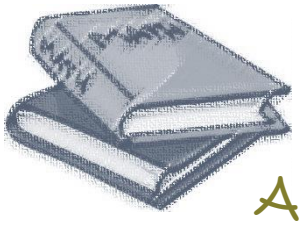
MATHEMATICAL PRACTICES

COMMON CORE STANDARDS

~STANDARD~
MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM



Explain the meaning of a problem and restate it in their words.

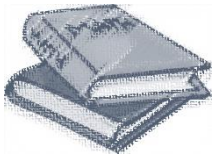
Analyze given information to develop possible strategies for solving the problem.

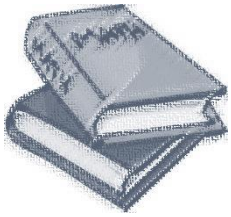
Identify and execute appropriate strategies to solve the problem.

Evaluate progress toward the solution and make revisions if necessary.

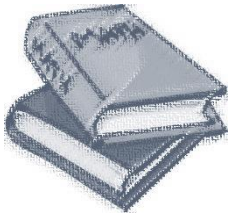
Check for accuracy and reasonableness of work, strategy, and solution.

Understand and connect strategies used by others to solve problems.





STANDARD SCORING RUBRIC
MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM



Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to make sense of problems and/or did not complete the problem.	Student showed some understanding of how to makes sense of a problem, but lacked significant knowledge on how to complete the problem.	Student showed an understanding of how to make sense of the problem and persevered in solving it.	Student clearly showed an understanding of how to make sense of the problem and included extensive details as to how the problem was solved.

- Explain the meaning of a problem and restate it in their words.
- Analyze given information to develop possible strategies for solving the problem.
- Identify and execute appropriate strategies to solve the problem.
- Evaluate progress toward the solution and make revisions if necessary.
- Check for accuracy and reasonableness of work, strategy and solution.
- Understand and connect strategies used by others to solve problems.

Comments:

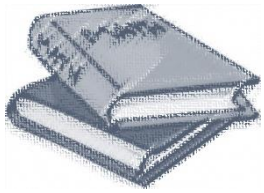
~STANDARD~
REASON ABSTRACTLY AND QUANTITATIVELY

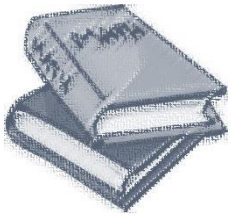
Translate given information to create a mathematical representation for a concept.

Manipulate the mathematical representation by showing the process considering the meaning of the quantities involved.

Recognize the relationships between numbers/quantities within the process to evaluate a problem.

Review the process for reasonableness within the original context.





STANDARD SCORING RUBRIC
REASON ABSTRACTLY AND QUANTITATIVELY

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to reason abstractly or quantitatively.	Student showed some understanding of how to reason abstractly and/or quantitatively but lacked significant knowledge.	Student showed an understanding of how to reason abstractly and quantitatively.	Student clearly showed an understanding of how to reason abstractly and quantitatively and extended thinking beyond expectations.

- Translate given information to create a mathematical representation for a concept.
- Manipulate the mathematical representation by showing the process considering the meaning of the quantities involved.
- Recognize the relationships between numbers/quantities within the process to evaluate a problem.
- Review the process for reasonableness within the original context

Comments:

~STANDARD~
CONSTRUCT VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS

Use observations and prior knowledge (stated assumptions, definitions, and previous established results) to make conjectures and construct arguments.

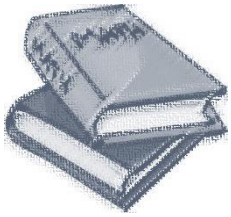
Compare and contrast logical arguments and identify which ones make the most sense.

Justify (orally and in written form) the approach used, including how it fits in the context from which the data arose.

Listen, understand, analyze, and respond to the arguments of others.

Identify and explain both correct and flawed logic.

Recognize and use counter examples to refine assumptions or definitions and dispute or disprove an argument.



STANDARD SCORING RUBRIC
CONSTRUCT VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to construct viable arguments and critique the reasoning of others.	Student showed some understanding of how to construct viable arguments and critique the reasoning of others.	Student showed an understanding of how to construct viable arguments and critique the reasoning of others.	Student clearly showed an understanding of how to construct viable arguments and critique the reasoning of others and extended thinking beyond expectations.

- Use observations and prior knowledge (stated assumptions, definitions, and previous established results) to make conjectures and construct arguments.
- Compare and contrast logical arguments and identify which ones make the most sense.
- Justify (orally and in written form) the approach used, including how it fits in the context from which the data arose.
- Listen, understand, analyze, and respond to the arguments of others.
- Identify and explain both correct and flawed logic.
- Recognize and use counterexamples to refine assumptions or definitions and dispute or disprove an argument

Comments:

~STANDARD~
MODEL WITH MATHEMATICS

Use a variety of methods to model, represent, and solve real-world problems.

Simplify a complicated problem by making assumptions and approximations.

Interpret results in the context of the problem and revise the model if necessary.

Choose a model that is both appropriate and efficient to arrive at one or more desired solutions.

STANDARD SCORING RUBRIC
MODEL WITH MATHEMATICS

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to model with mathematics.	Student showed some understanding of how to model with mathematics.	Student showed an understanding of how to model with mathematics.	Student clearly showed an understanding of how to model with mathematics and extended thinking beyond expectations.

- Use a variety of methods to model, represent, and solve real-world problems.
- Simplify a complicated problem by making assumptions and approximations.
- Interpret results in the context of the problem and revise the model if necessary.
- Choose a model that is both appropriate and efficient to arrive at one or more desired solutions.

Comments:

~STANDARD~
USE APPROPRIATE TOOLS STRATEGICALLY

Identify mathematical tools and recognize their strengths and weaknesses.

Select and use appropriate tools to best model/solve problems.

Use estimation to predict reasonable solutions and/or detect errors.

Identify and successfully use external mathematical resources to pose or solve problems.

Use a variety of technologies, including digital content, to explore, confirm, and deepen conceptual understanding.

STANDARD SCORING RUBRIC
USE APPROPRIATE TOOLS STRATEGICALLY

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to use appropriate tools strategically.	Student showed some understanding of how to use appropriate tools strategically.	Student showed an understanding of how to use appropriate tools strategically.	Student clearly showed an understanding of how to use appropriate tools strategically and extended thinking beyond expectations.

- Identify mathematical tools and recognize their strengths and weaknesses.
- Select and use appropriate tools to best model/solve problems.
- Use estimation to predict reasonable solutions and/or detect errors.
- Identify and successfully use external mathematical resources to pose or solve problems.
- Use a variety of technologies, including digital content, to explore, confirm, and deepen conceptual understanding.

Comments:

~STANDARD~
ATTEND TO PRECISION

Understand symbols and use them consistently within the context of a problem.

Calculate answers efficiently and accurately and label them appropriately.

Formulate precise explanations (orally and in written form) using both mathematical representations and words.

Communicate using clear mathematical definitions, vocabulary, and symbols.

STANDARD SCORING RUBRIC
ATTEND TO PRECISION

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to attend to precision.	Student showed some understanding of how to attend to precision.	Student showed an understanding of how to attend to precision.	Student clearly showed an understanding of how to attend to precision and extended thinking beyond expectations.

- Understand symbols and use them consistently within the context of a problem.
- Calculate answers efficiently and accurately and label them appropriately.
- Formulate precise explanations (orally and in written form) using both mathematical representations and words.
- Communicate using clear mathematical definitions, vocabulary, and symbols.

Comments:

~STANDARD~
LOOK FOR AND MAKE USE OF STRUCTURE

Look for, identify, and accept patterns or structure within relationships.

Use patterns or structure to make sense of mathematics and connect prior knowledge to similar situations and extend to novel situations.

Analyze a complex problem by breaking it down into smaller parts.

Reflect on the problem as a whole and shift perspective as needed.

STANDARD SCORING RUBRIC
LOOK FOR AND MAKE USE OF STRUCTURE

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to look for and make use of structure.	Student showed some understanding of how to look for and make use of structure.	Student showed an understanding of how to look for and make use of structure.	Student clearly showed an understanding of how to look for and make use of structure beyond expectations.

- Look for, identify, and accept patterns or structure within relationships.
- Use patterns or structure to make sense of mathematics and connect prior knowledge to similar situations and extend to novel situations.
- Analyze a complex problem by breaking it down into smaller parts.
- Reflect on the problem as a whole and shift perspective as needed.

Comments:

~STANDARD~
LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING

Recognize similarities and patterns in repeated trials with a process.

Generalize the process to create a shortcut which may lead to developing rules or creating a formula.

Evaluate the reasonableness of results throughout the mathematical process while attending to detail.

STANDARD SCORING RUBRIC
LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING

Student _____ Date _____

Minimal	Basic	Proficient	Advanced
Student showed no understanding of how to look for and express regularity in repeated reasoning.	Student showed some understanding of how to look for and express regularity in repeated reasoning.	Student showed an understanding of how to look for and express regularity in repeated reasoning.	Student clearly showed an understanding of how to look for and express regularity in repeated reasoning beyond expectations.

- Recognize similarities and patterns in repeated trials with a process.
- Generalize the process to create a shortcut which may lead to developing rules or creating a formula.
- Evaluate the reasonableness of results throughout the mathematical process while attending to detail.

Comments: