

Sixth Grade

Exhibit Areas	Common Core Standards	Next Generation Science Standards
Nickelodeon Play Lab	<ul style="list-style-type: none"> ✓ WHST.6-8.7 - Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. ✓ MP.2 - Reason abstractly and quantitatively. 	<ul style="list-style-type: none"> ✓ 6-PS3-3 - Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. ✓ 6-PS3-4 - Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ✓ 6-PS3-5 - Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ✓ PS3.A: Definitions of Energy: Temperature is a measure of the average kinetic energy of particles of matter. ✓ ETS1.A: Defining and Delimiting Engineering Problems: Possible solutions to a problem have constraints. The success of a designed solution is determined by considering the desired features of a solution. ✓ ETS1.B: Developing Possible Solutions: Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

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Nature Valley Water Amazements	<ul style="list-style-type: none"> ✓ WHST.6-8.7 - Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. ✓ MP.2 - Reason abstractly and quantitatively. ✓ RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic. 	<ul style="list-style-type: none"> ✓ 6-PS3-3 - Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. ✓ 6-PS3-4 - Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ✓ 6-PS3-5 - Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ✓ PS3.A: Definitions of Energy: Temperature is a measure of the average kinetic energy of particles of matter. ✓ PS3.B: Conservation of Energy and Energy Transfer ✓ 6-ETS1-1 - Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. ✓ 6-ETS1-2 - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. ✓ 6-ETS1-3 - Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. ✓ 6-ETS1-4 - Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. ✓ ETS1.A: Defining and Delimiting Engineering Problems: Possible solutions to a problem have constraints. The success of a designed solution is determined by considering the desired features of a solution. ✓ ETS1.B: Developing Possible Solutions: Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. ✓ ETS1.C: Optimizing the Design Solution.

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<p>General Mills Lift, Load, and Haul</p>	<ul style="list-style-type: none"> ✓ WHST.6-8.7 - Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. ✓ MP.2 - Reason abstractly and quantitatively. ✓ RST.6-8.9 - Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic. 	<ul style="list-style-type: none"> ✓ 6-PS3-3 - Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. ✓ 6-PS3-4 - Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ✓ 6-PS3-5 - Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ✓ PS3.A: Definitions of Energy: Temperature is a measure of the average kinetic energy of particles of matter. ✓ PS3.B: Conservation of Energy and Energy Transfer ✓ 6-ETS1-1 - Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. ✓ 6-ETS1-2 - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. ✓ 6-ETS1-3 - Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. ✓ 6-ETS1-4 - Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. ✓ ETS1.A: Defining and Delimiting Engineering Problems: Possible solutions to a problem have constraints. The success of a designed solution is determined by considering the desired features of a solution. ✓ ETS1.B: Developing Possible Solutions: Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. ✓ ETS1.C: Optimizing the Design Solution.

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<p>Cave & Canopy Climber</p>	<p>✓ WHST.6-8.7 – Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>✓ 6-LS1-1 – Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>✓ 6-LS1-2 – Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p> <p>✓ 6-LS1-3 – Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</p> <p>✓ 6-LS1-8 – Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior of storage as memories.</p> <p>✓ LS1.A: Structure and Function</p> <p>✓ LS1.D: Information Processing</p> <p>✓ 6-LS1-4 – Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p> <p>✓ 6-LS1-5 – Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p> <p>✓ 6-LS3-2 – Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</p> <p>✓ LS1.B: Growth and Development of Organisms</p> <p>✓ LS3.B: Variation of Traits</p>

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<p>The Market Sponsored by Walmart</p>	<p>✓ WHST.6-8.7 – Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (6-LS1-1)</p>	<p>✓ 6-LS1-1 – Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>✓ 6-LS1-2 – Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p> <p>✓ 6-LS1-3 – Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</p> <p>✓ 6-LS1-8 – Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior of storage as memories.</p> <p>✓ LS1.A: Structure and Function: All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.</p> <p>✓ LS1.D: Information Processing: Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories.</p>

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<p style="text-align: center;">The Homestead Cabin & Farm</p>	<p>✓ WHST.6-8.7 – Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>✓ 6-LS1-1 – Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.</p> <p>✓ 6-LS1-2 – Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p> <p>✓ 6-LS1-3 – Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.</p> <p>✓ 6-LS1-8 – Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior of storage as memories.</p> <p>✓ LS1.A: Structure and Function</p> <p>✓ LS1.D: Information Processing</p> <p>✓ 6-LS1-4 – Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.</p> <p>✓ 6-LS1-5 – Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p> <p>✓ 6-LS3-2 – Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</p> <p>✓ LS1.B: Growth and Development of Organisms</p> <p>✓ LS3.B: Variation of Traits</p>

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<p>The 3M Tinkering Hub</p>	<ul style="list-style-type: none"> ✓ W.5.7 – Conduct short research projects that build knowledge through investigations of different aspects of a topic. ✓ W.5.8 – Recall relevant information from experiences or gather information in notes and from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. ✓ MP.2 – Reason abstractly and quantitatively. ✓ MP.4 – Model with mathematics. ✓ MP.5 – Use appropriate tools strategically. 	<ul style="list-style-type: none"> ✓ 6-PS3-3 – Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. ✓ 6-PS3-4 – Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. ✓ 6-PS3-5 – Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. ✓ PS3.A: Definitions of Energy: Temperature is a measure of the average kinetic energy of particles of matter. ✓ PS3.B: Conservation of Energy and Energy Transfer ✓ 6-ETS1-1 – Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. ✓ 6-ETS1-2 – Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. ✓ 6-ETS1-3 – Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. ✓ 6-ETS1-4 – Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. ✓ ETS1.A: Defining and Delimiting Engineering Problems: Possible solutions to a problem have constraints. The success of a designed solution is determined by considering the desired features of a solution. ✓ ETS1.B: Developing Possible Solutions: Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. ✓ ETS1.C: Optimizing the Design Solution.

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<p>Outdoor Playscape</p>	<ul style="list-style-type: none"> ✓ WHST.6-8.7 – Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. ✓ MP.2 – Reason abstractly and quantitatively. ✓ RST.6-8.9 – Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic. 	<ul style="list-style-type: none"> ✓ 6-ESS2-4 – Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ✓ 6-ESS2-5 – Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. ✓ 6-ESS2-6 – Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. ✓ 6-ESS3-5 – Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. ✓ ESS2.C: The Roles of Water in Earth's Surface Processes: The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns. ✓ ESS2.D: Weather and Climate: Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns. ✓ ESS3.D: Global Climate Change: Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). ✓ *The same connections for the 3M Tinkering Hub can apply here as well.

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Energizer Weather & Nature	<p>✓ WHST.6-8.7 - Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.</p>	<p>✓ 6-ESS2-4 - Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.</p> <p>✓ 6-ESS2-5 - Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.</p> <p>✓ 6-ESS2-6 - Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.</p> <p>✓ 6-ESS3-5 - Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</p> <p>✓ ESS2.C: The Roles of Water in Earth's Surface Processes: The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns.</p> <p>✓ ESS2.D: Weather and Climate: Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns.</p> <p>✓ ESS3.D: Global Climate Change: Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming).</p>