

| Crosswalk from Revised to Current Idaho Content Standards in Science | | | | | |
|---|-------------------------------|---------------------------------|--|--|--|
| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| Kindergarten | Physical Science | Motion: Forces and Interactions | PS1-K-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. | 1.S.2.2.1 Describe the position and motion of objects. (ex. revolve, rotate, at rest, float, and fall) | K.S.1.2.1 Make observations and collect data K.S.1.3.1 Measure in non-standard units K.S.1.4.1 Apply the concepts of yesterday, today, and tomorrow. K.S.1.6.1 Make observations. K.S.1.7.1 Use cooperation and interaction skills K.S.1.8.1 Follow instructions. |
| Kindergarten | Physical Science | Motion: Forces and Interactions | PS1-K-2. Analyze 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. | | |
| Kindergarten | Physical Science | Energy | PS2-K-1. Make observations to determine the effect of sunlight on Earth's surface. | | |
| Kindergarten | Physical Science | Energy | PS2-K-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. | | |
| Kindergarten | Life Science | Molecules to Organisms | LS1-K-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. | K.S.3.1.1 Observe and describe the characteristics of plants and animals. | |
| Kindergarten | Life Science | Molecules to Organisms | | 1.S.3.2.1 State that living things need food to survive. | |
| Kindergarten | Life Science | Molecules to Organisms | LS1-K-2. Use classification supported by evidence to differentiate between living and non-living items. | K.S.3.2.1 Describe the difference between living and non-living things. | |
| Kindergarten | Earth and Space Science | Earth's Systems | ESS1-K-1. Use and share observations of local weather conditions to describe patterns over time, which includes the 4 seasons. | K.S.4.1.1 Name the four seasons. | |
| Kindergarten | Earth and Space Science | Earth's Systems | | K.S.4.1.2 Place the four seasons in order. | |
| Kindergarten | Earth and Space Science | Earth's Systems | | 1.S.4.1.1 Identify the four seasons and their characteristics for a local region | |

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| Kindergarten | Earth and Space Science | Earth's Systems | ESS1-K-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. | | |
| Kindergarten | Earth and Space Science | Earth and Human Activity | ESS2-K-1. Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. | K.S.5.1.1 Describe characteristics of a man-made environment (home, school). | |
| Kindergarten | Earth and Space Science | Earth and Human Activity | ESS2-K-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. | | |
| Kindergarten | Earth and Space Science | Earth and Human Activity | ESS2-K-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. | | |
| 1st Grade | Physical Science | Waves | PS1-1-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. | | 1.S.1.2.1 Make observations, collect data, and use data |
| 1st Grade | Physical Science | Waves | PS1-1-2. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. | | 1.S.1.3.1 Measure in both standard and non-standard units. |
| 1st Grade | Physical Science | Waves | PS1-1-3. Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. | | 1.S.1.4.1 Explain the concepts of past, present, and future. |
| 1st Grade | Physical Science | Waves | PS1-1-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. | | 1.S.1.6.1 Make and record observations. |

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| 1st Grade | Life Science | Molecules to Organisms | LS1-1-1. 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. | | 1.S.1.7.1 Demonstrate cooperation and interaction skills |
| 1st Grade | Life Science | Molecules to Organisms | LS1-1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. | | 1.S.1.8.1 Follow multi-step instructions |
| 1st Grade | Life Science | Molecules to Organisms | LS1-1-3. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. | 1.S.3.1.1 Describe the life cycle of a plant (seed, growth, reproduction, death). | |
| 1st Grade | Life Science | Molecules to Organisms | | 1.S.3.1.2 Describe the life cycle of an animal (birth, development, reproduction, death). | |
| 1st Grade | Life Science | Heredity | LS2-1-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. | | |
| 1st Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted. | | |
| 1st Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-1-2. Make observations at different times of year to relate the amount of daylight to the time of year. | | |
| 2nd Grade | Physical Science | Matter and its Interactions | PS1-2-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. | K.S.2.1.1 Use senses to describe matter | 2.S.1.2.1 Make observations, record and interpret data. |
| 2nd Grade | Physical Science | Matter and its Interactions | | 1.S.2.1.1 Describe properties of objects | 2.S.1.3.1 Measure in standard and non-standard units. |

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| 2nd Grade | Physical Science | Matter and its Interactions | | 2.S.2.1.1 List properties of an object | 2.S.1.4.1 Apply the concepts of past, present, and future |
| 2nd Grade | Physical Science | Matter and its Interactions | PS1-2-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. | | 2.S.1.5.1 Identify shape and use of objects. |
| 2nd Grade | Physical Science | Matter and its Interactions | PS1-2-3. 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. | | 2.S.1.6.1 Identify questions to be investigated. |
| 2nd Grade | Physical Science | Matter and its Interactions | PS1-2-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. | | 2.S.1.6.2 Make observations. |
| 2nd Grade | Life Science | Ecosystems | LS1-2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow. | | 2.S.1.6.3 Analyze information and evidence |
| 2nd Grade | Life Science | Ecosystems | LS1-2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. | | 2.S.1.6.4 Communicate observations. |
| 2nd Grade | Life Science | Biological Adaptation | LS2-2-1. Make observations of plants and animals to compare the diversity of life in different habitats. | 1.S.5.1.1 Identify the characteristics of local natural environments.(playground, backyard). | 2.S.1.7.1 Practice cooperation and interaction skills. |
| 2nd Grade | Life Science | Biological Adaptation | | 2.S.3.2.1 Identify four basic needs of all living things (food, shelter, water, space). | 2.S.1.8.1 Follow multi-step instructions. |

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| 2nd Grade | Life Science | Biological Adaptation | | 2.S.3.2.2 Discuss how animals are suited to live in different habitats. | 2.S.5.2.1 Identify tools people have invented for everyday life and for scientific investigations. |
| 2nd Grade | Life Science | Biological Adaptation | | 2.S.5.1.1 Compare and contrast manmade and natural environments. | |
| 2nd Grade | Life Science | Biological Adaptation | | 3.S.3.1.1 Describe the adaptations of plants and animals to their environment | |
| 2nd Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-2-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. | | |
| 2nd Grade | Earth and Space Science | Earth's Systems | ESS2-2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. | | |
| 2nd Grade | Earth and Space Science | Earth's Systems | ESS2-2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. | | |
| 2nd Grade | Earth and Space Science | Earth's Systems | ESS2-2-3. Obtain information to identify where water is found on Earth and that it can be solid, liquid or gas. | | |
| 3rd Grade | Physical Science | Motion: Forces and Interactions | PS1-3-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. | 2.S.2.2.1 Explain how force affects the position and motion of objects. | 3.S.1.1.1 Label the parts of a system |
| 3rd Grade | Physical Science | Motion: Forces and Interactions | PS1-3-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. | | 3.S.1.2.1 Make observations, collect data and evaluate it |

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| 3rd Grade | Physical Science | Motion: Forces and Interactions | PS1-3-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. | | 3.S.1.2.2 Replicate and/or use models |
| 3rd Grade | Physical Science | Motion: Forces and Interactions | PS1-3-4. Define a simple design problem that can be solved by applying scientific ideas about magnets. | | 3.S.1.3.1 Measure changes that occur. |
| 3rd Grade | Life Science | Ecosystems | LS1-3-1. Construct an argument that some animals form groups that help members survive | | 3.S.1.3.2 Measure in both U.S. Customary and International System of Measurement (metric system) units |
| 3rd Grade | Life Science | Heredity | LS2-3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. | 5.S.3.3.2 Explain the concept that traits are passed from parents to offspring. | 3.S.1.5.1 Describe the relationship between shape and use |
| 3rd Grade | Life Science | Heredity | LS2-3-2. Use evidence to support the explanation that traits can be influenced by the environment. | | 3.S.1.6.1 Identify questions that can be answered by conducting scientific tests. |
| 3rd Grade | Earth and Space Science | Earth's Systems | ESS1-3-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. | 2.S.4.1.1 Describe the characteristics of different weather conditions. | 3.S.1.6.2 Conduct scientific tests |
| 3rd Grade | Earth and Space Science | Earth's Systems | ESS1-3-2. Obtain and combine information to describe climates in different regions of the world. | | 3.S.1.6.3 Use appropriate tools and techniques to gather and display data. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | ESS2-3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. | | 3.S.1.6.4 Use data to construct a reasonable explanation. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.1.6.5 Make simple predictions based on data |

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| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.1.6.6 Identify logical alternative explanations. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.1.6.7 Communicate the results of tests to others. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.1.8.1 Read and give multi-step instructions |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.2.1.1 Use instruments to measure properties. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.5.2.1 Describe how technology helps develop tools. |
| 3rd Grade | Earth and Space Science | Earth and Human Activity | | | 3.S.5.2.2 Describe the development of tools over time |
| 4th Grade | Physical Science | Energy | PS1-4-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. | 3.S.2.3.1 Identify potential and kinetic energy | 4.S.1.1.1 Explain that a system consists of an organized group of related objects that form a whole. |
| 4th Grade | Physical Science | Energy | PS1-4-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. | | 4.S.1.2.1 Make and record observations then analyze and communicate the collected data. |
| 4th Grade | Physical Science | Energy | PS1-4-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. | | 4.S.1.2.2 Define observations and inferences. |
| 4th Grade | Physical Science | Energy | PS1-4-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. | | 4.S.1.2.3 Make, describe and/or use models. |
| 4th Grade | Physical Science | Waves | PS2-4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. | | 4.S.1.3.1 Describe how changes occur and can be measured. |

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| 4th Grade | Physical Science | Waves | PS2-4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. | | 4.S.1.3.2 Measure in both U.S. Customary and International System of Measurement (metric system) units. | |
| 4th Grade | Physical Science | Waves | PS2-4-3. Generate and compare multiple solutions that use patterns to transfer information. | | | |
| 4th Grade | Life Science | Molecules to Organisms | LS1-4-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. | 4.S.3.1.2 Describe the difference between vertebrate and invertebrate animals | 4.S.1.6.1 Write questions that can be answered by conducting scientific tests. | |
| 4th Grade | Life Science | Molecules to Organisms | | 4.S.3.1.3 Classify the five groups of vertebrates (mammal, reptiles, amphibians, birds, and fish) based on characteristics. | | |
| 4th Grade | Life Science | Molecules to Organisms | LS1-4-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. | | | |
| 4th Grade | Life Science | Ecosystems | LS2-4-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. | 3.S.3.2.3 Label a food chain that shows how organisms cooperate and compete in an ecosystem. | | |
| 4th Grade | Life Science | Ecosystems | | 3.S.3.2.4 Diagram the food web and explain how organisms both cooperate and compete in ecosystems | | |
| 4th Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-4-1. Identify evidence from patterns in rock formations and fossils in rock layers for changes in a landscape over time to support an explanation for changes in a landscape over time. | | | |
| | | | | | | 4.S.1.6.2 Conduct scientific tests. |
| | | | | | | 4.S.1.6.3 Use appropriate tools and techniques to gather and display data. |
| | | | | | 4.S.1.6.4 Use data to construct a reasonable explanation. | |
| | | | | | 4.S.1.6.5 Make predictions based on data. | |

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| 4th Grade | Earth and Space Science | Earth's Systems | ESS2-4-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. | | 4.S.1.6.6 Analyze alternative explanations. |
| 4th Grade | Earth and Space Science | Earth's Systems | ESS2-4-2. Analyze and interpret data from maps to describe patterns of Earth's features. | | 4.S.1.6.7 Communicate the results of tests to others in multiple formats |
| 4th Grade | Earth and Space Science | Earth and Human Activity | ESS3-4-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. | 5.S.5.3.1 Identify the differences between renewable and nonrenewable resources. | 4.S.1.8.1 Analyze and follow multistep instructions. |
| 4th Grade | Earth and Space Science | Earth and Human Activity | ESS3-4-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. | 3.S.5.1.1 Identify local environmental issues | 4.S.2.1.1 Use instruments to measure properties |
| 4th Grade | Earth and Space Science | Earth and Human Activity | | 3.S.5.3.1 Explain the concept of recycling | 4.S.5.2.1 Identify tools used for space exploration and for scientific investigations |
| 5th Grade | Physical Science | Matter and its Interactions | PS1-5-1. Develop a model to describe that matter is made of particles too small to be seen. | 5.S.2.1.1 Describe the differences among elements, compounds, and mixtures. | 5.S.1.1.1 Compare and contrast different systems. |
| 5th Grade | Physical Science | Matter and its Interactions | PS1-5-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. | 4.S.2.1.3 Explain the changes caused by heating and cooling materials. | 5.S.1.2.1 Use observations and data as evidence on which to base scientific explanations and predictions. |
| 5th Grade | Physical Science | Matter and its Interactions | PS1-5-3. Make observations and measurements to identify materials based on their properties. | 4.S.2.1.2 Describe the physical properties of solids, liquids, and gases. | 5.S.1.2.2 Explain the difference between observation and inference. |
| 5th Grade | Physical Science | Matter and its Interactions | | 5.S.2.1.2 Compare the physical differences among solids, liquids and gases. | |

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| 5th Grade | Physical Science | Matter and its Interactions | PS1-5-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. | 5.S.2.1.3 Explain the nature of physical change and how it relates to physical properties. | 5.S.1.2.3 Use models to explain or demonstrate a concept. |
| 5th Grade | Physical Science | Motion: Forces and Interactions | PS2-5-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. | | 5.S.1.3.1 Analyze changes that occur in and among systems. |
| 5th Grade | Physical Science | Energy | PS3-5-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. | 3.S.3.2.1 Describe the energy needed for living systems to survive. | 5.S.1.3.2 Measure in both U.S. Customary and International System of Measurement (metric system) units with an emphasis on the metric system. |
| 5th Grade | Physical Science | Energy | | 3.S.3.2.2 Compare and contrast the energy requirements of plants and animals. | |
| 5th Grade | Life Science | Molecules to Organisms | LS1-5-1. Support an argument that plants get the materials they need for growth chiefly from air and water. | 5.S.3.2.1 Communicate how plants convert energy from the Sun through photosynthesis. | 5.S.1.5.1 Explain how the shape or form of an object or system is frequently related to its use or function. |
| 5th Grade | Life Science | Biological Adaptation | LS2-5-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. | | 5.S.1.6.1 Write and analyze questions that can be answered by conducting scientific experiments. |
| 5th Grade | Life Science | Biological Adaptation | LS2-5-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. | | 5.S.1.6.2 Conduct scientific investigations using a control and a variable. |
| 5th Grade | Life Science | Biological Adaptation | LS2-5-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. | 4.S.3.1.1 Analyze and communicate the adaptations of plants and animals to their environment. | 5.S.1.6.3 Select and use appropriate tools and techniques to gather and display data. |

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| 5th Grade | Life Science | Biological Adaptation | LS2-5-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. | | 5.S.1.6.4 Use evidence to analyze descriptions, explanations, predictions, and models. |
| 5th Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-5-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. | | 5.S.1.6.5 State a hypothesis based on observations. |
| 5th Grade | Earth and Space Science | Earth's Place in the Universe | ESS1-5-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. | 3.S.4.1.1 Explain the reasons for length of a day, the seasons, and the year on Earth. | 5.S.1.6.6 Compare alternative explanations and predictions. |
| 5th Grade | Earth and Space Science | Earth's Systems | ESS2-5-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. | 5.S.4.1.1 Describe the interactions among the solid earth, oceans and atmosphere (erosion, climate, tectonics and continental drift). | 5.S.1.6.7 Communicate scientific procedures and explanations. |
| 5th Grade | Earth and Space Science | Earth's Systems | ESS2-5-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. | | 5.S.1.8.1 Read and follow technical instructions. |
| 5th Grade | Earth and Space Science | Earth and Human Activity | ESS3-5-1. Support Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. | 5.S.5.1.1 Identify issues for environmental studies. | 5.S.5.2.1 Describe how science and technology are part of a student's life. |
| 5th Grade | Earth and Space Science | Earth and Human Activity | | | 5.S.5.2.2 List examples of science and technology. |

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| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-1. Develop models to describe the atomic composition of simple molecules and extended structures. | 6.S.2.1.1* Compare and contrast the differences among elements, compounds, and mixtures. | 7.S.1.1.1 Define small systems as a part of a whole system. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | | | |
| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. | | 7.S.1.1.3 Identify the different structural levels of an organism (cells, tissues, organs, and organ systems). |
| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. | | 7.S.1.2.1 Describe how observations and data are evidence on which to base scientific explanations and predictions . |
| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. | 6.S.2.1.3* Compare densities of equal volumes of a solid, a liquid, or a gas. | 7.S.1.2.2 Use observations to make defensible inferences. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | | | 7.S.1.2.3 Use models to explain or demonstrate a concept. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | | 6.S.2.1.5* Explain the nature of physical change and how it relates to physical properties (the distance between molecules as water changes from ice to liquid water and to | 7.S.1.3.1 Identify concepts of science that have been stable over time. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | | 3.S.2.1.2 Identify the physical properties of solids, liquids, and gases. | 7.S.1.3.2 Recognize changes that occur within systems. |

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| Middle School (6-8) | Physical Science | Matter and its Interactions | | 3.S.2.1.3 Explain that heating and cooling can cause changes of state in common materials | 7.S.1.3.3 Make metric measurements using appropriate tools. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. | | 7.S.1.6.1 Identify controls and variables used in scientific investigations. |
| Middle School (6-8) | Physical Science | Matter and its Interactions | PS1-MS-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. | | 7.S.1.6.2 Use appropriate tools and techniques to gather and display data. |
| Middle School (6-8) | Physical Science | Motion: Forces and Interactions | PS2-MS-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. | | 7.S.1.6.3 Evaluate data in order to form conclusions. |
| Middle School (6-8) | Physical Science | Motion: Forces and Interactions | PS2-MS-2. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. | | 7.S.1.6.4 Use evidence and critical thinking to accept or reject a hypothesis. |
| Middle School (6-8) | Physical Science | Motion: Forces and Interactions | PS2-MS-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. | 8-9.PS.2.4.5 Describe the relationships between electricity and magnetism. | 7.S.1.6.5 Evaluate alternative explanations or predictions. |
| Middle School (6-8) | Physical Science | Motion: Forces and Interactions | PS2-MS-4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. | 6.S.2.2.1* Describe the effects of different forces (gravity and friction) on the movement, speed, and direction of an object. | 7.S.1.6.6 Communicate and defend scientific procedures and explanations. |
| Middle School (6-8) | Physical Science | Motion: Forces and Interactions | PS2-MS-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. | | 7.S.1.8.1 Read and evaluate technical instructions. |

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|---|-------------------------------|-------------|--|--|--|
| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| Middle School (6-8) | Physical Science | Energy | PS3-MS-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. | 8-9. PS.2.3.2* Classify energy as potential and/or kinetic and as energy contained in a field. | 7.S.5.2.1 Explain how science and technology are interrelated. |
| Middle School (6-8) | Physical Science | Energy | PS3-MS-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. | | 7.S.5.2.2 Explain how science advances technology. |
| Middle School (6-8) | Physical Science | Energy | PS3-MS-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. | | |
| Middle School (6-8) | Physical Science | Energy | PS3-MS-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. | | |
| Middle School (6-8) | Physical Science | Energy | PS3-MS-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. | | |
| Middle School (6-8) | Physical Science | Waves | PS4-MS-1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. | | |
| Middle School (6-8) | Physical Science | Waves | PS4-MS-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| Middle School (6-8) | Physical Science | Waves | PS4-MS-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. | | |
| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-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. | 5.S.3.3.1 Compare and contrast the structural differences between plant and animal cells. | |
| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-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. | 7.S.3.3.3 Identify the functions of cell structures. | |
| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-3. Use argument supported by evidence for how a living organism is a system of interacting subsystems composed of groups of cells. | 7.S.3.3.1 Explain the relationships among specialized cells, tissues, organs, organ systems, and organisms. | |
| Middle School (6-8) | Life Science | Molecules to Organisms | | 7.S.3.3.2 Identify the parts of specialized plant and animal cells. | |
| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-4. Construct a scientific argument based on evidence to defend a claim of life for a specific object or organism. | | |
| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-5. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. | 7.S.3.2.1 Describe how energy stored in food is primarily derived from the Sun through photosynthesis. | |

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| Middle School (6-8) | Life Science | Molecules to Organisms | LS1-MS-6. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism | 7.S.3.3.4 Describe cell functions that involve chemical reactions. | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. | 7.S.3.2.2 Describe how the availability of resources (matter and energy) limits the distribution and abundance of organisms. | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. | | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. | 7.S.3.2.3 Illustrate how atoms and molecules cycle among the living and nonliving components of the biosphere. | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-4. Develop a model to describe the flow of energy through the trophic levels of an ecosystem. | 7.S.3.2.4 Identify how energy flows through ecosystems in one direction, from photosynthetic organisms to herbivores, carnivores, and decomposers. | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-5. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. | | |
| Middle School (6-8) | Life Science | Ecosystems | LS2-MS-6. Evaluate competing design solutions for maintaining biodiversity and ecosystem services. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| Middle School (6-8) | Life Science | Heredity | LS3-MS-1. Develop and use a model to describe why mutations may result in harmful, beneficial, or neutral effects to the structure and function of the organism. | | |
| Middle School (6-8) | Life Science | Heredity | LS3-MS-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. | 7.S.3.3.5 Describe how dominant and recessive traits are inherited. | |
| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. | | |
| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer relationships. | | |
| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-3. Analyze displays of pictorial data to compare patterns of similarities in the anatomical structures across multiple species of similar classification levels to identify relationships. | | |
| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. | | |

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| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. | | |
| Middle School (6-8) | Life Science | Biological Adaptation | LS4-MS-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. | 7.S.3.1.1 Describe how natural selection explains species change over time. | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | ESS1-MS-1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. | | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | ESS1-MS-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. | 8-9.ES.4.1.1* Explain the current scientific theory that suggests that the solar system formed from a nebular cloud of dust and gas. | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | | 4.S.4.1.2 Explain the effect of gravity on orbits and objects. | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | | 4.S.4.1.3 Explain the effect of moon's gravity on Earth's tides. | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | ESS1-MS-3. Analyze and interpret data to determine scale properties of objects in the solar system. | 4.S.4.1.1 Compare and contrast the basic components of our solar system (planets, sun, moon, asteroids, comets, meteors). | |
| Middle School (6-8) | Earth and Space Science | Earth's Place in the Universe | ESS1-MS-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's history. | 8-9.ES.4.1.2* Identify methods used to estimate geologic time. | |

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| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. | 6.S.4.1.1* Explain the interactions among the solid earth, oceans, atmosphere, and organisms. | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | | 5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks. | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. | 8-9.ES.4.1.3* Show how interactions among solid earth, oceans, atmosphere, and organisms have changed the earth system over time. | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. | | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-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.S.4.1.2* Explain the water cycle and its relationship to weather and climate. | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. | 6 S.4.1.3* Identify cumulus, cirrus, and stratus clouds and how they relate to weather changes. | |
| Middle School (6-8) | Earth and Space Science | Earth's Systems | ESS2-MS-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. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | ESS3-MS-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. | | |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | ESS3-MS-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. | | |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | ESS3-MS-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. | 9-10.B.5.1.1 Analyze environmental issues such as water and air quality, hazardous waste, forest health, and agricultural production. | |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | ESS3-MS-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. | 7.S.5.3.1 Identify alternative sources of energy. | |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | | 9-10.B.5.3.1 Describe the difference between renewable and nonrenewable resources. | |
| Middle School (6-8) | Earth and Space Science | Earth and Human Activity | ESS3-MS-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. | 9-10.B.3.3.2 Explain cell functions involving chemical reactions. | 9-10.B.1.1.1 Explain the scientific meaning of system, order, and organization. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. | 9-10.B.3.3.1 Identify the particular structures that underlie the cellular functions. | 9-10.B.1.1.2 Apply the concepts of order and organization to a given system. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. | | 9-10.B.1.2.1 Use observations and data as evidence on which to base scientific explanations. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. | 9-10.B.3.3.3 Explain how cells use DNA to store and use information for cell functions. | 9-10.B.1.2.2 Develop models to explain concepts or systems. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. | | 9-10.B.1.2.3 Develop scientific explanations based on knowledge, logic and analysis. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. | | 9-10.B.1.3.1 Measure changes that can occur in and among systems. |
| High School | Life Science (Biology) | Molecules to Organisms | LS1-HS-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy. | 9-10.B.3.2.4 Describe cellular respiration and the synthesis of macromolecules. | 9-10.B.1.3.2 Analyze changes that can occur in and among systems. |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Life Science (Biology) | Ecosystems | LS2-HS- 1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. | | 9 -10.B.1.3.3 Measure and calculate using the metric system. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. | | 9-10.B.1.6.1 Identify questions and concepts that guide scientific investigations. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. | | 9-10.B.1.6.2 Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. | 9-10.B.3.2.1 Explain how matter tends toward more disorganized states (entropy). | 9-10.B.1.6.3 Use appropriate technology and mathematics to make investigations. |
| High School | Life Science (Biology) | Ecosystems | | 9-10.B.3.2.2 Explain how organisms use the continuous input of energy and matter to maintain their chemical and physical organization. | 9-10.B.1.6.4 Formulate scientific explanations and models using logic and evidence. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. | 9-10.B.3.2.3 Show how the energy for life is primarily derived from the Sun through photosynthesis. | 9-10.B.1.6.5 Analyze alternative explanations and models. |
| High School | Life Science (Biology) | Ecosystems | | 9-10.B.3.2.5 Show how matter cycles and energy flows through the different levels of organization of living systems (cells, organs, organisms, communities and their environment). | 9-10.B.1.6.6 Communicate and defend a scientific argument. |

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| High School | Life Science (Biology) | Ecosystems | LS2-HS-6. Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. | | 9-10.B.1.6.7 Explain the differences among observations, hypotheses, and theories. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. | | 9-10.B.1.8.1 Analyze technical writing, graphs, charts, and diagrams. |
| High School | Life Science (Biology) | Ecosystems | LS2-HS-8. Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. | | 9-10.B.5.2.1 Explain how science advances technology. |
| High School | Life Science (Biology) | Heredity | LS3-HS- 1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. | 9-10.B.3.3.4 Explain how selective expression of genes can produce specialized cells from a single cell. | 9-10.B.5.2.2 Explain how technology advances science. |
| High School | Life Science (Biology) | Heredity | LS3-HS-2. Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors. | | 9-10.B.5.2.3 Explain how science and technology are pursued for different purposes. |
| High School | Life Science (Biology) | Heredity | LS3-HS-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. | | |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS- 1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. | 9-10.B.3.1.2 Explain how evolution is the consequence of interactions among the potential of a species to increase its numbers, genetic variability, a finite supply of resources, and the selection by the environment of those offspring better able to survive and reproduce. | |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait. | | |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations. | 9-10.B.3.1.1 Use the theory of evolution to explain how species change over time. | |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. | | |
| High School | Life Science (Biology) | Biological Adaptation | LS4-HS-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. | | |
| High School | Physical Science Chemistry | Structure and Properties of Matter | PSC1-HS-1. Develop models to describe the atomic composition of simple molecules and extended structures. | | |

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| High School | Physical Science Chemistry | Structure and Properties of Matter | PSC1-HS-2. 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. | 8-9.PS.2.4.1 Describe the properties, function, and location of protons, neutrons, and electrons. | |
| High School | Physical Science Chemistry | Structure and Properties of Matter | PSC1-HS-3. 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. | 8-9.PS.2.4.4 State the basic electrical properties of matter. | |
| High School | Physical Science Chemistry | Structure and Properties of Matter | PSC1-HS-4. 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 other types of radioactive decay. | 8-9 PS.2.4.2. Explain the processes of fission and fusion. | |
| High School | Physical Science Chemistry | Structure and Properties of Matter | | 8-9.PS.2.4.3 Describe the characteristics of isotopes. | |
| High School | Physical Science Chemistry | Structure and Properties of Matter | PSC1-HS-5. Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. | | |
| High School | Physical Science Chemistry | Chemical Reactions | PSC2-HS-1 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. | | |
| High School | Physical Science Chemistry | Chemical Reactions | PSC2-HS-2. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. | 8-9.PS.2.5.1 Explain how chemical reactions release or consume energy while the quantity of matter remains constant. | |

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| High School | Physical Science Chemistry | Chemical Reactions | PSC2-HS-3. 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. | | |
| High School | Physical Science Chemistry | Chemical Reactions | PSC2-HS-4. Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. | | |
| High School | Physical Science Chemistry | Chemical Reactions | PSC2-HS-5. Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. | | |
| High School | Physical Science Chemistry | Energy | PSC3-HS-1. Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other. | | |
| High School | Physical Science Chemistry | Energy | PSC3-HS-2 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 component(s) and energy flows in and out of the system are known. | | |
| High School | Physical Science Chemistry | Energy | PSC3-HS-3. Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects). | | |

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| High School | Physical Science Chemistry | Energy | PSC3-HS-4*. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. ---OPTIONAL | | |
| High School | Physical Science Chemistry | Energy | PSC3-HS-5. 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). | | |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-1. 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. | 8-9*.PS.2.2.1 Explain motion using Newton's Laws of Motion. | |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-2. Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system. | | |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-3. Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision. | | |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-4. Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-5. 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. | | |
| High School | Physical Science Physics | Motion: Forces and Interactions | PSP1-HS-6. Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. | | |
| High School | Physical Science Physics | Energy | PSP2-HS-1 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 component(s) and energy flows in and out of the system are known. | | |
| High School | Physical Science Physics | Energy | PSP2-HS-2. Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects). | 8-9.PS.2.3.1* Explain that energy can be transformed but cannot be created nor destroyed. | |
| High School | Physical Science Physics | Energy | PSP2-HS-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. | | |
| High School | Physical Science Physics | Energy | PSP2-HS-4. 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). | | |

** Now embedded in scientific and engineering practices required to complete Performance Expectations

| Crosswalk from Revised to Current Idaho Content Standards in Science | | | | | |
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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Physical Science Physics | Energy | PSP2-HS-5. 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. | | |
| High School | Physical Science Physics | Waves | PSP3-HS-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media. | | |
| High School | Physical Science Physics | Waves | PSP3-HS-2. Evaluate questions about the advantages of using digital transmission and storage of information. | | |
| High School | Physical Science Physics | Waves | PSP3-HS-3. Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other. | | |
| High School | Physical Science Physics | Waves | PSP3-HS-4. Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter. | | |
| High School | Physical Science Physics | Waves | PSP3-HS-5. 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. | | |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-1. 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. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-2. 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. | | |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-3. Communicate scientific ideas about the way stars, over their life cycle, produce elements. | | |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-4. Use mathematical or computational representations to predict the motion of orbiting objects in the solar system. | | |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. | | |
| High School | Earth and Space Science | Earth's Place in the Universe | ESS1-HS-6. 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. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-1. Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-3. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection. | 8-9.ES.4.2.1* Explain the internal and external energy sources of the earth. | |

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|---|-------------------------------|--------------------------|--|-----------------------------------|--|
| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-4. Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. | | |
| High School | Earth and Space Science | Earth's Systems | ESS2-HS-7. Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth. | | |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-1. 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. | | |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. | | |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-3. Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity. | | |

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| Grade Level | Proposed Idaho Science | Unit | Performance Standards | 2007/2010 Science Standard | 2007/2010 Nature of Science Standards** |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. | 9-10.B.5.1.1 Analyze environmental issues such as water and air quality, hazardous waste, forest health, and agricultural production. | |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-5. Analyze 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 to Earth systems. | | |
| High School | Earth and Space Science | Earth and Human Activity | ESS3-HS-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. | | |

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