



PreK-12 Mathematics

Transfer Goals	Enduring Understandings	Essential Questions
<p>Students will be able to independently use their learning to:</p> <ul style="list-style-type: none">• Interpret and persevere in solving complex mathematical problems using strategic thinking and expressing answers with a degree of precision appropriate for the problem context.• Communicate mathematical statements clearly and thoroughly and express appropriate mathematical reasoning to construct, defend, and support viable arguments and the reasoning of others.• Develop and use a variety of knowledge and tools (e.g. tables, graphs, charts, numbers, pictures, patterns, words, manipulatives models, calculators and graphing technologies) to analyze data, reason abstractly and quantitatively in order to make decisions, draw conclusions, and solve problems.	<p>Students will understand that:</p> <ul style="list-style-type: none">• The relationships among numbers, mathematical operations and properties promote computational strategies with algorithms and fact fluency.• Patterns and relationships can be represented concretely, numerically, graphically, symbolically, and/or verbally to describe real world situations.• There can be different strategies and tools to gather information and solve a problem, understanding that some are more effective and efficient than others.• A problem-solver recognizes what has been done, knows why the process was appropriate, and can defend it with reasons and evidence.	<ul style="list-style-type: none">• How is mathematics used to model, quantify and compare situations, events and phenomena in our world?• What does it mean to be a strategic problem solver?• What does it mean to demonstrate mastery in math?• How are relationships in mathematics interconnected?



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Communication	<p>Students will use their written and/or oral language skills in combination with math vocabulary to communicate their reasoning and understanding.</p> <p>Students will ask and answer questions related to math and explain their math reasoning orally and in writing when necessary.</p>
Collaboration	<p>Students will work together to create and solve a variety of math problems.</p> <p>Students will work with peers in partnerships, small groups, and as a whole group to explore math concepts.</p>
Creativity	<p>Students will use a variety of manipulatives and strategies to solve problems creatively.</p> <p>Students will develop confidence in their math skills while learning through mistakes, persisting through challenges, and taking risks.</p>
Self-Direction	<p>Students will create tactical and strategic math goals and use a mix of learning strategies and tools to help them monitor, define, prioritize and complete tasks in a timely manner.</p> <p>Students will use problem solving skills to help them work through activities without direct oversight.</p> <p>Students will reflect on their learning using tangible and intangible success criteria to make changes as needed.</p> <p>Students will demonstrate initiative to advance skills toward mastery.</p>
Perseverance	<p>Students will develop mathematical mindsets and positive beliefs about math that increase their academic perseverance and prompt them to engage in productive academic behaviors.</p> <p>Students will persist to accomplish difficult tasks and to overcome academic and personal barriers in meeting math goals.</p> <p>Students will view failure and the cyclical process of success and mistakes and use it as an opportunity to develop creativity and innovation in math.</p>
Problem-Solving	<p>Students will identify, define and solve authentic mathematical problems by reflecting critically on learning processes and solutions.</p> <p>Students will collect, assess and analyze relevant information to make sound judgements and decisions.</p> <p>Students will construct viable arguments based on sound reasoning and evidence.</p>



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	Students will reason effectively and be able to critique the reasoning of others.
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