Standards NCTM Standards for School Mathematics 6-8

● Indicates standard is focused on ○ Indicates standard is covered in a general way

Standard 1: *Numbers and Operations*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
Understand numbers, ways of representing numbers, relationships among numbers, and number systems								
2	Students compare and order fractions, decimals, and percents efficiently and find their approximate locations on a number line		○		○			
7	Students develop meaning for integers and represent and compare quantities with them.						○	●
Compute fluently and make reasonable estimates								
1	Students select appropriate methods and tools for computing with fractions and decimals from among mental computation, estimation, calculators or computers, and paper and pencil, depending on the situation, and apply the selected methods		○		○			

Standard 2: *Algebra*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
Understand meanings of operations and how they relate to one another								
1	Students represent, analyze, and generalize a variety of patterns with tables, graph, words, and , when possible, symbolic rules	○	●	●	●	●	●	●
2	Students relate and compare different forms of representation for relationship		●	○	●	○	○	●
3	Students identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations				●	○		
Represent and analyze mathematical situations and structures using algebraic symbols								
1	Students develop an initial conceptual understanding of different used of variables				○			
2	Students explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of intercept slope				●			
3	Students use symbolic algebra to represent situations and to solve problems especially those that involve linear relationships				●			
4	Students recognize and generate equivalent forms for simple algebraic expressions and solve linear equations				○			
Represent and analyze mathematical situations and structures using algebraic symbols								
1	Students model and solve contextualized problems using various representations, such as graphs, tables, and equations	○	●	●	●	●	●	●
2	Students use symbolic expressions, including iterative and recursive forms, to represent relationships arising from various contexts		○		●		○	
Represent and analyze mathematical situations and structures using algebraic symbols								
1	Students use graphs to analyze the nature of changes in quantities in linear relationships		○	○	●	○	○	○

Standard 4: *Measurement*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
Apply appropriate techniques, tools, and formulas to determine measurements								
2.1	Students use common benchmarks to select appropriate methods for estimating measurements;		○	○	○	○	○	○
2.2	Students select and apply techniques and tools to accurately find length, area, volume, and angle measures to appropriate levels or precision;							○

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Standard 4: *Measurement (Continued)*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
2.3	Students develop and use formulas to determine the circumference of circles and the area of triangles, parallelograms, trapezoids, and circles and develop strategies to find the area of more-complex shapes;							●
2.6	Students solve simple problems involving rates and derived measurements for such attributes as velocity and density.				●			

Standard 5: *Data Analysis and Probability*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
Formulate questions that can be addressed with data collect, organize, and display relevant data to answer them								
1.1	Students formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics with one population;		●	●	●	●	●	●
1.2	Students select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots.	○	●	●	●	●	●	●
Select and use appropriate statistical methods to analyze data								
2.1	Students find, use, an interpret measures of center and spread, including mean and interquartile range;		●				○	
2.2	Students discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatterplots.		●	○	●	●	○	●
Develop and evaluate inferences and predictions that are based on data								
3.1	Students use observations about differences between two or more samples to make conjectures about the populations from which the samples were taken;	●	●	●	●	●	●	●
Standard 5: *Data Analysis and Probability (Continued)*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
3.2	Students make conjectures about possible relationships between two characteristics of a sample on the basis of scatterplots of the data and approximate lines of fit;	○		○	●	●		●
3.3	Students use conjectures to formulate new questions and plan new studies to answer them.		○	●	●	●	●	●
Understand and apply basic concepts of probability								
4.2	Students use proportionally and a basic understanding of probability to make and test conjectures about the results of experiments and simulations;		○					

Standard 6: *Problem Solving*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
1.0	Build new mathematical knowledge through problem solving				●			
2.0	Solve problems that arise in mathematics and in other contexts	○	●	●	●	●	●	●
3.0	Apply and adapt a variety of appropriate strategies to solve problems		○	●	○	●	●	●
4.0	Monitor and reflect on the process of mathematical problem solving		●	○	●	○	○	●

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Standard 7: *Reasoning and Proof*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
1.0	In grades 6-8 all students should: Recognize reasoning and proof as fundamental aspects of mathematics.		○		○		○	○
2.0	Students make and investigate mathematical conjectures.		○	○	●	○	○	○
4.0	Students select and use various types of reasoning and methods of proof.		○	○	○	○	○	○

Standard 8: *Communication*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
1.0	In grades 6-8 all students should: Organize and consolidate their mathematical thinking through communication.		○	○	○	○	○	○
2.0	Students communicate their mathematical thinking coherently and clearly to peers, teachers, and others.		○	○	○	○	○	○
3.0	Students analyze and evaluate the mathematical thinking and strategies of others.		○	○	○	○	○	○
Standard 9: *Connections*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
2.0	Students understand how mathematical ideas interconnect and build on one another to produce a coherent whole.				○			○
3.0	Students recognize and apply mathematics in contexts outside of mathematics.		●	●	●	●	●	●

Standard 10: *Representation*		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
1.0	In grades 6-8 all students should: Create and use representations to organize, record, and communicate mathematical ideas.	○	●	●	●	●	●	●
2.0	Students select, apply, and translate among mathematical representations to solve problems.		○	○	●	○	○	●
3.0	Students use representations to model and interpret physical, social, and mathematical phenomena.	○	●	●	●	●	●	●