

# Curriculum Grid

Objective Number	Common Core Science Framework	Make It Move					Make It Smarter					Make a System								
		Video	With Wheels	And Display Speed	Without Wheels	Up an Incline	In a Pattern	Video	With a Sensor	And Faster	And Adaptable	With Communication	And Healthier	Video	That Moves a Ball	That Picks and Places	That Manufactures	That Sorts Colors	That Communicates	
<b>Practices</b>																				
1.1	Asking questions	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.2	Developing and using models	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.3	Planning and carrying out investigations	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.4	Analyzing and interpreting data	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.5	Using mathematics, Informational and Computer Technology, and computational thinking	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.6	Constructing explanations and designing solutions	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.7	Engaging in argument from evidence	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
1.8	Obtaining, evaluating and communicating information	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
<b>Cross-cutting Concepts</b>																				
2.1	Patterns					♦													♦	
2.2	Cause and effect: Mechanism and explanation	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
2.3	Scale, proportion and quantity	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
2.4	Systems and system models	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
2.5	Energy and matter: Flows, cycles and conservation	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
2.6	Structure and function	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
2.7	Stability and change	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦			
<b>Core Ideas: Physical Science</b>																				
3.PS.1	Matter and its interactions																			
3.PS.2	Motion and stability: Forces and interactions	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
3.PS.3	Energy	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
3.PS.4	Waves and their applications in technologies for information transfer						♦	♦	♦	♦	♦									♦
<b>Core Ideas: Life Science</b>																				
3.LS.1	From molecules to organisms																			
3.LS.2	Ecosystems								♦		♦	♦								
3.LS.3	Heredity																			
3.LS.4	Biological evolution						♦	♦	♦											
<b>Core Ideas: Earth and Space Science</b>																				
3.ESS.1	Earth's place in the universe																			
3.ESS.2	Earth's systems										♦									
3.ESS.3	Earth and human activity																			
<b>Core Ideas: Engineering, Technology and Application of Science</b>																				
3.ETS.1	Engineering Design	♦	♦	♦	♦		♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
3.ETS.2	Links among engineering, technology, science and society	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦

Objective Number	Common Core Mathematics Standards	Make It Move			Make It Smarter				Make a System										
		Video	With Wheels	And Display Speed	Without Wheels	Up an Incline	In a Pattern	Video	With a Sensor	And Faster	And Adaptable	With Communication	And Healthier	Video	That Moves a Ball	That Picks and Places	That Manufactures	That Sorts Colors	That Communicates
<b>Practices</b>																			
1.1	Make sense of problems and persevere in solving them	●	●	●	●	●		●	●	●	●	●		●	●	●	●	●	●
1.2	Reason abstractly and quantitatively	●	●		●	●		●	●	●		●		●	●	●	●	●	●
1.3	Construct viable arguments and critique the reasoning of others	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.4	Model with mathematics	●	●		●	●		●		●					●	●	●	●	●
1.5	Use appropriate tools strategically	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.6	Attend to precision	●	●		●	●			●						●	●	●	●	●
1.7	Look for and make use of structure									●									
1.8	Look for and express regularity in repeated reasoning																		
<b>Ratios and Proportional Relationships</b>																			
Grade 6	Understand ratio concepts and use ratio reasoning to solve problems	●	●		●	●													
Grade 7	Analyze proportional relationships and use them to solve real-world and mathematical problems	●	●		●	●			●										
<b>The Number System</b>																			
Grade 6	Apply and extend previous understandings of multiplication and division to divide fractions by fractions	●	●																
Grade 6	Compute fluently with multidigit numbers and find common factors and multiples	●	●		●			●		●		●							
Grade 6	Apply and extend previous understandings of numbers to the system of rational numbers																		
Grade 7	Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers	●	●		●	●		●		●		●							
Grade 8	Understand that there are numbers that are not rational, and approximate them by rational numbers	●	●																
<b>Expressions and Equations</b>																			
Grade 6	Apply and extend previous understandings of arithmetic to algebraic expressions	●	●		●			●		●									
Grade 6	Reason about and solve one-variable equations and inequalities																		
Grade 6	Represent and analyze quantitative relationships between dependent and independent variables	●	●																
Grade 7	Use properties of operations to generate equivalent expressions																		
Grade 7	Solve real-life and mathematical problems using numerical and algebraic expressions and equations	●	●																
Grade 8	Work with radicals and integer exponents																		
Grade 8	Understand the connections between proportional relationships, lines and linear equations								●										
Grade 8	Analyze and solve linear equations and pairs of simultaneous linear equations																		
<b>Function</b>																			
Grade 8	Define, evaluate and compare functions																		
Grade 8	Use functions to model relationships between quantities																		

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<b>Geometry</b>																		
Grade 6	Solve real-world and mathematical problems involving area, surface area and volume																	
Grade 7	Draw, construct and describe geometrical figures and the relationship between them						♦									♦		
Grade 7	Solve real-life and mathematical problems involving angle measure, area, surface area and volume															♦	♦	
Grade 8	Understand congruence and similarity using physical models, transparencies or geometry software	♦	♦	♦	♦	♦			♦	♦	♦	♦	♦		♦	♦	♦	♦
Grade 8	Understand the Pythagorean theorem						♦											
Grade 8	Solve real-world and mathematical problems involving volume of cylinders, cones and spheres																	
<b>Statistics and Probability</b>																		
Grade 6	Develop an understanding of statistical variability																	
Grade 6	Summarize and describe distributions																	
Grade 7	Use random sampling to draw inferences about a population																	
Grade 7	Investigate chance processes and develop, use and evaluate probability models																	
Grade 8	Investigate patterns of association in bivariate data																	

Standard	ITEEA Standards for Technological Literacy	Make It Move					Make It Smarter					Make a System							
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<b>The Nature of Technology</b>																			
1	Students will develop an understanding of the characteristics and scope of technology	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
2	Students will develop an understanding of the core concepts of technology	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
3	Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
<b>Technology and Society</b>																			
4	Students will develop an understanding of the cultural, social, economic and political effects of technology	▶						▶							▶				
5	Students will develop an understanding of the effects of technology on the environment	▶						▶							▶				
6	Students will develop an understanding of the role of society in the development and use of technology	▶						▶							▶				
7	Students will develop an understanding of the influence of technology on history	▶						▶							▶				
<b>Design</b>																			
8	Students will develop an understanding of the attributes of design		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
9	Students will develop an understanding of engineering design		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
10	Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
<b>Abilities for a Technological World</b>																			
11	Students will develop abilities to apply the design process		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
12	Students will develop abilities to use and maintain technological products and systems		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
13	Students will develop abilities to assess the impact of products and systems		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶		▶	▶	▶	▶	▶
<b>The Designed World</b>																			
14	Students will develop an understanding of and be able to select and use medical technologies								▶						▶				
15	Students will develop an understanding of and be able to select and use agricultural and related biotechnologies								▶						▶				
16	Students will develop an understanding of and be able to select and use energy and power technologies	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶	▶
17	Students will develop an understanding of and be able to select and use information and communication technologies								▶			▶			▶				▶
18	Students will develop an understanding of and be able to select and use transportation technologies		▶	▶	▶	▶	▶								▶		▶		▶
19	Students will develop an understanding of and be able to select and use manufacturing technologies														▶		▶		
20	Students will develop an understanding of and be able to select and use construction technologies																		

Standard	ISTE National Education Technology Standards	Make It Move					Make It Smarter					Make a System							
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<b>1. Creativity and Innovation</b>																			
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.																			
a	Apply existing knowledge to generate new ideas, products or processes		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
b	Create original works as a means of personal or group expression		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
c	Use models and simulations to explore complex systems and issues		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
d	Identify trends and forecast possibilities	◀						◀						◀					
<b>2. Communication and Collaboration</b>																			
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.																			
a	Interact, collaborate and publish with peers, experts or others employing a variety of digital environments and media																		
b	Communicate information and ideas effectively to multiple audiences using a variety of media and formats		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
c	Develop cultural understanding and global awareness by engaging with learners of other cultures																		
d	Contribute to project teams to produce original works or solve problems		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
<b>3. Research and Information Fluency</b>																			
Students apply digital tools to gather, evaluate and use information.																			
a	Plan strategies to guide inquiry		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
b	Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media	◀						◀						◀					
c	Evaluate and select information sources and digital tools based on the appropriateness to specific tasks		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀
d	Process data and report results		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
<b>4. Critical Thinking, Problem Solving and Decision Making</b>																			
Students use critical-thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.																			
a	Identify and define authentic problems and significant questions for investigation		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
b	Plan and manage activities to develop a solution or complete a project		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
c	Collect and analyze data to identify solutions and/or make informed decisions		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
d	Use multiple processes and diverse perspectives to explore alternative solutions		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀
<b>5. Digital Citizenship</b>																			
Students understand human, cultural and societal issues related to technology and practice legal and ethical behavior.																			
a	Advocate and practice safe, legal, and responsible use of information and technology																		
b	Exhibit a positive attitude toward using technology that supports collaboration, learning and productivity		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀
c	Demonstrate personal responsibility for lifelong learning																		
d	Exhibit leadership for digital citizenship																		
<b>6. Technology Operations and Concepts</b>																			
Students demonstrate a sound understanding of technology concepts, systems and operations.																			
a	Understand and use technology systems		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
b	Select and use applications effectively and productively		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀		◀	◀	◀	◀	◀
c	Troubleshoot systems and applications		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●
d	Transfer current knowledge to learning of new technologies		●	●	●	●	●		●	●	●	●	●		●	●	●	●	●