

PK Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
<p>Physical Science</p>	<ul style="list-style-type: none"> ❖ uses senses, tools(including technology) to observe, describe, discuss and attempt to explain the effects of different strengths of different directions of pushes and pulls on the object. ❖ Plans and carries out,with teacher support, comparisons of motion and force using common objects and materials. ❖ Records results of observations, with teacher support, using simple drawings, discussions, charts, photos or models and reflects on what was learned. ❖ Uses knowledge and skills learned through observation and exploration to create new and improved objects or processes. ❖ Listens to stories, poems, and finger-plays about physical knowledge and uses vocabulary about speed, motion and stability in daily conversations ❖ Constructs a system of tubes and/or ramps for a marble to travel through; and discovers that steeper ramps will cause a marble to travel faster 	<ul style="list-style-type: none"> <input type="checkbox"/> I can demonstrate knowledge of the physical properties of objects. <input type="checkbox"/> I can demonstrate knowledge of the physical properties of materials. <input type="checkbox"/> I can use my scientific inquiry skills. <input type="checkbox"/> I can use tools and other technology to perform tasks. <input type="checkbox"/> I can use my knowledge and skills to create new and improved objects. <input type="checkbox"/> I can use my knowledge and skills to create new and improved processes. <input type="checkbox"/> I can listen to stories, poems and finger -plays about physical knowledge. <input type="checkbox"/> I can use my knowledge and vocabulary about speed, motion and stability in daily conversation. <input type="checkbox"/> I can construct a system of tubes or ramps for a marble to travel. <input type="checkbox"/> I can demonstrate understanding that a steeper ramp equals faster travelling marble.

Earth/Space Science

- ❖ Uses senses and tools(including technology) to observe, describe, discuss and generate questions about changes in weather over time.
 - ❖ Plans and carries out simple experiments about water and heat and records observations using drawings, discussions, graphs and technology
 - ❖ Asks questions and investigates the ways that weather can affect things that can be done outside
 - ❖ Uses knowledge and skills learned through observation of the earth and sun to create new and improved objects or processes.
 - ❖ Demonstrates, through observation and investigation, an understanding that human actions impact the earth.
 - ❖ Demonstrates an understanding of how weather forecasts are used to select appropriate garments t wear or bring along when leaving home
 - ❖ Develops a sense of dangerous/severe weather in Maine.
- I can use my senses to observe changes in weather over time.
 - I can use my senses to describe and discuss changes in weather over time.
 - I can use my senses to generate questions about changes in weather over time.
 - I can plan simple experiments about water and heat.
 - I can carry out simple experiments about water and heat.
 - I can record my observations about water and heat using drawings, discussions, graphs or technology.
 - I can ask questions about how weather affects things that can be done outside.
 - I can investigate the way that weather can affect things that can be done outside.
 - I can observe how human actions impact the earth.
 - I can investigate how human actions impact the earth.
 - I demonstrate understanding of how weather forecasts are used to select appropriate garments.
 - I have a sense of dangerous and severe weather in Maine.

Life Science

- ❖ Uses senses to observe and describe properties of familiar plants and animals.
 - ❖ Uses vocabulary for naming plants and animals moving beyond the generic labels to the names of specific creatures and uses symbols or icons to identify where they see such creatures.
 - ❖ Develops plans, based on observations and guided inquiry, to care for plants and animals in the classroom and surrounding areas.
 - ❖ Observes and describes animals in his/her immediate environment to learn what they need to live.
 - ❖ Uses nature journals, tally sheets and resource materials, with support, to summarize observations.
 - ❖ Listens to accounts and discusses pictures found in fictional or non-fiction books or media to enhance vocabulary and concept knowledge of living things and their environments.
 - ❖ Identifies problems affecting the lives of plants and animals and generates possible solutions
 - ❖ With teacher support creates drawings or models for possible solutions
 - ❖ Compares tools or solutions and reflects what works well
 - ❖ Designs and creates materials to change the behavior or incidence of creatures in places
- I can demonstrate knowledge of the characteristics of living things.
 - I can use vocabulary to name specific plants. can use vocabulary to name specific animals.
 - I can use symbols or icons to identify where I might find these creatures.
 - I can develop a plan to care for plants in the classroom.
 - I can develop a plan to care for animals in the classroom.
 - I can develop a plan to care for plants and animals in the immediate area.
 - I can observe animals in my immediate environment to learn what they need to live.
 - I can describe animals in my immediate environment to learn what they need to live.
 - I can use materials to summarize my observations, with support.
 - I can listen to enhance my vocabulary and knowledge of living things and their environments.
 - I can identify problems affecting plants.
 - I can identify problems affecting animals.
 - I can generate possible solutions.
 - I can create drawings or models for solutions, with support.
 - I can compare tools and solutions and reflect on what might work best.
 - I can design materials to change the behavior/incidence of creatures in places.
 - I can create materials to change the behavior/incidence of creatures in places.

K Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations <input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information

<p>Physical Science</p>	<ul style="list-style-type: none"> ❖ Plan and construct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object ❖ Analyse data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull ❖ Cause and Effect simple tests can be designed to gather evidence to support or refute student ideas about causes ❖ Make observations to determine the effect of sunlight on the earth's surface ❖ Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area 	<ul style="list-style-type: none"> <input type="checkbox"/> I can plan and construct an investigation about pushes and pulls on an object <input type="checkbox"/> I can look at data to decide if a push or pull will change the direction of an object <input type="checkbox"/> I can do a simple test to gather evidence about causes <input type="checkbox"/> I can make observations to determine the effect of sunlight on the earth <input type="checkbox"/> I can use tools and materials to build a structure that will reduce the warming effect of sunlight on an area
<p>Earth/Space Science</p>	<ul style="list-style-type: none"> ❖ Use and share observations of local weather conditions to describe patterns over time ❖ Construct an argument supported by evidence for how plants and animals(including humans) can change the environment to meet their needs ❖ Use a model to represent the relationship between the needs of different plants or animals(including humans) and the places they live ❖ Communicate solutions that will reduce the impact of humans on the land, water, air and/or the living things in the local environment ❖ Ask questions to obtain information about the purpose of weather forecasting to 	<ul style="list-style-type: none"> <input type="checkbox"/> I can use and share local weather conditions to describe patterns over time <input type="checkbox"/> I can construct an argument about how plants and animals change their environment to meet their needs <input type="checkbox"/> I can use a model to represent the relationships between the needs of different plants or animals and the places they live <input type="checkbox"/> I can communicate solutions that will reduce the impact of humans on land, water, and and or the living things in the environment <input type="checkbox"/> I can ask questions to obtain information about the purpose of weather forecasting to prepare for and respond to severe weather

	prepare for, and respond to, severe weather	
Life Science	<ul style="list-style-type: none"> ❖ Recognize that people and other animals interact with the environment through their sense of sight, hearing, touch, smell and taste ❖ Use observations to describe patterns of what plant and animals(including humans) need to survive 	<ul style="list-style-type: none"> <input type="checkbox"/> I can recognize that people and other animals interact with the environment through their senses. <input type="checkbox"/> I can use observations to describe patterns of what plants and animals need to survive
Engineering/Design	<ul style="list-style-type: none"> ❖ Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool ❖ Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem 	<ul style="list-style-type: none"> <input type="checkbox"/> I can ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool <input type="checkbox"/> I can develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem

Grade 1 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<ul style="list-style-type: none"> <input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation with adult support <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations

		<input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information
Physical Science	<ul style="list-style-type: none"> ❖ Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. ❖ Make observations to construct an evidence based account that objects can be seen only when illuminated. ❖ Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. 	<input type="checkbox"/> I can plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate <input type="checkbox"/> I can make observations about objects being seen when illuminated. <input type="checkbox"/> I can construct an evidence-based account of objects being seen while illuminated. <input type="checkbox"/> I can use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over distance.
Earth/Space Science	<ul style="list-style-type: none"> ❖ Use observations of the sun, moon, and stars to describe the patterns that can be predicted. ❖ Make observations at different times of year to relate the amount of daylight to the time of year. 	<input type="checkbox"/> I can observe the sun, moon and stars to describe patterns, such as moon phases, seasons and weather. <input type="checkbox"/> I can make observations at different times of year about the amount of daylight.
Life Science	<ul style="list-style-type: none"> ❖ Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow and meet their needs. ❖ Read texts and use media to determine patterns in behavior of parenting and offspring that help offspring survive. ❖ Make observations to construct an evidence based account that young plants and animals are like, but not exactly like, their parents. 	<input type="checkbox"/> I can use materials to design a solution to a human problem. In this solution, I can mimic how plants or animals use their external parts to help them survive, grow and meet their needs. <input type="checkbox"/> I can read texts and/or use media to determine patterns in parenting that help offspring survive. <input type="checkbox"/> I can make observations in order to construct an account that young plants and animals are not exactly like their parents. <input type="checkbox"/> I can describe the life cycle of a plant

Grade 2 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<ul style="list-style-type: none"> <input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations <input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information

<p>Physical Science</p>	<ul style="list-style-type: none"> ❖ Plan and Conduct an Investigation to describe and classify different kinds of materials by their observable properties ❖ Analyze data from testing different materials to determine which materials have the properties that are best suited for the intended purpose ❖ Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. ❖ Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can demonstrate understanding of observable properties of materials. <input type="checkbox"/> I can analyze and classify different materials. <input type="checkbox"/> I can analyze data from testing materials to determine which ones work best. <input type="checkbox"/> I can make observations to construct an evidence based account of how an object can be disassembled and made into something new. <input type="checkbox"/> I can construct an argument with evidence that some changes can be reversed and some cannot.
<p>Earth/Space Science</p>	<ul style="list-style-type: none"> ❖ Use information from several sources to provide evidence that Earth events can occur quickly or slowly. ❖ Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land ❖ Develop a model to represent the shapes and kind of land and bodies of water in an area. ❖ Obtain information to identify where water is found on Earth and that it can be solid or liquid 	<ul style="list-style-type: none"> <input type="checkbox"/> I can use information from several sources to provide evidence that Earth events can happen quickly or slowly. <input type="checkbox"/> I can apply understanding to the idea that wind and water can change the shape of land. <input type="checkbox"/> I can use info and models to identify the shapes and kinds of land and bodies of water in an area. <input type="checkbox"/> I can identify where water is found on Earth. <input type="checkbox"/> I can obtain information about where water is found on Earth and its form.
<p>Life Science</p>	<ul style="list-style-type: none"> ❖ Plan and conduct an investigation to determine if plants need sunlight and water to grow. ❖ Develop a simple model that mimics the function of an animal in dispersing seeds or 	<ul style="list-style-type: none"> <input type="checkbox"/> I can plan an investigation to determine if plants need sunlight and water to grow. <input type="checkbox"/> I can conduct an investigation to determine if plants need sunlight and water to grow. <input type="checkbox"/> I can develop a simple model that mimics the

	<p>pollinating plants.</p> <ul style="list-style-type: none"> ❖ Make observations of plants and animals to compare the diversity of life in different habitats 	<p>function of an animal dispersing seeds and/or pollinating.</p> <ul style="list-style-type: none"> <input type="checkbox"/> I can make observations of plants and animals to compare habitats.
<p>Engineering and Technology</p>	<ul style="list-style-type: none"> ❖ Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool ❖ Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. ❖ Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can ask questions about a situation people want to change. <input type="checkbox"/> I can make observations about a situation people want to change. <input type="checkbox"/> I can gather information about a situation people want to change. <input type="checkbox"/> I can define a simple problem that can be solved through the development of a new or improved object or tool. <input type="checkbox"/> I can develop a sketch or model to illustrate how the shape of an object helps it function. <input type="checkbox"/> I can analyze data from two problem solving tests to compare strengths and weaknesses.

Grade 3 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations <input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information

Physical Science	<ul style="list-style-type: none"> ❖ Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. ❖ Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. ❖ Ask questions to determine cause and effect relationship of electric or magnetic interactions between two objects not in contact with each other. ❖ Define a simple design problem that can be solved by applying scientific ideas about magnets. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can plan an investigation to show forces of motion on an object <input type="checkbox"/> I can conduct an investigation that provides evidence of the effects of balanced and unbalanced forces on the motion of an object <input type="checkbox"/> I can make observations of an object's motion to predict future motion <input type="checkbox"/> I can ask questions to determine cause and effect relationships with magnets <input type="checkbox"/> I can define a simple design problem that shows my understanding of how magnets work
Earth/Space Science	<ul style="list-style-type: none"> ❖ Represent Data in tables and graphical displays to describe typical weather conditions expected during a particular season. ❖ Obtain and combine information to describe climates in different regions of the world. ❖ Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard 	<ul style="list-style-type: none"> <input type="checkbox"/> I can show data in tables that shows seasonal weather <input type="checkbox"/> I can show data in a graphics display that shows seasonal weather <input type="checkbox"/> I can understand climates in different regions of the world <input type="checkbox"/> I can make a claim about a design solution that reduces the impacts of a weather-related hazard
Life Science	<ul style="list-style-type: none"> ❖ Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction and death. ❖ Construct an argument that some animals form groups that help members survive. ❖ Analyze and interpret data to provide evidence that plants and animals have traits inherited 	<ul style="list-style-type: none"> <input type="checkbox"/> I can develop a model displaying my understanding of the life cycles of organisms <input type="checkbox"/> I can construct an argument about the survival of groups of animals <input type="checkbox"/> I can analyze data about inherited traits <input type="checkbox"/> I can interpret data about inherited traits <input type="checkbox"/> I can use evidence to support the idea of traits being influenced by the environment

	<p>from parents and that variation of these traits exists in a group of similar organisms.</p> <ul style="list-style-type: none"> ❖ Use evidence to support the explanation that traits can be influenced by the environment. 	
<p>Engineering and Design</p>	<ul style="list-style-type: none"> ❖ Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints on materials, time or cost. ❖ Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can define a simple design problem <input type="checkbox"/> I can generate multiple possible solutions to a problem <input type="checkbox"/> I can compare multiple possible solutions to a problem when given criteria

Grade 4 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations <input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information
Physical Science	<ul style="list-style-type: none"> ❖ Sound and Vibrations ❖ Speed and Energy ❖ Collisions and Energy Transfer ❖ Energy Transfer and Engineering ❖ Electrical Energy ❖ Heat Engines, and Energy Transfer 	<input type="checkbox"/> I can demonstrate understanding of how vibrations travel. <input type="checkbox"/> I can create a model. <input type="checkbox"/> I can design an investigation about design. I can construct an explanation about how sound travels. <input type="checkbox"/> I can analyze data about sound. <input type="checkbox"/> I can interpret data about sound. <input type="checkbox"/> I can make an argument about sound from evidence. <input type="checkbox"/> I can build a model of an amusement park ride. <input type="checkbox"/> I can carry out an investigation to examine the relationship between energy and speed. I can analyze data from the models. <input type="checkbox"/> I can interpret data from the models.

		<ul style="list-style-type: none"> <input type="checkbox"/> I can build a model of a roller coaster. <input type="checkbox"/> I can carry out an investigation. <input type="checkbox"/> I can analyze data. <input type="checkbox"/> I can interpret data. <input type="checkbox"/> I can demonstrate understanding of energy transfer. <input type="checkbox"/> I conduct an investigation using a model roller coaster to determine how energy can be stored in the hills of the coaster. <input type="checkbox"/> I can analyse data from the model. <input type="checkbox"/> I can interpret data from the model. <input type="checkbox"/> I can design a chain reaction machine. <input type="checkbox"/> I can design a flashlight. <input type="checkbox"/> I can experiment with different ways of constructing a flashlight to turn on and off. <input type="checkbox"/> I can build a paper spinner and conduct an investigation to explain how heat makes things move.
<p>Earth/Space Science</p>	<ul style="list-style-type: none"> ❖ Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation or changes in a landscape over time ❖ Analyze and interpret data from maps to describe patterns of Earth's features ❖ Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind or vegetation ❖ Erosion, Natural Hazards and Engineering ❖ Energy Resources and Environmental Impact 	<ul style="list-style-type: none"> <input type="checkbox"/> I can analyze data . <input type="checkbox"/> I can interpret data. <input type="checkbox"/> I can use my findings as evidence for an argument. <input type="checkbox"/> I can analyze data from maps to describe patterns of Earth's features. <input type="checkbox"/> I can interpret data from maps to describe patterns of Earth's features. <input type="checkbox"/> I can make observations to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind or vegetation. <input type="checkbox"/> I can measure to provide evidence of the effects of weathering on the rate of erosion by water, ice, wind or vegetations. <input type="checkbox"/> I can design solutions to protect my home from

		<p>a rock slide.</p> <ul style="list-style-type: none"> <input type="checkbox"/> I can argue for the merits of my design. <input type="checkbox"/> I can evaluate the advantages and disadvantages of alternative energy sources to power a town. <input type="checkbox"/> I can obtain information. <input type="checkbox"/> I can evaluate information. <input type="checkbox"/> I can analyze data. I can interpret data.
Life Science	<ul style="list-style-type: none"> ❖ Muscles and Skeletons ❖ Eyes and Vision ❖ How Eyes Work ❖ Brain and Nerves 	<ul style="list-style-type: none"> <input type="checkbox"/> I can build a model of a finger. <input type="checkbox"/> I can construct an explanation for how fingers move. <input type="checkbox"/> I can build a model of an eyeball. <input type="checkbox"/> I can construct an explanation why some people have blurry vision. <input type="checkbox"/> I can construct an explanation as to how changes in pupil size changes the image on the retina. <input type="checkbox"/> I can conduct an investigation about how pupils change in response to light. <input type="checkbox"/> I can conduct an investigation to explore how the brain processes information and responds to information. <input type="checkbox"/> I can analyze data. <input type="checkbox"/> I can interpret data.
Engineering /Technology	<ul style="list-style-type: none"> ❖ Energy and Engineering 	<ul style="list-style-type: none"> <input type="checkbox"/> I can design a chain reaction machine that displays a message at the end.

Grade 5 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	Asking questions and defining problems Developing and using models Planning and Carrying Out Investigations Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in Argument from Evidence Obtaining, evaluating and communicating information	<input type="checkbox"/> I can ask questions about grade level content <input type="checkbox"/> I can define problems using grade level content <input type="checkbox"/> I can plan out an investigation <input type="checkbox"/> I can carry out an investigation <input type="checkbox"/> I can analyze data <input type="checkbox"/> I can interpret data <input type="checkbox"/> I can use math and computational thinking <input type="checkbox"/> I can construct explanations <input type="checkbox"/> I can design solutions <input type="checkbox"/> I can engage in an argument from evidence <input type="checkbox"/> I can obtain information <input type="checkbox"/> I can evaluate information <input type="checkbox"/> I can communicate information
Physical Science	<ul style="list-style-type: none"> ❖ Chemical Reactions ❖ Gases and Particulate Nature of Matter ❖ Gravity ❖ Introduction to Chemistry ❖ Acids, Reactions and Properties of Matter 	<input type="checkbox"/> I can conduct an investigation to see which chemicals, when combined, create a chemical reaction. <input type="checkbox"/> I can construct an explanation to share which chemicals reacted. <input type="checkbox"/> I can conduct an investigation to see what happens when baking soda and vinegar react. I can develop a particle model to explain my results. <input type="checkbox"/> I can use math and computational thinking to calculate how high I could jump on various planets and moons in our solar system. <input type="checkbox"/> I can analyze and interpret this data to construct an explanation as to why gravity is different on other planets.

		<ul style="list-style-type: none"> <input type="checkbox"/> I can plan and carry out an investigation to see which solution will turn a dull penny into a shiny penny. <input type="checkbox"/> I can develop a model in order to construct an explanation for my test results. <input type="checkbox"/> I can revise my model as I develop a more sophisticated understanding of particles <input type="checkbox"/> I can carry out an investigation to determine what happens when I place a steel object in the same solution that turned my pennies shiny. <input type="checkbox"/> I can construct an explanation by developing a model to show how the solution affects the steel nail. <input type="checkbox"/> I can conduct an investigation to discover if a reaction occurs when mixing two substances. <input type="checkbox"/> I can analyze the data to determine which substances react with acid. <input type="checkbox"/> I can decide how to test unknown liquids to see if they are acids.
<p>Earth/Space Science</p>	<ul style="list-style-type: none"> ❖ Water on Earth’s surface ❖ Water as a natural resource ❖ Water Cycle ❖ Natural Disasters and Engineering ❖ Day, Night and Earth’s Rotation ❖ Sun, Daily Patterns, Earth’s Rotation ❖ Sun, Earth’s Orbit Annual Patterns ❖ Stars, Constellations ❖ Moon, Moon’s orbit, lunar cycle ❖ Planets and Solar System ❖ Star Brightness and Habitable Planets 	<ul style="list-style-type: none"> <input type="checkbox"/> I can analyze and interpret data from world maps to determine the relative amounts of fresh, salt and frozen water. <input type="checkbox"/> I can compare and graph quantities of fresh, salt and frozen water on Earth. <input type="checkbox"/> I can determine where is the best place to settle a new town based on where they can find water. <input type="checkbox"/> I can obtain, evaluate and communicate information from different sources to inform my decision. <input type="checkbox"/> I can argue using evidence to justify where my town should be built. <input type="checkbox"/> I can create a model of the ocean and sky. <input type="checkbox"/> I can plan and carry out an investigation to determine how temperature influences

		<p>evaporation and condensation.</p> <ul style="list-style-type: none"> <input type="checkbox"/> I can define a problem(a town needs protection from flooding). <input type="checkbox"/> I can obtain and communicate information about different types of engineers. <input type="checkbox"/> I can work in a team to design solutions using different types of flood protection. <input type="checkbox"/> I can design a solution under a budget. <input type="checkbox"/> I can explore the phenomena of the sun appearing to move across the sky. <input type="checkbox"/> I can figure out the length of a day on hypothetical planets that spin faster and slower than earth. <input type="checkbox"/> I can create a shadow clock. <input type="checkbox"/> I can determine how the position of the sun changes the direction of the shadow at different times of day. <input type="checkbox"/> I can interpret data from my shadow clock to determine what time of day it is. <input type="checkbox"/> I can analyze and interpret data from photographs taken during different seasons and time of day to determine how the sun's path affects Earth's surface. <input type="checkbox"/> I can use evidence from these photos to construct an argument as to what season it is. <input type="checkbox"/> I can develop a model of the universe in order to construct an explanation for why we see different stars during different seasons. <input type="checkbox"/> I can use evidence from my model to make an argument that supports the claim that the Earth orbits around the sun. <input type="checkbox"/> I can develop a model of the sun and moon to carry out an investigation of the Moons' orbit and different moon phases. <input type="checkbox"/> I can obtain information about how the moon
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		<p>goes through each phase.</p> <ul style="list-style-type: none"> <input type="checkbox"/> I can communicate this information by constructing an explanation about what causes the Moon's phases for someone who doesn't know. <input type="checkbox"/> I can use a model of the solar system to learn the order of the planets and their relative distances from the sun and each other. <input type="checkbox"/> I can obtain information about temperature and light conditions that a planet must have for humans to survive. <input type="checkbox"/> I can evaluate information about this topic. I can communicate information about this topic. <input type="checkbox"/> I can use this evidence to engage in an argument and justify my choice for an explorant space mission.
<p>Life Science</p>	<ul style="list-style-type: none"> ❖ Food Chains, Predators, Herbivores and Carnivores ❖ Decomposers, Ecosystems, Nutrients and Matter Cycle ❖ Flow of Energy 	<ul style="list-style-type: none"> <input type="checkbox"/> I can construct a model of different food chains. <input type="checkbox"/> I can explain the relationship between predator and prey. <input type="checkbox"/> I can argue using evidence and reasoning about which organisms can be linked together and in what order. <input type="checkbox"/> I can plan an investigation to determine whether or not air has weight. <input type="checkbox"/> I can conduct an investigation to compare the weights of balloons with and without air. <input type="checkbox"/> I can analyze and interpret data from this investigation to explain what happened and how the evidence may explain how plants gain weight. <input type="checkbox"/> I can ask questions about what conditions will induce and prevent the growth of mold. I can plan and conduct an investigation to test different conditions.

		<ul style="list-style-type: none"><input type="checkbox"/> I can analyze and interpret data to explain how different conditions impact mold growth.<input type="checkbox"/> I can observe worm behavior to determine the worm's role in a garden.<input type="checkbox"/> I can conduct an investigation to test if worms prefer damp or dry places.<input type="checkbox"/> I can create an argument using my results as evidence to support a claim about worms' preferences.<input type="checkbox"/> I can plan and carry out an investigation to answer any question I have about worms.<input type="checkbox"/> I can develop a model to show the flow of energy and matter within an ecosystem.<input type="checkbox"/> I can develop a model of a pond ecosystem, adding different living things to the pond and considering what each thing needs from the ecosystem.<input type="checkbox"/> I can develop a model of a dinosaur food web to see how animals get their energy.<input type="checkbox"/> I can use this model to construct an explanation about how an asteroid killed the dinosaurs.
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Grade 6 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
<p>Science Practices</p>	<p>Students use the components of the scientific process to design and/or carry out an investigation Students obtain, evaluate and communicate information Students engage in argument from evidence Students develop and manipulate a model to predict abstract phenomena Students analyze and interpret data</p>	<ul style="list-style-type: none"> <input type="checkbox"/> I can design and carry out an investigation, following the steps of the scientific process, to solve a self-generated problem safely and appropriately. <input type="checkbox"/> I can use multiple sources that are valid and trustworthy to gather information. My communication is appropriate for the audience and communicated in a clear and concise manner using multiple formats(oral, written and/or visual.) <input type="checkbox"/> I can use 3 or more pieces of valid information to support a claim, and connect my evidence to my claim with reasoning. <input type="checkbox"/> I can use and revise models to describe and test abstract phenomena. I recognize limitations of the model and how it could be improved. <input type="checkbox"/> I can compare various types of data in order to make a valid and reliable claim.
<p>Physical Science</p>	<p>❖ Students understand what the characteristic properties of waves are and how they can be used</p>	<ul style="list-style-type: none"> <input type="checkbox"/> I can accurately label all the parts of the wave and describe wave properties. <input type="checkbox"/> I can give at least 5 examples of human use of waves in daily life.

<p>Earth/SpaceScience</p>	<ul style="list-style-type: none"> ❖ Students understand the organization of our solar system ❖ ESS 1.2 ❖ Students understand how the movement of tectonic plates shapes the surface of the Earth ❖ Students can explain how scientists have investigated and ordered events in Earth's history ❖ Students understand how earth's water and rock cycles work and impact Earth's surface ❖ Students understand factors that regulate weather and climate ❖ Students understand how humans depend on and impact the Earth's systems 	<ul style="list-style-type: none"> ❑ I can accurately model the position of moon, sun and Earth relative to each other to demonstrate moon phases, eclipses and seasons. ❑ I can create a diagram or model of the solar system including Sun, planets, comets, asteroids and moons showing order and orbits. I do not include things that exist beyond our solar system. ❑ I can describe the 3 types of plate boundaries(convergent, divergent and transform) and explain how that plate action caused each landform(mountains,volcanoes,deep sea trenches, island arcs, rift valleys) to develop ❑ I use the law of superposition and absolute age to figure out relative age of rock layers and "which came first" ❑ I can diagram the rock and water cycle and demonstrate how each shapes Earth's surface including: weathering, erosion and volcanism ❑ I can clearly explain factors that affect weather-I describe temperature, humidity and pressure conditions required for a specific weather event ❑ I use what we learned about the ecosystem in OOB and found a good way to share it.
<p>Life Science</p>	<ul style="list-style-type: none"> ❖ Students understand how the fossil record is evidence for history of life on Earth and similarities between organisms. 	<ul style="list-style-type: none"> ❑ I can assemble a timeline of Earth's history putting events in order based on complexity of organism
<p>Engineering/Design</p>	<ul style="list-style-type: none"> ❖ Students are able to design a solution to a problem and improve designs through an iterative process 	<ul style="list-style-type: none"> ❑ I can design, evaluate and refine a solution to a problem, using specific design criteria and constraints.

Grade 7 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Obtaining, evaluating and communicating information ❖ engaging in argument from evidence 	<ul style="list-style-type: none"> <input type="checkbox"/> I can use multiple sources that are valid and trustworthy to gather information. My communication is appropriate for the audience and communicated in a clear and concise manner using multiple formats(oral, written and/or visual.) <input type="checkbox"/> I can use 3 or more pieces of valid information to support a claim, and connect my evidence to my claim with reasoning.
Physical Science	<ul style="list-style-type: none"> ❖ Describe physical interaction between objects and within systems of objects. (Including: laws of motion, gravity, magnetism & electrical forces) ❖ Explain structure and properties of matter, including atoms and molecules. (Assessment boundary: subatomic particles) ❖ Understand what occurs at the atomic and molecular scale during chemical and physical changes. ❖ Understand how energy can be transferred from one object or system to another. ❖ Understand what the characteristic properties of waves are and how they can be used 	<ul style="list-style-type: none"> <input type="checkbox"/> I can name the parts of an electromagnet and build one that works. <input type="checkbox"/> I can explain how the magnetic field of the earth is created and how it influences compasses and animals and helps cause the auroras at the poles. <input type="checkbox"/> I can explain the difference between atoms and molecules and can describe the structure of atoms in terms of protons, neutrons, electrons and energy levels as well as make at least one analogy to demonstrate my understanding of the amount of empty space that exists in atoms. <input type="checkbox"/> I can explain patterns and trends in the periodic table including number of valence electrons, atomic number, atomic mass and reactivity. <input type="checkbox"/> I can explain that atoms react to obtain complete valence shells. <input type="checkbox"/> I can explain how the sun's energy is connected to the greenhouse effect and to the carbon cycle. <input type="checkbox"/> I can follow the path of energy from the sun to at least one impact of climate change.

<p>Earth/Space Science</p>	<ul style="list-style-type: none"> ❖ Earth's place in the universe ❖ understand how the movement of tectonic plates shapes the surface of the Earth. ❖ understand factors that regulate weather and climate. ❖ understand how humans depend on and impact the Earth's systems. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can explain how tectonic plate movement results in the various features of the ocean floor. <input type="checkbox"/> I can diagram and explain the carbon cycle including carbon reservoirs and pathways from one to another and explain what has changed from the pre to post industrial times. <input type="checkbox"/> I can explain how many human activities are connected to burning fossil fuels and how that process impacts the atmosphere and leads to many interrelated problems across the planet.
<p>Life Science</p>	<ul style="list-style-type: none"> ❖ Explain how the structures of organisms contribute to life's functions. ❖ Understand how organisms grow, develop and reproduce. ❖ Understand how organisms obtain and use matter/energy and how matter/energy move through an ecosystem. ❖ Students understand how organisms interact with other organisms in the physical environment to obtain energy and matter. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can explain how various organisms have adapted to survive in the intertidal environment <input type="checkbox"/> I can explain the different ways that bacteria and viruses can reproduce in people and how infection can progress in an organism. <input type="checkbox"/> I can explain how all ecosystems on the earth (other than hydrothermal vent systems) are ultimately solar powered. <input type="checkbox"/> I can explain how carbon moves among the four "spheres" (litho, bio, hydro and atoms) both pre and post industrial revolution. <input type="checkbox"/> I can explain the ways in which cells of the immune system work together to fight off a bacterial or viral invasion. <input type="checkbox"/> I can diagram and explain a portion of the intertidal food web.
<p>Engineering/Design</p>	<ul style="list-style-type: none"> ❖ I am able to improve designs through an iterative process 	<ul style="list-style-type: none"> <input type="checkbox"/> I can design, evaluate and refine a solution to a problem, using specific design criteria and constraints.

Grade 8 Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Use the components of the scientific process to design and/or carry-out an investigation. ❖ Obtaining, evaluating and communicating information ❖ Engaging in argument from evidence ❖ Developing and using models 	<ul style="list-style-type: none"> <input type="checkbox"/> I can independently and collaboratively design and carry out an investigation to solve a teacher generated problem with the support of modeled laboratory techniques, safely and appropriately. <input type="checkbox"/> I use multiple sources cited in MLA format to evaluate the validity of information. Communication is appropriate for the audience and communicated in a clear and concise manner using multiple formats <input type="checkbox"/> I can use three or more pieces of valid information to back up a claim, and connect their evidence to their claim with reasoning. <input type="checkbox"/> I can use and revise models to describe and test abstract phenomena(including diagrams, replica, mathematical representations, analogies and computer simulations)
Physical Science	<ul style="list-style-type: none"> ❖ Describe physical interaction between objects and within systems of objects(including laws of motion, gravity, magnetism and electrical forces ❖ Explain structure and properties of matter, including atoms and molecules(assessment boundary subatomic particles) ❖ Understand what occurs at the atomic and molecular scale during chemical and physical changes. ❖ Students understand how energy can be transferred from one object or 	<ul style="list-style-type: none"> <input type="checkbox"/> I can explain the relationship between the object's mass and the resulting motion when a force is applied. <input type="checkbox"/> I can explain how distance between objects affects the strength of the force between them. <input type="checkbox"/> I can explain structure and properties of matter, including atoms and molecules. <input type="checkbox"/> I can demonstrate understanding of atomic and molecular scale during chemical and physical changes. <input type="checkbox"/> I understand how energy can be transferred from one object or system to another.

	system to another.	
Life Science	<ul style="list-style-type: none"> ❖ Explain how the structures of organisms contribute to life's functions. ❖ Understand how organisms grow, develop and reproduce. ❖ Understand how organisms obtain and use matter/energy and how matter/energy move through an ecosystem. ❖ Understand how organisms interact with other organisms in the physical environment to obtain energy and matter. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can explain how the structures of organisms contribute to life's functions. <input type="checkbox"/> I can construct an explanation for how environmental and genetic factors affect growth of an individual organism in the short term. <input type="checkbox"/> I can use evidence from data or models to explain the role of photosynthesis and how organisms obtain matter and energy from the ecosystem to survive and grow. <input type="checkbox"/> I can explain how organisms and systems of organisms are dependent on their environmental interactions both with other organisms and with nonliving factors
Engineering/Design	<ul style="list-style-type: none"> ❖ Ask questions and define problems using qualitative analysis. ❖ Improve designs through an iterative process. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can ask questions. I can define problems. I can use qualitative analysis. <input type="checkbox"/> I can design, evaluate and refine a solution to a problem, using specific design criteria and constraints.

Earth and Space Physical Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> <input type="checkbox"/> Asking questions and defining problems <input type="checkbox"/> Developing and using models <input type="checkbox"/> Planning and Carrying Out Investigations <input type="checkbox"/> Analyzing and interpreting data <input type="checkbox"/> Using mathematics and computational thinking <input type="checkbox"/> Constructing explanations and designing solutions <input type="checkbox"/> Engaging in Argument from Evidence <input type="checkbox"/> Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> <input type="checkbox"/> The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) <input type="checkbox"/> The problems I present have objectively worded design criteria, AND have clearly outlined constraints. <input type="checkbox"/> The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. <input type="checkbox"/> The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. <input type="checkbox"/> I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. <input type="checkbox"/> I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) <input type="checkbox"/> The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words) <input type="checkbox"/> the solutions I design effectively meet the design criteria and constraints of the problem AND I can engage in an iterative process to improve my design <input type="checkbox"/> the claim I make is accurate and easily understood AND my argument includes

		<p>sufficient evidence</p> <ul style="list-style-type: none"> <input type="checkbox"/> I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.
<p>Physical Science</p>	<ul style="list-style-type: none"> ❖ Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion and radioactive decay ❖ Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass and its acceleration ❖ Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects ❖ Use mathematical representations to support a claim regarding relationships among the frequency, wavelength and speed of waves travelling in various media. ❖ Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. 	<ul style="list-style-type: none"> <input type="checkbox"/> I can develop models to illustrate the changes in the composition of the nucleus of an atom, including the atom released during fission, fusion and radioactive decay <input type="checkbox"/> I can analyse data to support Newton's second law <input type="checkbox"/> I can use mathematical representations of Newton's Law of Gravitation to predicted forces between objects <input type="checkbox"/> I can use mathematical representations to support a claim about the relationship among frequency, wavelength and speed. <input type="checkbox"/> I can evaluate claims in published materials about the effects of radiation being absorbed by matter.

Earth/Space Science

- ❖ Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation
- ❖ Construct an explanation of the big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies and composition of matter in the universe
- ❖ Communicate scientific ideas about the way stars, over their life cycle, produce elements
- ❖ Use mathematical or computational representations to predict the motion of orbiting objects in the solar system
- ❖ Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the age of crustal rocks
- ❖ Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history
- ❖ Develop a model to illustrate how Earth's internal and surface processes operate at a different spatial and temporal scales to form continental and ocean-floor features
- ❖ Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems
- ❖ Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection
- ❖ Plan and conduct an investigation of the
 - ❑ I can create a model to illustrate the life span of the sun
 - ❑ I can construct an explanation of the Big Bang theory based on evidence
 - ❑ I can communicate scientific ideas about the life cycle of the star
 - ❑ I can use representations to predict the motion of objects in the solar system
 - ❑ I can evaluate evidence regarding plate tectonics
 - ❑ I can apply reasoning and evidence to construct an account of Earth's formation
 - ❑ I can develop a model to illustrate the internal and surface properties of the Earth
 - ❑ I can analyze data to portray the ripple effect of changing the earth's surface
 - ❑ I can develop a model of thermal convection representing the earth's interior
 - ❑ I can plan and conduct an investigation of the properties of water and its effects

properties of water and its effects on Earth materials and surface processes

Engineering and Design Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Asking questions and defining problems ❖ Developing and using models ❖ Planning and Carrying Out Investigations ❖ Analyzing and interpreting data ❖ Using mathematics and computational thinking ❖ Constructing explanations and designing solutions ❖ Engaging in Argument from Evidence ❖ Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> ❖ The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) ❖ The problems I present have objectively worded design criteria, AND have clearly outlined constraints. ❖ The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. ❖ The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. ❖ I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. ❖ I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) ❖ The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words) ❖ the solutions I design effectively meet the design criteria and constraints of the

		<p>problem AND I can engage in an iterative process to improve my design</p> <ul style="list-style-type: none"> ❖ the claim I make is accurate and easily understood AND my argument includes sufficient evidence ❖ I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.
<p>Engineering and Design</p>	<ul style="list-style-type: none"> ❖ Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants ❖ Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering ❖ Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability and aesthetics as well as possible social, cultural and environmental impacts ❖ Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem 	<ul style="list-style-type: none"> <input type="checkbox"/> I can analyze a challenge, specify criteria and define constraints for solutions that account for needs and wants <input type="checkbox"/> I can design a solution to a complex real-world problem <input type="checkbox"/> I can break it down into smaller, more manageable problems that can be solved through engineering <input type="checkbox"/> I can evaluate a solution to a complex real-world problem <input type="checkbox"/> I can prioritize criteria and trade offs considering a range of constraints such as cost, safety, reliability and aesthetics <input type="checkbox"/> I can use a computer simulation to model the impact of my proposed solution

Life Science Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Asking questions and defining problems ❖ Developing and using models ❖ Planning and Carrying Out Investigations ❖ Analyzing and interpreting data ❖ Using mathematics and computational thinking ❖ Constructing explanations and designing solutions ❖ Engaging in Argument from Evidence ❖ Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> ❑ The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) ❑ The problems I present have objectively worded design criteria, AND have clearly outlined constraints. ❑ The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. ❑ The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. ❑ I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. ❑ I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) ❑ The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words)the solutions I design effectively meet the design criteria and constraints of the problem AND I can engage in an iterative process to improve my design ❑ the claim I make is accurate and easily understood AND my argument includes sufficient evidence ❑ I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.

Chemistry Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Asking questions and defining problems ❖ Developing and using models ❖ Planning and Carrying Out Investigations ❖ Analyzing and interpreting data ❖ Using mathematics and computational thinking ❖ Constructing explanations and designing solutions ❖ Engaging in Argument from Evidence ❖ Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> <input type="checkbox"/> The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) <input type="checkbox"/> The problems I present have objectively worded design criteria, AND have clearly outlined constraints. <input type="checkbox"/> The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. <input type="checkbox"/> The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. <input type="checkbox"/> I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. <input type="checkbox"/> I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) <input type="checkbox"/> The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words)the solutions I design effectively meet the design criteria and constraints of the problem AND I can engage in an

		<p>iterative process to improve my design</p> <ul style="list-style-type: none"> <input type="checkbox"/> the claim I make is accurate and easily understood AND my argument includes sufficient evidence <input type="checkbox"/> I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.
<p>Physical Science</p>	<ul style="list-style-type: none"> ❖ Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms ❖ Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table and knowledge of the patterns of chemical properties ❖ Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles ❖ Develop a model to illustrate that the release of absorption of energy from a chemical reaction system depends upon the changes in total bond energy ❖ Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. ❖ Refine the design of a chemical system by specifying a change in conditions that 	<ul style="list-style-type: none"> <input type="checkbox"/> I can use the periodic table as a model to make predictions <input type="checkbox"/> I can construct an explanation for the outcome of a chemical reaction, based on my knowledge of the periodic table and the patterns of chemical properties <input type="checkbox"/> I can revise my explanation for the outcome of a chemical reaction, based on my knowledge of the periodic table and the patterns of chemical properties <input type="checkbox"/> I can plan an investigation to compare the structure of substances <input type="checkbox"/> I can conduct an investigation to compare the structure of substances <input type="checkbox"/> I can develop a model to illustrate the release of energy from a chemical reaction <input type="checkbox"/> I can apply scientific principles and evidence to explain changing temperature in a reaction <input type="checkbox"/> I can refine the design of a chemical system by specifying a change in conditions

	would produce increased amounts of products at equilibrium.	
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Environmental Science

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Asking questions and defining problems ❖ Developing and using models ❖ Planning and Carrying Out Investigations ❖ Analyzing and interpreting data ❖ Using mathematics and computational thinking ❖ Constructing explanations and designing solutions ❖ Engaging in Argument from Evidence ❖ Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> <input type="checkbox"/> The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) <input type="checkbox"/> The problems I present have objectively worded design criteria, AND have clearly outlined constraints. <input type="checkbox"/> The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. <input type="checkbox"/> The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. <input type="checkbox"/> I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. <input type="checkbox"/> I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) <input type="checkbox"/> The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words)the solutions I design effectively meet the design criteria and constraints of the problem AND I can engage in an iterative process to improve my design <input type="checkbox"/> the claim I make is accurate and easily understood AND my argument includes sufficient evidence

		<input type="checkbox"/> I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.
Earth and Space Science	<ul style="list-style-type: none"> ❖ Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards and changes in climate have influenced human activity ❖ Evaluate competing design solutions for developing, managing and utilizing energy and mineral resources based on cost-benefit ratios ❖ Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity ❖ Evaluate or refine a technological solution that reduces impacts of human activities on natural systems ❖ Analyse geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts on Earth's systems ❖ Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity 	<ul style="list-style-type: none"> <input type="checkbox"/> I can construct an explanation based on evidence for how the availability of resources and changes in climate have influenced humans <input type="checkbox"/> I can evaluate competing design solutions based on cost-benefit ratios <input type="checkbox"/> I can create a computational simulation to illustrate the relationship among natural resources, sustainability and biodiversity <input type="checkbox"/> I can evaluate or refine a technological solution that reduces the impact of human activity on natural systems <input type="checkbox"/> I can analyze geoscience data to make an evidence based forecast of the current rate of global or regional climate change and the future impact on Earth's systems <input type="checkbox"/> I can use a computational representation to illustrate the relationship among Earth systems and how those systems are being modified due to human activity

Physics Standards

CATEGORY	STANDARD	Performance Indicator/I Can Statement
Science Practices	<ul style="list-style-type: none"> ❖ Asking questions and defining problems ❖ Developing and using models ❖ Planning and Carrying Out Investigations ❖ Analyzing and interpreting data ❖ Using mathematics and computational thinking ❖ Constructing explanations and designing solutions ❖ Engaging in Argument from Evidence ❖ Obtaining, evaluating and communicating information 	<ul style="list-style-type: none"> <input type="checkbox"/> The questions I ask have an objective answer AND are written with cause and effect in mind(i.e. they could be tested) <input type="checkbox"/> The problems I present have objectively worded design criteria, AND have clearly outlined constraints. <input type="checkbox"/> The models I create are BOTH accurate and easily understood. AND I can use these models to answer questions or make predictions about relevant science content. <input type="checkbox"/> The investigations I design produce data related to the intended purpose of the investigation AND there are no major sources of error. <input type="checkbox"/> I am able to make sense of the data, answer basic questions, AND analyze the data for significant patterns or trends. <input type="checkbox"/> I am able to choose an appropriate mathematical procedure for the task at hand AND my work has only minor errors(eg sign errors, rounding errors) <input type="checkbox"/> The explanation I construct is clearly worded AND appropriately detailed AND uses proper scientific vocabulary(ie word wall words)the solutions I design effectively meet the design criteria and constraints of the problem AND I can engage in an iterative process to improve my design <input type="checkbox"/> the claim I make is accurate and easily understood AND my argument includes sufficient evidence

		<input type="checkbox"/> I cite an adequate number of sources for the information I communicate AND the sources I cite are reputable. AND I am able to cite the sources in correct MLA format.
Physical Science	<ul style="list-style-type: none"> ❖ Use mathematical representations to support the claim that total momentum of a system of objects is conserved when there is no force on the system ❖ Apply science and engineering ideas to design, evaluate and refine a device that minimizes the force on a macroscopic object during a collision ❖ Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current ❖ Communicate scientific and technical information about why the molecular level structure is important in the functioning of designed materials ❖ Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other components and energy flows in and out of the system as known ❖ Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles(objects) and energy associated with the relative positions of particles(objects) 	<ul style="list-style-type: none"> <input type="checkbox"/> I can use mathematical representations to support a claim about momentum and force <input type="checkbox"/> I can apply science and engineering ideas to design, evaluate and refine a device that minimizes force during a collision <input type="checkbox"/> I can plan and conduct an investigation to show that an electric current can produce a magnetic field <input type="checkbox"/> I can communicate scientific and technical information about the importance of molecular structure <input type="checkbox"/> I can create a computational model to calculate the change in energy flow in and out of a known system <input type="checkbox"/> I can develop and use models to account for energy at the macroscopic scale <input type="checkbox"/> I can design build and define a device within given constraints to convert one form of energy into another <input type="checkbox"/> I can plan and conduct an investigation to provide evidence about the transfer of thermal energy <input type="checkbox"/> I can develop and use a model of two objects interacting through electric or magnetic fields <input type="checkbox"/> I can evaluate questions about the pros and cons of the digital transmission and storage of information <input type="checkbox"/> I can evaluate claims evidence and reasoning about electromagnetic radiation being either wave or particle models

	<ul style="list-style-type: none"> ❖ Design, build and refine a device that works within given constraints to convert one form of energy into another form of energy ❖ Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system(second law of thermodynamics) ❖ Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction ❖ Evaluate questions about the advantages of using digital transmission and storage of information ❖ Evaluate the claims, evidence and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, or that for some situations one model is more useful than another. ❖ Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy 	<ul style="list-style-type: none"> ☐ I can communicate technical information about how wave behavior and wave interactions to capture information and energy
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