

Connections to Pennsylvania State Mathematics Standards: 5-7

Exhibit Module	Airplane	Airplane Shooter	Amazing Airways	Archimedes Screw	Bernoulli Fountain	Blue Screen	Brain Quiz	Catenary Arch	Crackle Screen	Echo Tube	Erosion Table	Gear Wall	Hurricane Chamber	Kapla Blocks	Laser Guitar	Lego Table	Magnet Wall	Peakaboo Window	PVC Pipe Organ	Rhythm machine	Stream Table	Video Browser	Water Table/Tide Pool	
Academic Content Standards Benchmarks 5-7																								
Number, Number Sense, and Operations																								
Represent and compare numbers less than 0 through familiar applications and extending the number line.								X																
Develop meaning for percents, including percents greater than 100 and less than 1.							X																	
Use models and pictures to relate concepts of ratio, proportion and percent.	X	X					X																	
Apply and explain the use of prime factorizations, common factors, and common multiples in problem situations.							X																	
Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers.							X																	
Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.		X					X																	

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Measurement																								
Select appropriate units to measure angles, circumference, surface area, mass and volume, using: <ul style="list-style-type: none"> • U.S. customary units; e.g., degrees, square feet, pounds, and other units as appropriate; • metric units; e.g., square meters, kilograms and other units as appropriate. 							X																	
Convert units of length, area, volume, mass and time within the same measurement system.		X	X	X																				
Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.																X	X							
Use problem solving techniques and technology as needed to solve problems involving length, weight, perimeter, area, volume, time and temperature.		X	X	X	X			X		X	X	X	X	X		X	X				X			X
Analyze and explain what happens to area and perimeter or surface area and volume when the dimensions of an object are changed.		X														X	X							
Understand and demonstrate the independence of perimeter and area for two-dimensional shapes and of surface area and volume for three-dimensional shapes.		X														X	X							

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Academic Content Standards Benchmarks 5-7																								
Geometry and Spatial Sense																								
Identify and label angle parts and the regions defined within the plane where the angle resides.		X														X	X							
Describe and use properties of triangles to solve problems involving angle measures and side lengths of right triangles.																	X							
Predict and describe results (size, position, orientation) of transformations of two-dimensional figures.		X																						
Apply properties of equality and proportionality to solve problems involving congruent or similar figures; e.g., create a scale drawing.		X																						
Data Analysis and Probability																								
Interpret data by looking for patterns and relationships, draw and justify conclusions, and answer related questions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Evaluate interpretations and conclusions as additional data are collected, modify conclusions and predictions, and justify new findings.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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Mathematical Processes																								
Clarify problem-solving situation and identify potential solution processes; e.g., consider different strategies and approaches to a problem, restate problem from various perspectives.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Apply and adapt problem-solving strategies to solve a variety of problems, including unfamiliar and non-routine problem situations.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Use more than one strategy to solve a problem, and recognize there are advantages associated with various methods.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Use deductive thinking to construct informal arguments to support reasoning and to justify solutions to problems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Use inductive thinking to generalize a pattern of observations for particular cases, make conjectures, and provide supporting arguments for conjectures.		X	X	X	X				X	X	X	X	X	X	X	X	X		X	X	X		X	
Relate mathematical ideas to one another and to other content areas; e.g., use area models for adding fractions, interpret graphs in reading, science and social studies.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Use representations to organize and communicate mathematical thinking and problem solutions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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Communicate mathematical thinking to others and analyze the mathematical thinking and strategies of others.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recognize and use mathematical language and symbols when reading, writing and conversing with others.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

