type="checkbox"/> Flexibly use properties of operations 	
4- Mathematical Connections	
<ul style="list-style-type: none"> <input type="checkbox"/> Look for patterns or structure, recognizing that quantities can be represented in different ways <input type="checkbox"/> Recognize the significance in concepts and models and use the patterns or structure for solving related problems <input type="checkbox"/> View complicated quantities both as single objects or compositions of several objects and use operations to make sense of problems <input type="checkbox"/> Notice repeated calculations and look for general methods and shortcuts <input type="checkbox"/> Continually evaluate the reasonableness of intermediate results (comparing estimates) while attending to details and make generalizations based on findings 	

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5- Mathematical Representation

- Apply prior knowledge to solve real world problems
- Identify important quantities and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas
- Make assumptions and approximations to make a problem simpler
- Check to see if an answer makes sense within the context of a situation and change a model when necessary

6- Use appropriate tools strategically

- Make sound decisions about the use of specific tools.
Examples might include:
 - Calculator
 - Concrete models
 - Digital Technology
 - Pencil/paper
 - Ruler, compass, protractor
- Use technological tools to visualize the results of assumptions, explore consequences and compare predications with data
- Identify relevant external math resources (digital content on a website) and use them to pose or solve problems
- Use technological tools to explore and deepen understanding of concepts

7- Mathematical Precision

- Communicate precisely using clear definitions
- State the meaning of symbols, carefully specifying units of measure, and providing accurate labels
- Calculate accurately and efficiently, expressing numerical answers with a degree of precision
- Provide carefully formulated explanations
- Label accurately when measuring and graphing

Adapted from Common Core State Standards for Mathematics: Standards for Mathematical Practice and Jon Wray's work in Maryland

Additional comments based on observed learning: