

## Connections to Pennsylvania Academic Standards for Science and Technology: Grade 12

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	Peakboo Window	PVC Pipe Organ	Rhythm machine	Stream Table	Video Browser	Water Table/Tide	
<b>Unifying Themes</b>																								
Apply concepts of systems, subsystems, feedback and control to solve complex technological 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
Apply concepts of models as a method to predict and understand science and technology.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Assess and apply patterns in science and technology.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Analyze scale as a way of relating concepts and ideas to one another by some measure.	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 change in nature, physical systems and man made systems.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Inquiry and Design</b>																								
Evaluate the nature of scientific and technological knowledge.	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 experimental information for appropriateness and adherence to relevant science processes.	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 the elements of scientific inquiry to solve multi-step 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
Analyze and use the technological design process to solve 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

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<b>Physical Science, Chemistry, and Physics</b>																								
Apply concepts about the structure and properties of matter.	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Apply the principles of motion and force.		X	X	X	X			X	X		X		X	X		X								
Analyze the essential ideas about the composition and structure of the universe.			X		X						X		X											X
<b>Earth Sciences</b>																								
Analyze and evaluate earth features and processes that change the earth.			X		X			X	X	X	X	X	X									X	X	X
Analyze the availability, location and extraction of earth resources.			X					X	X	X	X													X
Analyze atmospheric energy transfers.										X														
Analyze the principles and history of hydrology.											X										X			X
<b>Technology Education</b>																								
Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.							X													X				
Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.	X	X		X		X		X			X			X								X		X

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		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Technological Devices</b>																									
Apply advanced tools, materials and techniques to answer complex questions.																									
Evaluate appropriate instruments and apparatus to accurately measure materials and processes.																									
<b>Science, Technology, and Human Endeavors</b>																									
Synthesize and evaluate the interactions and constraints of science and technology on society.		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 the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.		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 the consequences and impacts of scientific and technological 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