



Correlation of *Core Knowledge® Sequence* & Colorado Grade Level Expectations

| Core Knowledge® Content (Science-Kindergarten) | Colorado Grade Level Expectations (Kindergarten-Science) |
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| I. Plants and Plant Growth | |
| ▪ | K.3.B use pictures to describe the growth of a plant K.4.H identify that water is important to all living things on Earth K.1.2.E observe and describe changes in a simple system (e.g. plant terrarium, ant farm, aquarium) |
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| ▪ | K.3.C describe some plants and animals that live in different places (e.g. polar bear) and how they are different (this is studied in more depth in Grade 1: Science: Habitats) |
| ▪ | K.4.C know that soil and rock are materials of the earth; soil is used to grow plants we use as food; soils have properties of color and texture |
| II. Animals and Their Needs | |
| ▪ | K.3.A identify and describe living and non living things K.3.C describe some plants and animals that live in different places (e.g. polar bear) and how they are different (this is studied in more depth in Grade 1: Science: Habitats) K.4.H identify that water is important to all living things on Earth |
| III. The Human Body | |
| ▪ | K.2.B identify physical properties of objects that are detected by the senses (e.g. large or small, odor, rough or smooth, heavy or light, soft or hard) |
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| IV. Introduction to Magnetism | |
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| V. Seasons and Weather | |
| ▪ | K.4.D identify events that change the Earth's surface (hurricanes, tornadoes, earthquakes) |
| ▪ | K.1.2.F observe and describe simple patterns and cycles (e.g. seasons, day/night, geometric designs) K.4.F name the four seasons and some characteristics of each |
| ▪ | K.4.F name the four seasons and some characteristics of each |
| ▪ | K.4.I know that the sun can only be seen in the daytime whereas the moon can be seen mostly at night but sometimes during the day K.5.C recognize some resources that come from the Earth and sun (e.g. soil from the Earth; light from the sun) |
| ▪ | K.2.D predict whether an object can sink or float K.4. Edescribe how activities and clothing must be changed to agree with the weather K.4.G know that rain and snow furnish water for rivers |
| VI. Taking Care of the Earth | |
| ▪ | K.5.C recognize some resources that come from the Earth and sun (e.g. soil from the Earth; light from the sun) K.4.A identify that the Earth is a planet with many living and nonliving things, also covered in Grade 1: Science: The Earth |
| VII. Science Biographies | |

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| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i> , but can be covered in other areas |
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| This can be covered in many other areas, see note to teachers above | K.1.1.A ask reasonable questions based on observation about objects, organisms, and events in their environment |
| This can be covered in many other areas, see note to teachers above | K.1.1.B state simple hypotheses about cause and effect relationships in the environment |
| This can be covered in many other areas, see note to teachers above | K.1.1.C predicts the results of an observable cause and effect relationship in the environment |
| This can be covered in many other areas, see note to teachers above | K.1.1.D ask "what if" questions and explore multiple possible explanations |
| Kindergarten: Mathematics: Patterns and Classification and Measurement | K.1.2.A organize (e.g. sort, classify, sequence) and explore how objects, organisms, and events are measured according to different characteristics |
| Kindergarten: Mathematics: Measurement | K.1.2.B perform simple measurements using appropriate tools and devices |
| Kindergarten: Mathematics: Patterns and Classification | K.1.2.C compare observable characteristics of common objects (e.g. size, color, texture) for similarities and differences |
| Kindergarten: Mathematics: Measurement | K.1.2.D compare objects according to their measurement (e.g. larger than, heavier than) |
| This can be covered in many other areas, see note to teachers above | K.1.3.A offer explanations of observed events and evidence of event |
| This can be covered in many other areas, see note to teachers above | K.1.4.A communicate observations and comparisons through various means such as pictographs, pictures, models, and words |
| This can be covered in many other areas, see note to teachers above | K.1.4.B describe observations with pictures, pictographs, models, and words |
| This can be covered in many other areas, see note to teachers above | K.1.4.C describe similarities and differences of observations |
| Kindergarten: Mathematics: Patterns and Classification | K.2.A sort common objects (e.g. blocks, rocks, buttons) using specific properties such as shape, texture, color, patterns |
| Grade 1: Science: Matter | K.2.C describe or demonstrate how matter can be mixed or put together (e.g. mix different liquids and describe the results) |
| Kindergarten: History and Geography: Spatial Sense, Grade 1: History and Geography: Spatial Sense, Grade 1: Science: Habitats and The Earth | K.4.B identify major features of the Earth's surface (e.g. mountains, oceans, forests, deserts) |
| This can be covered in many other areas, see note to teachers above | K.5.A describe differences between natural objects and objects made by people |
| This can be covered in many other areas, see note to teachers above | K.5.B recognize how people use observation and prediction in their jobs |
| This can be covered in many other areas, see note to teachers above | K.5.D use tools and simple construction materials |
| This can be covered in many other areas, see note to teachers above | K.6.A know that in order to learn, it is important to observe the same things often and compare them |
| This can be covered in many other areas, see note to teachers above | K.6.B know that when experiments are repeated under the same conditions, similar results are usually obtained |
| This can be covered in many other areas, see note to teachers above | K.6.C know that in doing science it is often helpful to work with a team and to share findings with others |
| Core Knowledge® Content (Science-Grade 1) | Colorado Grade Level Expectations (Grade 1-Science) |
| I. Living Things and Their Environments | |
| A. Habitats | |
| ▪ | 1.3.A distinguish living from non living things 1.3.D discuss how living and nonliving things change over time (e.g. insects), also covered in Grade 2: Science: Insects and Life Cycles |
| ▪ | |
| ▪ | 1.3.B describe the changes that take place as a previously living thing decays in the environment (e.g. plants: fruit with skin and without skin over time) |
| B. Oceans and Undersea Life | 1.1.2.E draw pictures that portray some features of a natural event they observe (e.g. fish in aquarium, weather change) |
| ▪ | 1.2.E investigate which objects will sink or float, covered in great depth in Grade 8: Science: Physics |
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| C. Environmental Change and Habitat Destruction | |
| ▪ | 1.2.C describe interactions that produce change in a system (e.g. making mobiles to understand balance and stability) |
| D. Special Classification of Animals | |
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| ▪ | 1.4.B know that fossils are evidence of plants and animals that lived on Earth long ago |
| II. The Human Body | |
| A. Body Systems | |
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| B. Germs, Diseases, and Preventing Illness | |
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| III. Matter | |
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| ▪ | 1.2.A examine, describe, and compare objects based on common physical properties (e.g. an ice cube melting) |
| IV. Properties of Matter: Measurement | |
| ▪ | 1.1.2.C perform simple measurements using appropriate tools and devices (e.g. magnifiers, thermometers, rulers), also covered in Grade 1: Mathematics: Measurement |
| ▪ | 1.1.2.C perform simple measurements using appropriate tools and devices (e.g. magnifiers, thermometers, rulers), also covered in Grade 1: Mathematics: Measurement |
| V. Introduction to Electricity | 1.5.B design a simple plan for a new invention and report on it, can also be covered in other areas |
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| VI. Astronomy: Introduction to the Solar System | |
| ▪ | 1.4.G know that the sun provides light, also covered in Grade 3: Science: Astronomy |
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| ▪ | 1.2.D understand that things near the earth fall to the ground unless something holds them up, also covered in Grade 3: Science: Astronomy |
| VII. The Earth | |
| A. Geographical Features of the Earth's Surface | |
| ▪ | 1.4.C explore some processes that change the Earth's surface (e.g. erosion, weathering), also covered in more depth in Grade 4: Science: Geology: Weathering and Erosion |

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| B. What's Inside the Earth | |
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| ▪ | 1.4.A know that Earth's materials are part of the Earth's surface |
| VIII. Science Biographies | |
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| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 1.1.1.A ask reasonable questions based on observation about objects, organisms, and events in their environment |
| This can be covered in many other areas, see note to teachers above | 1.1.1.B state simple hypotheses about cause and effect relationships in the environment |
| This can be covered in many other areas, see note to teachers above | 1.1.1.C predicts the results of an observable cause and effect relationship in the environment |
| This can be covered in many other areas, see note to teachers above | 1.1.1.D ask "what if" questions and explore multiple possible explanations |
| This can be covered in many other areas, see note to teachers above | 1.1.2.A conduct simple inquiry based on his/her own questions |
| Kindergarten: Science: The Human Body | 1.1.2.B make multiple observations of events and explorations using the five senses (or as many of the five senses as are appropriate) |
| Grade 2: Science: Simple Machines | 1.1.2.D manipulate a simple mechanical device and verbally communicate how it works |
| Grade 1: Mathematics: Numbers and Number Sense | 1.1.2.F record observations/data on a bar graph |
| Grade 1: Mathematics: Geometry | 1.1.2.G describe the relative position of objects using two references (e.g. above and next to, below and left of) |
| This can be covered in many other areas, see note to teachers above | 1.1.3.A consider the ideas expressed by other about natural events and discuss whether these ideas can be supported by fact |
| This can be covered in many other areas, see note to teachers above | 1.1.3.B be able to reasonably explain what they observe in an inquiry on a science topic that interests them |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 1.2.B explore forms of energy (e.g. heat and moving objects; choose an object and observe how it moves on different surfaces) |
| Grade 2: Science: Cycles in Nature: Life Cycles | 1.3.C explore life cycles of selected organisms (e.g. cat, mealworm, bees) |
| Grade 3: Science: Introduction to Classification of Animals | 1.3.E discuss how each plant or animal has different structures that serve different functions in growth and survival |
| Grade 2: Science: Cycles in Nature: Life Cycles | 1.3.F know that plants and animals have predictable life cycles |
| Kindergarten: Science: Seasons and Weather, Grade 2: Science: Cycles in Nature: Seasonal Cycles | 1.4.D draw pictures of the four seasons |
| Kindergarten: Science: Seasons and Weather, Grade 2: Science: Cycles in Nature: Seasonal Cycles | 1.4.E identify changes in weather and know that weather changes with the seasons in different regions of the United States |
| Kindergarten: Science: Plants and Plant Growth and Grade 2: Science: The Water Cycle | 1.4.F know that water is needed to support the growth of plants in our food supply |
| This can be covered in many other areas, see note to teachers above | 1.5.A identify daily activities/devices used in everyday life that involve the use of technology |
| This can be covered in many other areas, see note to teachers above | 1.5.C identify types of people that use science and technology in their jobs |
| This can be covered in many other areas, see note to teachers above | 1.6.A know that in order to learn, it is important to observe the same things often and compare them |
| This can be covered in many other areas, see note to teachers above | 1.6.B know that when experiments are repeated under the same conditions, similar results are usually obtained |
| This can be covered in many other areas, see note to teachers above | 1.6.C know that in doing science it is often helpful to work with a team and to share findings with others |
| Core Knowledge[®] Content (Science-Grade 2) | Colorado Grade Level Expectations (Grade 2-Science) |
| I. Cycles in Nature | |

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| A. Seasonal Cycles | |
| ▪ | 2.4.E know that the sun's movements can be observed and described, also covered in Grade 1: Science: Astronomy and Grade 3: Science: Astronomy 2.4.G identify patterns and changes in the sun, moon, and stars, also covered more in depth in Grade 1: Science: Astronomy and Grade 3: Science: Astronomy |
| ▪ | 2.3.B recognize that green plants need energy from sunlight and various raw materials to live, also covered in Grade 5: Science: Plant Structure and Processes 2.3.C identify variables that affect plant growth (e.g. water and light), also covered in Kindergarten: Science: Plants and Plant Growth |
| B. Life Cycles | |
| ▪ | 2.1.1.H identify a sequence of events in a natural cycle (e.g. water cycle, life to death) |
| ▪ | 2.3.H identify and discuss the similarities and differences between parents and their offspring, also covered in Kindergarten: Science: Animals and Their Needs |
| C. The Water Cycle | |
| ▪ | |
| ▪ | 2.1.1.H identify a sequence of events in a natural cycle (e.g. water cycle, life to death) 2.4.C describe how plants cycle water through their parts (e.g. soil, roots, stem, leaves, and atmosphere), also covered in Grade 5: Science: Plant Structure and Processes |
| II. Insects | |
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| ▪ | 2.3.E describe metamorphosis of insects (e.g. butterfly, beetle) |
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| III. The Human Body | |
| A. Cells | |
| ▪ | |
| B. The Digestive System and Excretory Systems | |
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| C. Taking Care of Your Body: A Healthy Diet | |
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| IV. Magnetism | |
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| ▪ | 2.2.B identify the properties of magnets |
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| V. Simple Machines | |
| ▪ | 2.2.D make observations and gather data on quantities associated with energy, movement, and change (e.g. time to melt an ice cube) 2.2.E compare quantities associated with energy movement and change by constructing simple diagrams and charts (e.g. chart of melting time) 2.2.G recognize motion, light, heat, and sound as forms of energy (e.g. make a musical instrument to investigate sound; observe and describe what happens when a rolling object travels down an incline at different heights; investigate light by using mirrors) |
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| VI. Science Biographies | |
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| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 2.1.1.A create and refine ideas and questions about events in their environment by asking for information and trying things out (e.g. identify a simple problem and test a possible solution) |
| Grade 1: Mathematics: Patterns and Classification | 2.1.1.B observe patterns and make predictions based on the observation |
| This can be covered in many other areas, see note to teachers above | 2.1.1.C develop solutions to unfamiliar problems through reasoning and inquiry that includes formulating a plan, gathering data and constructing a reasonable explanation |
| Grade 2: Mathematics: Measurement | 2.1.1.D use accurate tools to observe and measure during an inquiry |
| Grade 2: Mathematics: Measurement | 2.1.1.E measure length, temperature, and liquid volume with appropriate tools and express measurements |
| Grade 1: Mathematics: Patterns and Classification | 2.1.1.F compare and sort common objects based on two or more physical attributes (e.g. color and texture, size and shape) |
| This can be covered in many other areas, see note to teachers above | 2.1.1.G conduct inquiry into a topic of their interest and run repeat trials of a related simple experiment to compare results |
| This can be covered in many other areas, see note to teachers above | 2.1.1.I distinguish between actual observations from ideas and speculation about what was observed |
| This can be covered in many other areas, see note to teachers above | 2.1.1.J describe the process used in solving the problem or investigation |
| Grade 1: Mathematics: Patterns and Classification, Grade 2: Mathematics: Measurement | 2.1.1.K create communications that describe and compare things in terms of numbers, shape, texture, size, odor, sound, mass, and motion |
| This can be covered in many other areas, see note to teachers above | 2.1.1.L restate, illustrate, or summarize what others have said |
| This can be covered in many other areas, see note to teachers above | 2.1.1.M use a variety of media to search for information |
| Grade 2: Mathematics: Measurement | 2.1.2.D use accurate metric measuring tools to observe and measure objects |
| This can be covered in many other areas, see note to teachers above | 2.1.2.L write or draw descriptions of a sequence of steps, events, and observations |
| This can be covered in many other areas, see note to teachers above | 2.1.3.A identify a simple problem and test a possible solution |
| Grade 2: Mathematics: Measurement | 2.1.3.E measure length, temperature, and liquid volume with appropriate tools and express measurements in standard and non-standard units |
| Grade 1: Science: Matter and Grade 4: Chemistry | 2.2.A examine, describe, and compare the properties of solids and liquids |
| This can be covered in many other areas, see note to teachers above | 2.2.C separate mixtures according to their properties (e.g. sand and gravel, sand and iron filings) |
| Grade 3: Science: Sound | 2.2.F know that sound is caused by vibration (e.g. use a variety of items such as cymbals, hair combs, rulers to produce sounds and record the physical evidence of how things that make sound vibrate) |
| Kindergarten: Science: Plants and Plant Growth, Grade 5: Science: Plant Structures and Processes | 2.3.A identify parts of plants (e.g. stem, root, seed, flower, leaf, bud, bulb) |
| Grade 1: Science: Living Things and Their Environments | 2.3.D recognize and compare the structural characteristics of plants and animals (e.g. plants and animals that live in the ocean with those that live on land) |

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| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 2.3.F recognize how environmental changes influence the life and death of plants and animals |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 2.3.G discuss how the behavior of animals and plants is dependent upon their environment |
| Grade 1: Science: The Earth | 2.4.A describe the components of soil (e.g. organize a rock collection) |
| Grade 1: Science: The Earth | 2.4.B compare the ingredients in different soils |
| Grade 1: Science: The Earth | 2.4.D explore that soils differ in their capacity to retain water |
| Grade 1: Science: Astronomy, Grade 3: Science: Astronomy | 2.4.F know that the sun provides heat |
| Kindergarten: Science: Taking Care of the Earth and Grade 3: Science: Ecology | 2.5.A use a variety of materials (e.g. wood, plastic, fabric, clay) to make simple products and identify what can be recycled and what can not |
| This can be covered in many other areas, see note to teachers above | 2.5.B identify careers that use science and technology |
| This can be covered in many other areas, see note to teachers above | 2.5.C identify the use of technologies in their everyday life |
| This can be covered in many other areas | 2.6.A know that in order to learn, it is important to observe the same things often and compare them |
| This can be covered in many other areas | 2.6.B know that when experiments are repeated under the same conditions, similar results are usually obtained |
| This can be covered in many other areas | 2.6.C know that in doing science it is often helpful to work with a team and to share findings with others |
| Core Knowledge® Content (Science-Grade 3) | Colorado Grade Level Expectations (Grade 3-Science) |
| I. Introduction to Classification of Animals | |
| ▪ | 3.3.D identify characteristics of plants and animals that allow them to live in specific environments, also covered in Grade 1: Science: Living Things and Their Environments |
| II. The Human Body | |
| A. The Muscular System | |
| ▪ | 3.3.E recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival, also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2: Science: The Human Body, and in subsequent grade levels |
| B. The Skeletal System | |
| ▪ | 3.3.E recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival, also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2: Science: The Human Body, and in subsequent grade levels |
| C. The Nervous System | |
| ▪ | 3.3.E recognize that the human body is made up of systems with structures and functions that are related and serve different functions in growth and survival, also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2: Science: The Human Body, and in subsequent grade levels |
| D. Vision: How the Eye Works | |
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| E. Hearing: How the Ear Works | |
| ▪ | |
| III. Light and Optics | |
| ▪ | 3.2.E predict which materials will reflect, which will absorb, and which will transmit light (e.g. glass, clear plastic, paper) |
| IV. Sound | |
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| ▪ | 3.2.G predict the pitch of a sound compared to the size of the instrument |
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| V. Ecology | |
| ▪ | 3.3.B recognize that all organisms cause and respond to changes in their environment 3.3.D identify characteristics of plants and animals that allow them to live in specific environments |
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| ▪ | 3.3.C describe and draw food chains |
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| VI. Astronomy | |
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| ▪ | 3.4.A recognize that the sun is a principle source of Earth's heat and light and is a major factor in weather systems 3.6.B know that a model of something is different from the real thing, but can be used to learn something about the real thing |
| ▪ | 3.4.A recognize that the sun is a principle source of Earth's heat and light and is a major factor in weather systems 3.4.F know that every 24 hours, the Earth makes a full rotation on its axis which cause the day and night cycle |
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| VII. Science Biographies | |
| ▪ | 3.5.A list some major inventions in the 19 th century and compare them to the major inventions in the 20 th century |
| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Standards not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 3.1.1.A predict what is missing and what will come next in sequences of objects and events and test his/her predictions |
| This can be covered in many other areas, see note to teachers above | 3.1.1.B seek evidence to support ideas by asking, "How does it work?" "How do we know?" "Why?" |
| This can be covered in many other areas, see note to teachers above | 3.1.1.C predict the outcome of a simple investigation and compare the result to the prediction |
| This can be covered in many other areas, see note to teachers above | 3.1.1.D select and explore the use and accuracy of a variety of measuring devices |
| Grade 3: Mathematics: Numbers and Number Sense | 3.1.1.E demonstrate alternate ways to display data |

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| This can be covered in many other areas, see note to teachers above | 3.1.1.F search for information from multiple sources |
| This can be covered in many other areas, see note to teachers above | 3.1.1.G explain and discuss various influences affecting observations and interpretations |
| This can be covered in many other areas, see note to teachers above | 3.1.1.H use numerical data in describing and comparing objects, events, and measurements |
| This can be covered in many other areas, see note to teachers above | 3.1.1.I seek evidence to support opinions, statements, and conclusions |
| Grade 3: Mathematics: Measurement | 3.2.A measure common physical properties of objects (e.g. length, mass, volume, temperature) |
| Grade 6: Science: Heat, Energy, and Heat Transfer | 3.2.B investigate that heat can be produced in many ways (e.g. burning, rubbing, mixing one substance with another) |
| Grade 6: Science: Heat, Energy, and Heat Transfer | 3.2.C identify and consider a variety of methods that produce heat by friction (e.g. rubbing hands together, rubbing pieces of metal together, shaking sand in a can) |
| Grade 1: Science: Introduction to Magnetism, Grade 2: Science: Magnetism, Grade 4: Science: Electricity | 3.2.D identify characteristics of conductive materials and of insulative materials |
| Grade 2: Science: Simple Machines | 3.2.F identify simple machines (e.g. lever, pulley, incline plane, wedge, gears) |
| Grade 4: Chemistry: Properties of Matter | 3.2.H investigate the properties of oil and water and why they do not mix (simple introduction to density) |
| Grade 2: Science: Cycles of Nature: Life Cycles | 3.3.A describe how plants and animals have life cycles (e.g. birth, growth, reproduction, and death) |
| Grade 4: Science: Meteorology | 3.4.B describe natural processes that change the Earth's surface (e.g. erosion, weathering) |
| Grade 2: Science: Cycles in Nature: The Water Cycle, Grade 4: Science: Meteorology | 3.4.C collect and record weather condition data (e.g. temperature, amount of cloud cover, rainfall) |
| Grade 2: Science: Cycles in Nature: The Water Cycle, Grade 4: Science: Meteorology | 3.4.D draw a picture illustrating how water cycles in nature |
| Grade 1: Science: Oceans, Grade 2: Science: Cycles in Nature: The Water Cycle | 3.4.E identify and describe the states water can be found on Earth (glaciers, oceans, clouds) |
| This can be covered in many other areas, see note to teachers above | 3.5.B know that people have always invented new ways to solve problems and get work done; these new inventions affect all aspects of life |
| This can be covered in many other areas, see note to teachers above | 3.5.C invent a new device and communicate the problem, design, and solution |
| This can be covered in many other areas, see note to teachers above | 3.6.A know that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments |
| Core Knowledge[®] Content (Science-Grade 4) | Colorado Grade Level Expectations (Grade 4-Science) |
| <p><u>Teachers:</u> Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, <i>Benchmarks for Science Literacy</i>, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask question about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc."</p> <p>While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.</p> | |

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| I. The Human Body | |
| A. The Circulatory System | |
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| B. The Respiratory System | |
| ▪ | |
| II. Chemistry: Basic Terms and Concepts | |
| A. Atoms | |
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| ▪ | |
| B. Properties of Matter | |
| ▪ | 4.2.A understand that materials can exist in different forms, (solid, liquid, gas) and can be changed from one form to another, also covered in Grade 1: Science: Matter 4.4.M identify and describe the states (e.g. solid, liquid, gas) in which water can be found on Earth |
| C. Elements | |
| ▪ | |
| D. Solutions | |
| ▪ | |
| ▪ | |
| III. Electricity | |
| ▪ | 4.2.F apply knowledge of simple circuits to create a new circuit that involves more components (using batteries, wires, light or a buzzer, demonstrate the requirements for a complete circuit) |
| IV. Geology | |
| A. The Earth's Layers | |
| ▪ | |
| B. How Mountains Are Formed | |
| ▪ | |
| C. Rocks | |
| ▪ | |
| D. Weathering and Erosion | |
| ▪ | |
| V. Meteorology | |
| ▪ | 4.4.K identify the water cycle (e.g. evaporation, condensation, transpiration, etc.) 4.4.L recognize the importance of water and its uses |
| ▪ | 4.4.I know that clouds have properties, locations, and movements that can be observed and described |
| ▪ | 4.4.J know that weather can be described in measurable quantities, temperature, wind direction, and precipitation |
| ▪ | 4.4.J know that weather can be described in measurable quantities, temperature, wind direction, and precipitation |
| ▪ | 4.4.J know that weather can be described in measurable quantities, temperature, wind direction, and precipitation |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| ▪ | |
| ▪ | 4.4.H distinguish between weather and climate |
| VI. Science Biographies | |
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| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 4.1.1.A plan, design, predict, and conduct an experiment, collect data, and communicate reasonable explanations |
| This can be covered in many other areas, see note to teachers above | 4.1.1.B using the data from one investigation, generate a prediction for a new investigation |
| This can be covered in many other areas, see note to teachers above | 4.1.1.C conduct a systematic observation over time |
| Grade 4: Mathematics: Numbers and Number Sense | 4.1.1.D organize data into an appropriate format (e.g. bar graph, pie chart, charts, Venn diagram) |
| Grade 4: Mathematics: Numbers and Number Sense, Fractions and Decimals, Measurement, and Geometry | 4.1.1.E select and use mathematical tools to measure, count, sort, identify, describe, label, and communicate information from observations (e.g. whole numbers, simple fractions, geometric figures, representative charts such as pie and bar charts) |
| Grade 4: Mathematics: Numbers and Number Sense | 4.1.1.F analyze data found in graphs, charts, and articles in order to draw and evaluate conclusions |
| This can be covered in many other areas, see note to teachers above | 4.1.1.G develop and evaluate explanations based upon experimental evidence and the experience of others |
| This can be covered in many other areas, see note to teachers above | 4.1.1.H check explanations against scientific knowledge, experiences and observations of others |
| This can be covered in many other areas, see note to teachers above | 4.1.1.I use facts to support and evaluate the fairness of conclusions |
| Grade 4: Language Arts: Writing and Research | 4.1.1.J write instructions for a scientific or experimental procedure that others can follow |
| This can be covered in many other areas, see note to teachers above | 4.1.1.K describe and illustrate the steps taken in solving a problem including the resources used |
| Grade 4: Mathematics: Measurement | 4.1.1.L use appropriate units to add meaning to numbers and when presenting or using numerical data |
| Grade 4: Mathematics: Numbers and Number Sense, Fractions and Decimals, Measurement, and Geometry | 4.1.1.M use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent objects, events, and processes |
| Grade 3 and 4: Mathematics: Measurement | 4.1.1.N select and use simple devices to gather data related to an investigation (e.g. ruler, thermometers, watches, magnifying lens, microscopes, calculators, and computers) |
| This can be covered in many other areas, see note to teachers above | 4.1.3.H use knowledge and evidence obtained in experiments, to support explanation |
| Grade 2: Science: Simple Machines and Grade 8: Science: Physics: Forces | 4.2.B describe the position and motion of an object by pushing and pulling and understanding the size of the change is related to the strength of the push or pull |
| Grade 3: Science: Sound | 4.2.C produce sound with vibrating objects and understand that the pitch of the sound can be varied by changing the rate of the vibration |
| Grade 3: Science: Light and Grade 8: Science: Electromagnetic Radiation and Light | 4.2.D investigate the properties of light as it travels in a straight line until it strikes an object; reflected by a mirror, refracted by a lens, or absorbed by an object |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 4.2.E investigate how heat can move from one object to another by conduction |
| Grade 8: Science: Physics | 4.2.G predict whether objects will sink or float based on a qualitative understanding of the concepts of density and buoyancy |
| Grade 2: Science: Simple Machines and Grade 8: Science: Physics | 4.2.H describe how forces work in common simple machines (e.g. seesaws, crowbar slides) |
| Grade 5: Science: Chemistry: Matter and Change | 4.2.I understand that matter changes in both physical and chemical ways |
| Grade 7: Science: Cell Division and Genetics | 4.3.A recognize that some characteristics of organisms are inherited while others are environmentally influenced |
| Grade 1: Science: Living Things and Their Environments, Grade 3: Science: Ecology, and Colorado History studies | 4.3.B give examples of food chains/webs in Colorado ecosystems (e.g. mountains, plains, plateaus) |
| Grade 1: Science: Living Things and Their Environments, Grade 3: Science: Ecology, and Colorado History studies | 4.3.C describe animal and plant characteristics that allow them to survive and adapt in different life zones in the Rocky Mountains |
| Grade 3: Science: Ecology | 4.3.D give examples of how organisms interact with each other and with other nonliving parts of environment |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| Grade 1: Science: Living Things and Their Environments, Grade 3: Science: Ecology, and Grade 5: Science: Plant Structure and Processes, Grade 8: Science: Chemistry of Food and Respiration | 4.3.E conduct investigations to gather data, information, and ideas related to the energy and nutrients organisms need from their environment in order to survive |
| Grade 1: Science: Living Things and Their Environments, Grade 3: Science: Ecology, and Grade 5: Science: Plant Structure & Processes | 4.3.F explore a simple natural system (e.g. classroom aquarium or outdoor habitat and generate questions about the transfer of energy and use of nutrients) |
| Grade 1: Science: Living Things and Their Environments, Grade 3: Science: Ecology, and Grade 5: Science: Plant Structure and Processes, Grade 8: Science: Chemistry of Food and Respiration | 4.3.G know that all organisms need energy and matter to live and grow |
| Grade 1: Science: Living Things and Their Environments, Grade 2: Science: Insects, Grade 3: Science: Ecology, and Grade 5: Science: Plant Structure and Processes | 4.3.H know that many plants depend on animals for pollination and seed dispersal while animals depend on plants for food and shelter |
| Grade 1: Science: Astronomy, Grade 3: Science: Astronomy and Grade 6: Science: Astronomy | 4.4.A identify the basic components of the solar system |
| Grade 1: Science: Astronomy, Grade 3: Science: Astronomy and Grade 6: Science: Astronomy | 4.4.B describe the motion of the Earth in relation to the sun |
| Grade 3: Science: Astronomy and Grade 6: Science: Astronomy | 4.4.C compare Earth to other planets (e.g. size, distance from the sun and from each other, temperature, length of day) |
| Grade 3: Science: Astronomy and Grade 6: Science: Astronomy | 4.4.D know that the Earth is one of nine planets that orbit the sun and that as the Earth orbits the sun, different patterns of stars can be seen in different seasons |
| Grade 3: Science: Astronomy and Grade 6: Science: Astronomy | 4.4.E explore objects associated with the universe (comets, galaxies, asteroids) |
| Kindergarten, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, and Grade 6: History and Geography: World Geography | 4.4.F compare and contrast the physical features of Earth (e.g. landforms) |
| This can be covered during the study of Colorado history | 4.4.G identify the main landforms in Colorado (e.g. mountains, plains, plateaus) |
| This can be covered in many other areas, see note to teachers above | 4.5.A identify some causes for recent increases in technological advances |
| This can be covered in many other areas, see note to teachers above | 4.5.B make a plan for building a device considering the limitations of the material and including multiple views |
| This can be covered in many other areas, see note to teachers above | 4.5.C describe and define the invention process (e.g. brainstorm, analyze, combine and create) |
| This can be covered in many other areas, see note to teachers above | 4.6.A recognize that when a science experiment is repeated with the same conditions, the experiment generally works the same way |
| This can be covered in many other areas, see note to teachers above | 4.6.B compare knowledge gained from direct experience to knowledge gained indirectly |
| This can be covered in many other areas, see note to teachers above | 4.6.C identify observable patterns and changes in their lives and predict future events based on those patterns |
| This can be covered in many other areas, see note to teachers above | 4.6.D describe and compare the components and interrelationships of a simple system |
| This can be covered in many other areas, see note to teachers above | 4.6.E compare a model with what it represents |
| Core Knowledge® Content (Science-Grade 5) | Colorado Grade Level Expectations (Grade 5-Science) |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| <p>Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the 1993 report from the American Association for the Advancement of Science, <i>Benchmarks for Science Literacy</i>, "From their very first day in school, students should be actively engaged in learning to view the world scientifically. That means encouraging them to ask question about nature and to seek answers, collect things, count and measure things, make qualitative observations, organize collections and observations, discuss findings, etc." While experience counts for much, book learning is also important, for it helps bring coherence and order to a child's scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.</p> | |
| I. Classifying Living Things | |
| ▪ | 5.3.I develop and use a classification key that can be used to place common organisms into proper kingdoms |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | |
| II. Cells: Structures and Processes | |
| ▪ | 5.3.J demonstrate an understanding that all living things are made up of one or more cells and that complex multi cellular living things have tissues, organs, and organ systems, also studied in Grade 2: Science: The Human Body: Cells |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | 5.3.J demonstrate an understanding that all living things are made up of one or more cells and that complex multi cellular living things have tissues, organs, and organ systems, also studied in Grade 2: Science: The Human Body: Cells |
| III. Plant Structures and Processes | |
| A. Structure: Non-Vascular and Vascular Plants | |
| ▪ | |
| B. Photosynthesis | |
| ▪ | 5.3.E explore the process of photosynthesis 5.6.G recognize that patterns exist within and across systems |
| C. Reproduction | |
| ▪ | |
| IV. Life Cycles and Reproduction | |
| A. The Life Cycle and Reproduction | |
| ▪ | |
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Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| B. Sexual Reproduction in Animals | |
| ▪ | |
| V. The Human Body | |
| A. Changes in Human Adolescence | |
| ▪ | |
| B. The Endocrine System | |
| ▪ | 5.3.B recognize that the human body is organized into systems, also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2, Grade 3, and Grade 4: Science: The Human Body 5.3.C understand that the human body systems depend on each other (e.g. nervous, circulatory, digestive, respiratory), also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2, Grade 3, and Grade 4: Science: The Human Body |
| C. The Reproductive System | |
| ▪ | 5.3.B recognize that the human body is organized into systems, also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2, Grade 3, and Grade 4: Science: The Human Body 5.3.C understand that the human body systems depend on each other (e.g. nervous, circulatory, digestive, respiratory), also covered in Grade 1: Science: The Human Body: Body Systems, Grade 2, Grade 3, and Grade 4: Science: The Human Body |
| VI. Chemistry: Matter and Change | |
| A. Atoms, Molecules, and Compounds | |
| ▪ | |
| B. Elements | |
| ▪ | |
| ▪ | 5.6.G recognize that patterns exist within and across systems |
| ▪ | |
| ▪ | |
| C. Chemical and Physical Change | |
| ▪ | 5.2.A know that materials made by chemically combining two or more substances may have properties that differ from the original properties (e.g. vinegar and baking soda) |
| ▪ | 5.2.B recognize that there are 92 known elements in nature, many of which combine to form compounds |
| VII. Science Biographies | |
| ▪ | 5.6.E recognize the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations |
| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 5.1.A identify alternative explanations to natural phenomena and design procedures to test explanations |
| This can be covered in many other areas, see note to teachers above | 5.1.B differentiate between an explanation and a description |
| This can be covered in many other areas, see note to teachers above | 5.1.C predict an outcome based on a set of experimental data |
| This can be covered in many other areas, see note to teachers above | 5.1.D recognize that scientific investigations sometimes generate new methods or procedures for an investigation or develop new technologies to improve the collection of data |
| This can be covered in many other areas, see note to teachers above | 5.1.E differentiate between ideas based on scientific fact or understanding and those based on myths or misrepresented data |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| This can be covered in many other areas, see note to teachers above | 5.1.F differentiate between a question and a hypothesis |
| This can be covered in many other areas, see note to teachers above | 5.1.G develop a testable hypothesis |
| This can be covered in many other areas, see note to teachers above | 5.1.H refine hypotheses from a series of investigations |
| This can be covered in many other areas, see note to teachers above | 5.1.I demonstrate ability to identify and control variables |
| This can be covered in many other areas, see note to teachers above | 5.1.J design a model to illustrate an investigation |
| This can be covered in many other areas, see note to teachers above | 5.1.K select appropriate tools (e.g. thermometers, balances, beakers) and make quantitative observations |
| Grade 5: Mathematics: Probability and Statistics | 5.1.L organize and present data in an appropriate format (e.g. charts, graphs, labeled diagrams, tables) |
| This can be covered in many other areas, see note to teachers above | 5.1.M draw a conclusion based on a set of experimental data |
| Grade 5: Mathematics: Measurement | 5.1.N use metric units in measuring, calculating, and reporting results |
| This can be covered in many other areas, see note to teachers above | 5.1.O communicate the results of an investigation that includes the hypotheses tested, tests conducted or evidence examined, conclusions drawn, and explanations for any inconsistencies, limitations, and variability in recorded observations |
| Grade 3: Science: Light and Optics and Grade 8: Electromagnetic Radiation and Light | 5.2.C use diffraction gratings and prisms to investigate light from different sources |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 5.2.D know that heat flows from warmer to cooler objects until both reach the same temperature |
| Grade 4: Science: Electricity and Grade 8: Science: Electricity and Magnetism | 5.2.E recognize that forces of gravity, magnetism, and electricity operate simple machines |
| Grade 8: Science: Physics: Forces | 5.2.F recognize the forces necessary for an object to move or to be in equilibrium |
| Grade 3: Science: Ecology | 5.3.A construct models that illustrate food chains and food webs (e.g. use terms such as carnivore, producer, consumer, and decomposer to describe the role of the organism in the food chain and food web) |
| Grade 3: Science: Ecology | 5.3.D construct a model of an ecosystem and explain the interaction and interdependence of living and nonliving components within the ecosystem |
| Grade 7: Science: Cell Division and Genetics, Grade 8: Science: Chemistry of Food and Respiration | 5.3.F explore the process of cellular respiration |
| Grade 2: Science: The Human Body: The Digestive and Excretory Systems | 5.3.G describe the process of digestion in humans and how the human body gets energy from food |
| Grade 2: Science: The Human Body: Taking Care of Your Body: A Healthy Diet | 5.3.H describe basic food requirements for humans and classify food into basic food groups |
| This can be covered in Grade 4: Science: Geology | 5.4.A identify Earth's energy resources and characterize each as renewable or non-renewable (e.g. petroleum, coal, natural gas, propane, uranium) |
| Grade 1: Science: Astronomy and Grade 3: Science: Astronomy | 5.4.B evaluate how revolution, rotation, and tilt of the Earth influences the amount of sunlight that reaches the surface |
| Grade 1: Science: Astronomy and Grade 3: Science: Astronomy | 5.4.C know that the rotation of Earth on its axis every 24 hours causes the day and night and makes the sun, moon, planets, and stars appear to move across the sky from east to west each day |
| Grade 1: Science: Astronomy and Grade 3: Science: Astronomy | 5.4.D explain lunar and solar eclipses and moon phases |
| This can be covered during the study of Colorado history and Grade 7: Science: History of the Earth and Life Forms | 5.4.E compare and contrast the environment of Colorado today to that of long ago through fossil evidence (e.g. Florissant Fossil Beds, Denver Basin Project) |
| Grade 7: Science: History of the Earth and Life Forms | 5.4.F compare the similarities and differences between fossils and living organisms |
| Grade 1: Science: The Earth and Grade 4: Science: Geology | 5.4.G classify rocks and minerals according to their physical characteristics |
| Grade 4: Science: Meteorology | 5.4.H discover and evaluate patterns and relationships in information to predict and identify areas that store water |
| Grade 4: Science: Meteorology | 5.4.I compare weather patterns in different locations in the United States and discuss how these patterns influence plant growth and human activity in those states |
| Grade 4: Science: Meteorology | 5.4.J know that energy from the sun heats the Earth unevenly, causing air movements resulting in changing weather patterns |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| Grade 4: Science: Meteorology | 5.4.K use weather maps and weather forecasts to predict local weather and that prediction depends on many changing variables |
| Grade 4: Science: Meteorology | 5.4.L conduct investigations to determine the effect of temperature or wind on evaporation and condensation |
| This can be covered in many other areas, see note to teachers above | 5.5.A compare present day technologies to those of the past (e.g. refrigerator to ice box; horse drawn carriage to automobile) and discuss the impact these differences have on the quality of life |
| This can be covered in many other areas, see note to teachers above | 5.5.B recognize that technologies consume and generate energy |
| This can be covered in many other areas, see note to teachers above | 5.5.C recognize that conservation is a method of preventing depletion of energy |
| This can be covered in many other areas, see note to teachers above | 5.6.A know that scientific knowledge is subject to modifications as new information is discovered |
| This can be covered in many other areas, see note to teachers above | 5.6.B challenge prevailing theories and new theories which leads to looking at old observations in a new way |
| This can be covered in many other areas, see note to teachers above | 5.6.C know that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects |
| This can be covered in many other areas, see note to teachers above | 5.6.D know that a change in one or more variables may alter the outcome of an investigation |
| This can be covered in many other areas, see note to teachers above | 5.6.F know that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study |
| Core Knowledge[®] Content (Science-Grade 6) | Colorado Grade Level Expectations (Grade 6-Science) |
| <u>Teachers:</u> Effective instruction in science requires not only hands-on experience and observation but also book learning, which helps bring coherence and order to student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in selective study of topics, a number of which were introduced in earlier grades. It also continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings. | |
| I. Plate Tectonics | |
| ▪ | |
| II. Oceans | |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | 6.6.G recognize that patterns exist within and across systems |
| ▪ | |
| III. Astronomy: Gravity, Stars, and Galaxies | |
| ▪ | 6.4.I know that the path of a planet around the sun is due to the gravitational attraction between the sun and the planet |
| ▪ | 6.4.J know that the sun, an average star, is the central and largest body in the solar system and is comprised primarily of hydrogen and helium |
| ▪ | 6.4.G know that the Solar System forms part of the Milky Way Galaxy which is one of many galaxies that comprise the Universe |
| IV. Energy, Heat, and Energy Transfer | |
| A. Energy | |
| ▪ | 6.2.H know that energy can be carries from one place to another by heat flow or by waves including water eaves, light and sound, or by moving objects) |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| ▪ | |
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| ▪ | 6.5.C describe uses of renewable and non-renewable resources (e.g. forests and fossil fuels) |
| ▪ | |
| B. Heat | |
| ▪ | |
| C. Physical Change: Energy Transfer | |
| ▪ | 6.6.G recognize that patterns exist within and across systems |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | |
| ▪ | 6.2.D investigate changes in the state of water and use the particle model to explain these changes |
| ▪ | |
| V. The Human Body | |
| ▪ | |
| VI. Science Biographies | |
| ▪ | 6.5.A describe how people use science and technology in their professions 6.6.E recognize the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations |
| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 6.1.A choose measurement methods and devices according to the level of precision demanded by the problem |
| This can be covered in many other areas, see note to teachers above | 6.1.B predict an outcome based on a set of experimental data |
| This can be covered in many other areas, see note to teachers above | 6.1.C recognize that scientific investigations sometimes lead to new methods or procedures for conducting an investigation or new technologies to improve the collection of data |
| This can be covered in many other areas, see note to teachers above | 6.1.D construct a model that illustrates a concept developed from an inquiry |
| This can be covered in many other areas, see note to teachers above | 6.1.E refine hypotheses from a previous investigation |
| This can be covered in many other areas, see note to teachers above | 6.1.F identify the variables in an investigation |
| This can be covered in many other areas, see note to teachers above | 6.1.G create a written plan to include the question to be investigated, and appropriate hypothesis, design of the experiment, identification of the variables, a developed scientific procedure to collect and record data; the design should also include a number of repeated trials, accurate measurements and record keeping and a comparison to a control |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 6.1.H organize and present the data in appropriate formats (e.g. histograms, circle graphs, flow charts) and make inferences based on that data |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 6.1.I identify, and interpret patterns, trends, relationships in collected data |
| This can be covered in many other areas, see note to teachers above | 6.1.J identify data that does not fit a pattern |
| This can be covered in many other areas, see note to teachers above | 6.1.K analyze the results of an experiment, draw conclusions about the question being investigated, and defend those conclusions |
| Grade 6: Mathematics: Measurement | 6.1.L use metric units in measuring, calculating, and reporting results |
| This can be covered in many other areas | 6.2.A describe the difference between the student's own weight and mass |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| Grade 5: Science: Chemistry: Matter and Change and Grade 7: Science: Atomic Structure | 6.2.B construct models of several kinds of atoms and describes their general properties (nucleus, proton, neutron, electron) |
| Grade 5: Science: Chemistry: Matter and Change and Grade 7: Science: Atomic Structure | 6.2.C use laboratory investigations to demonstrate the formation of new compounds |
| Grade 4: Science: Electricity and Grade 8: Science: Electricity and Magnetism | 6.2.E design a simple circuit that can do work and explain the energy transfer taking place in the system |
| Grade 8: Science: Physics | 6.2.F calculate the average speed of a toy or an animal moving in a straight or curved path by making appropriate measurements (motion of an object can be described by its position, direction of motion, and speed) |
| Grade 8: Science: Physics | 6.2.G measure the various net forces acting on an object and their effects (explain in terms of forces involved, why a satellite orbits the Earth) |
| Grade 7: Science: Evolution | 6.3.A explain how adaptations affect a species survival |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 6.3.B explain interactions and interdependence of nonliving and living components within ecosystems with first order consumers, second order consumers, and biotic factors |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 6.3.C explore bio-diversity in ecosystems |
| Grade 5: Science: Plant Structures and Processes and Grade 8: Chemistry of Food and Respiration | 6.3.D know that energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism in food webs |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 6.3.E categorizes organisms according to their roles in food chains and food webs as carnivores, herbivores, omnivores, producers, consumers, or decomposers |
| Grade 5: Science: Cells: Structures and Processes | 6.3.F identify the difference between plant and animal cells |
| Grade 5: Science: Cells: Structures and Processes | 6.3.G identify parts of a cell explaining the structure and function of a cell |
| Grade 7: Science: Cell Division and Genetics | 6.3.H describe the role of chromosomes and genes in heredity (e.g. a typical cell of any organism contains genetic instructions that specify its traits; these traits may be modified by environmental influences) |
| Grade 7: Science: Cell Division and Genetics | 6.3.I understand that DNA is the genetic material of living organisms and is located in the chromosomes of each cell |
| Grade 4: Science: Geology: The Earth and Its Changes | 6.4.A know that soils are found in layers with each having a different composition and texture |
| Grade 7: Science: History of the Earth and Life Forms | 6.4.B know that layers of sedimentary rocks confirm the long history of the earth and its changing life forms |
| Grade 2: Science: The Earth and Grade 4: Science: Geology: The Earth and Its Changes | 6.4.C use characteristics to identify selected minerals and rocks |
| Grade 2: Science: The Earth and Grade 4: Science: Geology: The Earth and Its Changes | 6.4.D explain the difference between rocks and minerals |
| Grade 1: Science: Matter | 6.4.E describe major differences in the physical properties of water as a solid, liquid, and gas |
| Grade 4: Science: Meteorology | 6.4.F describe the cycling of water in a closed system (e.g. bottle terrarium) |
| Grade 3: Science: Astronomy | 6.4.H know that the nine planets, their respective moons, comets, many asteroids and meteorites orbit the sun which is the gravitational center of the Solar System |
| This can be covered in many other areas, see note to teachers above | 6.5.B describe ways in which innovations address human biological, physical, and psychological needs |
| This can be covered in many other areas, see note to teachers above | 6.6.A know that scientific knowledge is subject to modifications as new information is discovered |
| This can be covered in many other areas, see note to teachers above | 6.6.B challenge prevailing theories and new theories which leads to looking at old observations in a new way |
| This can be covered in many other areas, see note to teachers above | 6.6.C know that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects |
| This can be covered in many other areas, see note to teachers above | 6.6.D know that a change in one or more variables may alter the outcome of an investigation |
| This can be covered in many other areas, see note to teachers above | 6.6.F know that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study |
| Core Knowledge® Content (Science-Grade 7) | Colorado Grade Level Expectations (Grade 7-Science) |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| <p>Teachers: Effective instruction in science requires not only hands-on experience and observation but also book learning, which helps bring coherence and order to student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in selective study of topics, a number of which were introduced in earlier grades. It also continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings.</p> | |
| I. Atomic Structure | |
| <ul style="list-style-type: none"> ▪ | <p>7.2.G classify matter in terms of elements, compounds, and mixtures 7.6.E identify and illustrate natural cycles within systems</p> |
| <ul style="list-style-type: none"> ▪ ▪ | <p>7.2.F recognize that substances are often placed in categories or groups if they react in similar ways (e.g. periodic table) 7.2.G classify matter in terms of elements, compounds, and mixtures</p> |
| II. Chemical Bonds and Reactions | |
| <ul style="list-style-type: none"> ▪ | |
| <ul style="list-style-type: none"> ▪ | |
| <ul style="list-style-type: none"> ▪ | |
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| <ul style="list-style-type: none"> ▪ | |
| <ul style="list-style-type: none"> ▪ | <p>7.2.E identify and describe the chemical changes in various materials by observing everyday events (e.g. nail left in water), also covered in Grade 5: Science: Chemistry: Matter and Change and Grade 8: Science: Chemical Bonds and Reactions 7.2.I examine, describe, compare, measure, and classify objects using common properties of matter including mass, volume, temperature, density, rating solutions by pH, and relative solubility in water, also covered in Grade 5: Science: Chemistry: Matter and Change and Grade 8: Science: Chemical Bonds and Reactions</p> |
| <ul style="list-style-type: none"> ▪ | <p>7.2.H use word equations to describe a chemical change, also covered in Grade 5: Science: Chemistry: Matter and Change and Grade 8: Science: Chemical Bonds and Reactions</p> |
| <ul style="list-style-type: none"> ▪ | |
| III. Cell Division and Genetics | |
| <ul style="list-style-type: none"> ▪ | |
| <ul style="list-style-type: none"> ▪ | <p>7.3.H know that a typical cell of an organism contains genetic instructions that specify its traits and those traits may be modified by environmental influences</p> |
| <ul style="list-style-type: none"> ▪ | |
| IV. History of the Earth and Life Forms | |
| A. Paleontology | |
| <ul style="list-style-type: none"> ▪ | <p>7.3.G construct a simple branching diagram to classify living groups of organisms by shared derived characteristics, and expand the diagram to include fossil organisms (e.g. fossils provide evidence of how life and environmental conditions have changed) 7.4.C explain how fossils indicate that life has changed through geologic time</p> |
| <ul style="list-style-type: none"> ▪ | |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| B. Geologic Time | |
| ▪ | |
| V. Evolution | |
| A. Evolution | |
| ▪ | |
| B. Natural Selection | |
| ▪ | |
| C. Extinction and Speciation | |
| ▪ | |
| VI. Science Biographies | |
| ▪ | 7.6.C describe the contributions of science made by people in different cultures and at different times in history |
| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 7.1.A propose and critique alternative explanations and procedures |
| This can be covered in many other areas, see note to teachers above | 7.1.B suggest alternative explanations for the same observations |
| This can be covered in many other areas, see note to teachers above | 7.1.C predict an outcome based on a set of experimental data |
| This can be covered in many other areas, see note to teachers above | 7.1.D recognize that scientific investigations sometimes generate new methods or procedures for an investigation or develop new technologies to improve the collection of data |
| This can be covered in many other areas, see note to teachers above | 7.1.E identify the assumptions that influence and guide their investigations |
| This can be covered in many other areas, see note to teachers above | 7.1.F propose and execute design changes to correct what might be wrong with an experiment design |
| This can be covered in many other areas, see note to teachers above | 7.1.G cite subject matter knowledge when making judgments |
| This can be covered in many other areas, see note to teachers above | 7.1.H refine hypotheses from a previous investigation |
| This can be covered in many other areas, see note to teachers above | 7.1.I construct a model that demonstrates change within a system |
| This can be covered in many other areas, see note to teachers above | 7.1.J construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge |
| This can be covered in many other areas, see note to teachers above | 7.1.K create a written plan to include the question to be investigated, an appropriate hypotheses, design of the experiment, identification of the control and variables, a developed scientific procedure to collect and record data; the design should also include a number of repeated trials, accurate measurements and record keeping and a comparison to a control |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 7.1.L organize and construct representation of data into appropriate formats (e.g. histograms, circle graphs, flow charts) and make inferences based on that data |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 7.1.M interpret patterns, trends, relationships in collected data |
| This can be covered in many other areas, see note to teachers above | 7.1.N decide what data to use and what data to ignore in forming conclusions |
| This can be covered in many other areas, see note to teachers above | 7.1.O form a logical argument about cause and effect relationships in conclusions |
| Grade 7: Mathematics | 7.1.P use mathematics to structure convincing explanations |
| Grade 7: Mathematics: Measuring | 7.1.Q use metric units in measuring, calculating, and reporting results |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 7.1.R construct appropriate graphs from data and develop qualitative statements about the relationships between the variables |
| This can be covered in many other areas, see note to teachers above | 7.1.S use analogies to understand how things work |
| This can be covered in many other areas, see note to teachers above | 7.1.T summarize the results of others' investigations to see if findings will result in new questions and more investigations |
| This can be covered in many other areas, see note to teachers above | 7.1.U share findings and offer explanations for inconsistencies, limitations, and variability in recorded observations |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| This can be covered in many other areas, see note to teachers above | 7.1.V acknowledge different ideas and explanations, be able to accept the skepticism of others; and consider alternative explanations |
| Grade 6: Science: Oceans and Grade 8: Science: Sound Waves | 7.2.A know the qualitative properties of waves (e.g. frequency, wavelength, crests, troughs) |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 7.2.B give examples of heat transfer |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 7.2.C measure the amount of energy required to melt a known mass of ice and compare it to the energy needed to boil water |
| Grade 6: Science: Energy, Heat, and Energy Transfer | 7.2.D know that the states of matter (solid, liquid, gas) depend on molecular motion |
| Grade 8: Science: Physics and Electricity and Magnetism | 7.2.J separate mixtures based on their physical properties, including solubility in water, particle size, density, and magnetism |
| Grade 8: Science: Physics | 7.2.K know that all objects experience a buoyant force when immersed in a fluid (the buoyant force on an object in a fluid is equal to the weight of the fluid it has displaced) |
| Grade 5: Science: Cells: Structures and Processes | 7.3.A understand that plants and animals have levels of organization for structure and function, including cells, tissues, organs, organ systems, and the whole organism |
| Grade 5: Science: Cells: Structures and Processes | 7.3.B understand that organ systems function because of the contributions of individual organs, tissues, and cells; the failure of any part can affect the entire system (e.g. bones and muscles work together to provide a structural framework for movement) |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 7.3.C identify the characteristics of plants and animals that enable them to survive |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 7.3.D create and interpret food chains and webs |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 7.3.E describe the biodiversity of different ecosystems and understand that there is a relationship between the biotic and abiotic factors in an ecosystem |
| Grade 3: Science: Ecology | 7.3.F investigate and describe the causes and effects of changes in populations (e.g. predator-prey, human, and carrying capacity) |
| Grade 4: Science: Geology: The Earth and Its Changes | 7.4.A identify and explain the components of the rock cycle |
| Grade 5: Science: Chemistry: Matter and Change | 7.4.B understand how minerals form (e.g. evaporation, precipitation, crystallization) |
| Grade 3: Science: Astronomy and Grade 6: Science: Oceans | 7.4.D explain the effects of the motions of the Earth and moon in space (e.g. tidal patterns and seasonal changes related to the motion of the moon and the tilt of the Earth in space) |
| Grade 3: Science: Astronomy | 7.4.E know that Earth rotates on a tilted axis and revolves around the sun; this combination causes changes in the amount of sunlight reaching the Earth's surface and makes our seasons |
| Grade 4: Science: Geology and Grade 6: Science: Plate Tectonics | 7.4.F know that the solid Earth is layered with cold, brittle lithosphere, hot convecting mantle and dense metallic core |
| Grade 6: Science: Plate Tectonics | 7.4.G know that the surface of the Earth has changed as a result of dynamic forces originating with the mantle; the physical evidence (e.g. faulting, volcanoes, folding of rock, etc.) of these constructive and destructive forces is associated with plate movement |
| Grade 6: Science: Plate Tectonics | 7.4.H identify areas of volcanic activity based upon understanding of plate tectonics |
| Grade 6: Science: Plate Tectonics | 7.4.I demonstrate continental drift using models |
| Grade 6: Science: Plate Tectonics | 7.4.J know that earthquakes are sudden motions along breaks in the crust called faults and volcanoes/fissures are locations where magma reaches the surface |
| This can be covered in many other areas, see note to teachers above | 7.5.A describe advantages and disadvantages that might accompany the introduction of a new technology |
| This can be covered in many other areas, see note to teachers above | 7.5.B explain how the choice of materials depends upon their properties and characteristics and how they interact with other materials |
| This can be covered in many other areas, see note to teachers above | 7.6.A explain why a controlled experiment must have comparable results when repeated |
| This can be covered in many other areas, see note to teachers above | 7.6.B give examples of how scientific knowledge changes as new knowledge is acquired and previous ideas are modified |
| This can be covered in many other areas, see note to teachers above | 7.6.D identify, compare, and predict variables and conditions related to change |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| This can be covered in many other areas, see note to teachers above | 7.6.F use models to predict change |
| Core Knowledge® Content (Science-Grade 8) | Colorado Grade Level Expectations (Grade 8-Science) |
| Teachers: Effective instruction in science requires not only hands-on experience and observation but also book learning, which helps bring coherence and order to student's scientific knowledge. Only when topics are presented systematically and clearly can students make steady and secure progress in selective study of topics, a number of which were introduced in earlier grades. It also continues the practice of studying topics from each of the major realms of science (physical, life, and earth science). Students are expected to do experiments and write reports on their findings. | |
| I. Physics | |
| A. Motion | |
| ▪ | |
| ▪ | 8.2.I interpret graphs of position versus time and speed versus time for motion in a single direction |
| B. Forces | |
| ▪ | 8.2.J know that force has both direction and magnitude and when an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces |
| ▪ | 8.2.J know that force has both direction and magnitude and when an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces 8.2.K know that when forces on an object are balanced, the motion of the object does not change; when the forces are unbalanced the object will change its motion (e.g. speed up, slow down, or change direction) 8.2.L demonstrate that simple machines can be used to change the direction or size of a force (e.g. measure the effectiveness of a lever in moving objects with different masses) |
| C. Density and Buoyancy | |
| ▪ | |
| D. Work | |
| ▪ | |
| E. Energy | |
| ▪ | |
| ▪ | |
| ▪ | 8.2.G determine the potential and kinetic energy of a cart as it moves up and down an inclined lane 8.2.H interpret and explain the relationship among kinetic energy, potential energy, and mechanical advantage (e.g. demonstrate the types of energy, changes in motion, and mechanical advantage involved in shooting an arrow) 8.2.R understand that chemical energy is stored in chemical bonds between atoms in elements and compounds |
| ▪ | |
| F. Power | |
| ▪ | |
| II. Electricity and Magnetism | |
| A. Electricity | |
| ▪ | 8.2.M compare series and parallel circuits 8.2.N use various materials in a simple circuit, show the difference between conductors and insulators and compare the efficiency of electrical conductors) |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| B. Magnetism and Electricity | |
| ▪ | |
| III. Electromagnetic Radiation and Light | |
| ▪ | 8.2.B classify waves as mechanical (sound, tidal, earthquake) or electromagnetic (radio, sunlight) |
| ▪ | 8.2.C draw an electromagnetic spectrum and identify the forms of radiant energy in the visible part of the spectrum and the use of the non visible part of the spectrum (e.g. x-rays, microwaves, ultra violet light) |
| ▪ | 8.2.D know that white light is a mixture of many wavelengths and that retinal cells react differently with different wavelengths 8.2.E know that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection) 8.2.F know that the angle of reflection of a light beam is equal to the angle of incidence |
| IV. Sound Waves | |
| ▪ | 8.2.A experiment with tuning forks, ripple tanks, "slinkys," and other objects to observe and analyze problems with waves |
| ▪ | 8.2.B classify waves as mechanical (sound, tidal, earthquake) or electromagnetic (radio, sunlight) |
| IV. Chemistry of Food and Respiration | |
| ▪ | |
| ▪ | 8.2.O understand that chemical reactions are processes in which atoms are rearranged into different combinations of molecules, also covered in Grade 5: Science: Chemistry: Matter and Change and Grade 7: Science: Chemical Bonds and Reactions |
| ▪ | 8.6.E identify and illustrate natural cycles within systems |
| ▪ | |
| ▪ | |
| ▪ | |
| VI. Science Biographies | |
| ▪ | 8.6.C describe the contributions of science made by people in different cultures and at different times in history |
| Grade level or other area Grade Level Expectations are covered in the <i>Core Knowledge Sequence</i> | Grade Level Expectations not directly covered in the <i>Core Knowledge Sequence</i>, but can be covered in other areas |
| This can be covered in many other areas, see note to teachers above | 8.1.A create a written plan to include the question to be investigated, an appropriate hypothesis, design of the experiment, identification of the control and labeled variables, a developed scientific procedure to collect and record data; the design should also include a number of repeated trials, unbiased sampling, accurate measurements and record keeping and a comparison to a control |
| This can be covered in many other areas, see note to teachers above | 8.1.B apply scientific ideas, concepts, and relationships to the formation of scientific questions |
| This can be covered in many other areas, see note to teachers above | 8.1.C evaluate explanations by examining evidence, comparing evidence, identifying faulty reasoning, and pointing out statements that go beyond the evidence |
| This can be covered in many other areas, see note to teachers above | 8.1.D predict an outcome based on a set of experimental data |
| This can be covered in many other areas, see note to teachers above | 8.1.E recognize that scientific investigations sometimes generate new methods or procedures for an investigation or develop new technologies to improve the collection of data |
| This can be covered in many other areas, see note to teachers above | 8.1.F refine hypotheses from a previous investigation |
| This can be covered in many other areas, see note to teachers above | 8.1.G construct a model to predict change (e.g. stream table, computer simulation) |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.H organize and construct representation of data into appropriate formats (e.g. histograms, circle graphs, flow charts) and make inferences based on that data |

Correlation of the *Core Knowledge Sequence* and the Colorado Grade Level Expectations

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| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.I interpret patterns, trends, relationships in collected data |
| This can be covered in many other areas, see note to teachers above | 8.1.J state relationships in terms of the relationship between two or more variables |
| This can be covered in many other areas, see note to teachers above | 8.1.K evaluate the accuracy and reproducibility of data |
| This can be covered in many other areas, see note to teachers above | 8.1.L analyze data and evaluate hypothesis |
| This can be covered in many other areas, see note to teachers above | 8.1.M identify areas for further investigation |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.N construct appropriate graphs from data and develop quantitative statements about the relationships between variables |
| This can be covered in many other areas, see note to teachers above | 8.1.O communicate the logical connection among hypothesis, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence |
| Grade 5 and Grade 6: Mathematics: Probability and Statistics | 8.1.P distinguish between linear and non-linear relationships on a graph of data |
| Grade 7: Mathematics: Measuring | 8.1.Q use metric units in measuring, calculating, and reporting results |
| This can be covered in many other areas, see note to teachers above | 8.1.R acknowledge that the scientific community accepts and uses explanations until those explanations are displaced by better scientific ones |
| This can be covered in many other areas, see note to teachers above | 8.1.S acknowledge different ideas and explanations, be able to accept the skepticism of others, and consider alternative explanations |
| Grade 7: Science: Chemical Bonds and Reactions | 8.2.P know that in chemical reactions, the number of atoms stays the same no matter how they are arranged so their total mass stays the same (conservation of matter) |
| Grade 7: Science: Chemical Bonds and Reactions | 8.2.Q determine whether a solution is acidic, basic, or neutral |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.A explain the characteristics of plants and animals that enable them to survive |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.B compare, contrast, and explain the difference in biodiversity of different ecosystems |
| Grade 1: Science: Living Things and Their Environments and Grade 3: Science: Ecology | 8.3.C explain the causes and effects of changes in populations (e.g. predator-prey, human, and carrying capacity) |
| Grade 5: Science: Cells: Structures and Processes | 8.3.D organize information into a model that demonstrates the interaction of systems of cells, tissues, organs, and organ networks in a complex multi cellular organism through chemical and physical processes) |
| Grade 7: Science: Cell Division and Genetics | 8.3.E use models to demonstrate how genetic material is transmitted and how gene traits are expressed in offspring (e.g. Punnett squares and pedigree charts to show how single gene traits are expressed in offspring) |
| Grade 5: Science: Plant Structures and Processes and Life Cycles and Reproduction | 8.3.F describe sexual reproduction patterns in flowering plants and a variety of animals |
| Grade 2: Science: Life Cycles, Grade 5: Science: Plant Structures and Processes and Life Cycles and Reproduction | 8.3.G observe, describe, and measure changes that occur in an organism as it develops from a seed or fertilized egg to an adult (e.g. bean plant, frog, chicken) |
| | 8.3.H research the evolutionary adaptation of a number of present day organisms and explain how these adaptations contributed to the survival of the organism (e.g. beak shape, protective coloration, flower color) |
| Grade 4: Science: Meteorology | 8.4.A describe the gaseous composition of the atmosphere |
| Grade 4: Science: Meteorology | 8.4.B measure humidity, temperature, and pressure of the troposphere |
| Grade 4: Science: Meteorology and Grade 7: Science: Energy, Heat, and Energy Transfer | 8.4.C explain how atmospheric circulation is driven by solar heating which involves radiation, convection, and conduction |
| Grade 4: Science: Meteorology and Grade 6: Science: Plate Tectonics | 8.4.D know that the Earth has three distinct physical spheres (atmosphere, hydrosphere, and lithosphere) and each has different compositions yet interfaces with each other |
| Grade 3: Science: History and Geography: World Geography: Important Rivers of the World, Grade 4: Science: Meteorology, Grade 5: History and Geography: World Geography: Great Lakes of the World, and Grade 6: Science: Oceans | 8.4.E use graphs and charts to describe and compare the distribution of the world's water including rivers, oceans, ground water, and atmosphere |

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| Grade 3: Science: History and Geography: World Geography: Important Rivers of the World, Grade 4: Science: Meteorology, Grade 5: History and Geography: World Geography: Great Lakes of the World, and Grade 6: Science: Oceans | 8.4.F use diagrams/models and show the direction of water circulation through Earth's systems |
| Grade 3: Science: Astronomy, Grade 4: Science: Meteorology | 8.4.G know that the yearly revolution of Earth in its orbit around the sun and the tilt on it axis cause the angle at which sunlight strikes the Earth to vary at different locations; this causes differences in the heating of Earth's surface which produce seasonal variations in weather and a variety of climates |
| This can be covered in many other areas, see note to teachers above | 8.5.A identify and analyze ways in which advances in science and technology have affected each other and society |
| This can be covered in many other areas, see note to teachers above | 8.5.B use the results of material tests (e.g. hardness, tensile strength, conductivity) to suggest appropriate uses for materials |
| This can be covered in many other areas, see note to teachers above | 8.5.C evaluate designs, devices, or solutions and develop measures of quality |
| This can be covered in many other areas, see note to teachers above | 8.6.A explain why a controlled experiment must have comparable results when repeated |
| This can be covered in many other areas, see note to teachers above | 8.6.B give examples of how scientific knowledge changes as new knowledge is acquired and previous ideas are modified |
| This can be covered in many other areas, see note to teachers above | 8.6.D identify, compare, and predict variables and conditions related to change |
| This can be covered in many other areas, see note to teachers above | 8.6.F use models to predict change |