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| **COMMON CORE FOR MATHEMATICS, K-12** |
| **Common Core Standard** | **Overarching Understanding** | **Overarching Question** |
| *Make sense of problems and persevere in solving them.* | * Mathematicians analyze givens, constraints, and relationships in order to make sense of and solve problems.
 | * How do I use the language of math (i.e. symbols, words) to make sense of/solve a problem?
* What do I already know? What do I still need to find out? How do I get there? What do I do when I get stuck?
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| *Reason abstractly and quantitatively.* | * Math is a language of patterns and relationships that can be generalized to a range of given situations and problems.
 | * How do we use symbolic representations to apply and extend patterns and relationships?
* What mathematical symbols, language and materials should we use to communicate with others about numbers and number relationships?
* Why generalize a relationship/pattern?
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| *Construct viable arguments and critique the reasoning of others.* | * Mathematicians make conjectures and build a logical progression of statements to explore the truth of their conjectures.
* The soundness of a mathematical argument is grounded in the application and articulation of theorems, postulates, rules and/or properties that led to the given conclusion.
* Mathematicians examine and critique arguments of others to determine validity.
 | * What makes a mathematical argument/conjecture/ true?
* How do I construct an effective (mathematical) argument?
* How do I develop a conjecture/rule (to represent this pattern, situation, context)?
* How do I prove something?
* Is the argument valid?
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| *Model with mathematics.* | * Mathematical models can be used to interpret and predict the behavior of real world phenomena being clear about the limitations of that model.
* Mathematicians create models to interpret and predict the behavior of real world phenomena being clear about the limitations of that model.
* Recognizing the predictable patterns in mathematics allows the creation of functional relationships.
 | * What do we use in addition to mathematical modeling to accurately predict results?
* To what extent can we model and analyze change?
* How reliable are predictions?
* When does the model work (or not work)?
* What makes a pattern? How do I find it? How do I show it? Does it always work?
* How do I create a mathematical model?
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| *Use appropriate tools strategically.* | * Mathematicians use a variety of tools to analyze and solve problems and explore concepts.
* Estimating the answer to a problem helps mathematicians predict and evaluate the reasonableness of a solution.
 | * What is an effective tool/technology to solve the problem or understand the concept?
* Does my answer/solution make sense?
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| *Attend to precision.* | * Clear and precise notation enables effective communication and comprehension.
* Level of accuracy is determined based on the context/situation.

  | * How do I show my math thinking?
* How do I effectively represent quantities and relationships through mathematical notation?
* How accurate do I need to be? What’s at stake?
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| *Look for and make use of structure.* | * Recognizing the predictable patterns in mathematics allows the creation of functional relationships.
* Mathematical structures can be interchangeable while preserving the relationship (i.e. part to whole, substitution).
 | * What makes a pattern? How do I find it? How do I show it? Does it always work?
* What is the best/most effective way to represent this number, concept, or relationship?
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| Look for and express regularity in repeated reasoning. | * Mathematicians make conjectures looking for both general methods (for abstractions) and shortcuts (for efficiency).
 | * What is a faster/more efficient way to do this?
* What is the best way to get an accurate answer?
* How do I know which way is best?
* Why generalize a relationship/pattern?
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