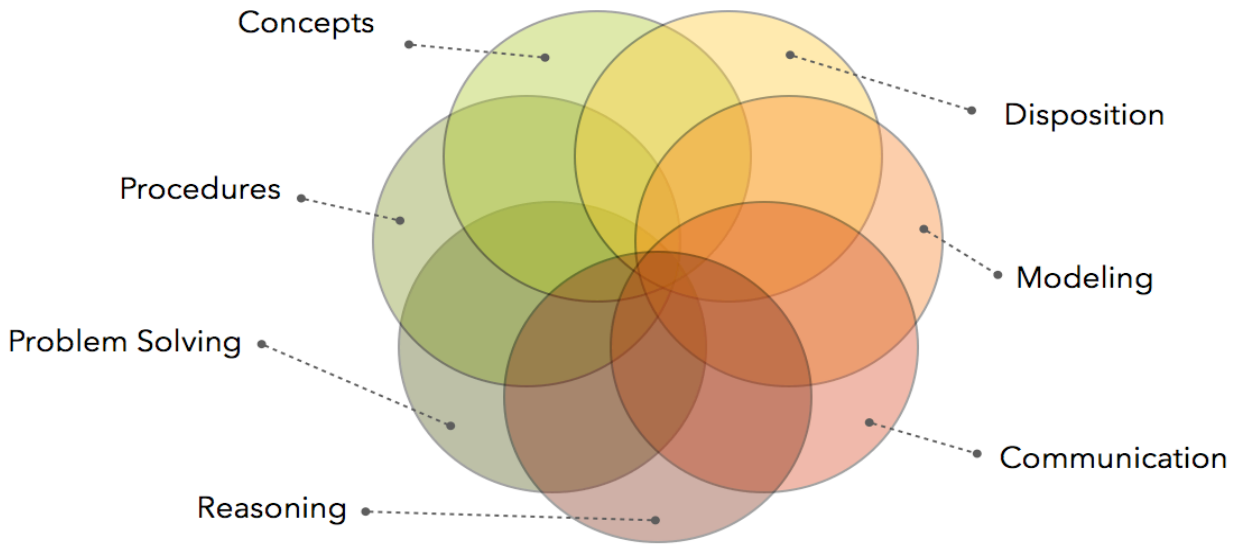
Mathematical Actions & Processes



Throughout their Pk-12 education experience, mathematically literate students will:

Develop a Deep and Flexible *Conceptual* Understanding

Pursue a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections.

Develop Accurate and Appropriate *Procedural* Fluency

Pursue efficient procedures for various computations and repeated processes based on a strong sense of numbers. They will develop a sophisticated understanding of the development and application of algorithms and procedures.

Develop Strategies for *Problem Solving*

Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. They will select from a variety of problem solving strategies and use corresponding multiple

representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.

Develop Mathematical *Reasoning*

Explore and communicate a variety of reasoning strategies to think through problems. They will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.

Develop a Productive Mathematical *Disposition*

Hold the belief that mathematics is sensible, useful and worthwhile. They will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.

Develop the Ability to Make Conjectures, *Model*, and Generalize

Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. They will create, identify, and extend patterns as a strategy for solving and making sense of problems.

Develop the Ability to *Communicate* Mathematically

Develop the ability to communicate mathematically. They will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.

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