

NORTH CAROLINA ESSENTIAL STANDARDS

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North Carolina Extended Content Standards

Science

Kindergarten:

Earth Systems, Structures and Processes

NCES.EX.K.E.1 - Explore changes when manipulating objects.

NCES.EX.K.E.1.1 - Use objects to make things happen (cause/effect).

NCES.EX.K.E.1.2 - Compare characteristics of objects through observation and action.

NCES.EX.K.E.1.3 - Combine objects to create different effects.

Structures and Functions of Living Organisms

NCES.EX.K.L.1 - Understand basic categories such as plants, animals, people, and objects.

NCES.EX.K.L.1.1 - Identify animate (moving) and inanimate objects.

NCES.EX.K.L.1.2 - Identify plant vs animal.

NCES.EX.K.L.1.3 - Categorize things as plant, animal, person, or object.

Ecosystems

NCES.EX.K.L.2 - Use observation skills to attend to the environment.

NCES.EX.K.L.2.1 - Use one or more of the senses to shift attention between a person and objects or events.

NCES.EX.K.L.2.2 - Describe shared objects and events using attributes (big/small, circle/square, red, green, blue), and location (in, on, out, under, off, beside, behind).

Forces and Motion

NCES.EX.K.P.1 - Identify positions and motions of familiar objects in the environment.

NCES.EX.K.P.1.1 - Locate familiar objects in the environment.

NCES.EX.K.P.1.2 - Indicate the movement of objects in the environment to demonstrate motion (to include falling to the ground when dropped): Straight, Back and forth, Fast and slow.

NCES.EX.K.P.1.3 - Use positional and directional words (e.g., in, on, out, under, off, beside, behind) to locate objects.

Matter, Properties and Change

NCES.EX.K.P.2 - Identify objects by their physical properties.

NCES.EX.K.P.2.1 - Identify objects by their physical properties as "same" or "different".

NCES.EX.K.P.2.2 - Sort objects by observable physical properties (including size, color, shape and texture).

Grade 1:

Earth Systems, Structures and Processes

NCES.EX.1.E.2 - Identify differences in Earth Materials.

NCES.EX.1.E.2.1 - Identify change in an object (color, size, shape) using one or more of the senses.

NCES.EX.1.E.2.2 - Identify earth Materials (rocks, soils and water).

Structures and Functions of Living Organisms

NCES.EX.1.L.1 - Understand characteristics of living and nonliving things.

NCES.EX.1.L.1.1 - Classify objects, people and animals as living or nonliving.

NCES.EX.1.L.1.2 - Identify major external human body parts (head, eyes, ears, nose, mouth, hands, feet,



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legs and arms).

Ecosystems

NCES.EX.1.L.2 - Understand characteristics of various environments.

NCES.EX.1.L.2.1 - Identify ones own environment when transitioning from place to place (e.g., school, home, outside).

NCES.EX.1.L.2.2 - Identify living and nonliving things in indoor and outdoor environments.

NCES.EX.1.L.2.3 - Describe Materials found in various environments (e.g. rocks, soil, water, clay, wood, cloth, paper).

NCES.EX.1.L.2.4 - Use one or more of the senses to make observations about the environment (e.g. weather conditions).

Forces and Motion

NCES.EX.1.P.1 - Understand how pushes or pulls change the motion of an object.

NCES.EX.1.P.1.1 - Identify what is causing a stationary object to move: a push or pull.

NCES.EX.1.P.1.2 - Observe that objects initially at rest will move in the direction of the push or pull.

Matter, Properties and Change

NCES.EX.1.P.2 - Understand physical properties of objects.

NCES.EX.1.P.2.1 - Classify objects by observable properties (size, shape, color, and texture).

NCES.EX.1.P.2.2 - Classify objects by the Material they are made from (e.g., clay, wood, cloth, paper).

NCES.EX.1.P.3.1 - Recognize objects as same serving the same function even when one property has changed (e.g., size, color).

Grade 2:

Earth Systems, Structures and Processes

NCES.EX.2.E.1 - Understand change and note patterns of weather that occur from day to day.

NCES.EX.2.E.1.1 - Compare daily weather conditions (same, different).

NCES.EX.2.E.1.2 - Recognize cold and hot temperatures.

Structures and Functions of Living Organisms

NCES.EX.2.L.1 - Compare characteristics of animals.

NCES.EX.2.L.1.1 - Identify physical characteristics (head, tail, eyes, ears, nose, mouth, legs, paws, beak, feathers, fur) in a variety of animals.

NCES.EX.2.L.1.2 - Compare a variety of animals to determine how they are alike and different (i.e., dog-bark, four legs, tail; cat-meow, four legs, tail; soft/hard, big/little).

Ecosystems

NCES.EX.2.L.2 - Identify characteristics of various environments and the resources they provide to help people survive.

NCES.EX.2.L.2.1 - Identify different environments (mountains, beach, ocean/lakes/ponds, forests).

NCES.EX.2.L.2.2 - Identify living organisms (animals, people, plants) found in various environments.

NCES.EX.2.L.2.3 - Identify that people need water, food and shelter and that these may be found in their environment.



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Forces and Motion

NCES.EX.2.P.1 - Understand that vibrations create motion.

NCES.EX.2.P.1.1 - Demonstrate how constant pushing and pulling produce vibrations.

Matter, Properties and Change

NCES.EX.2.P.2 - Understand properties of solids and liquids.

NCES.EX.2.P.2.1 - Identify objects and Materials as solid or liquid (e.g. dry vs. wet).

NCES.EX.2.P.2.2 - Compare water in solid and liquid states.

NCES.EX.2.P.2.3 - Understand that heating and cooling water changes its state.

Grade 3:

Earth Systems, Structures and Processes

NCES.EX.3.E.1 - Understand how changes in the seasons effect the Earth.

NCES.EX.3.E.1.1 - Identify common characteristics of the 4 seasons (winter, spring, summer, and fall).

NCES.EX.3.E.1.2 - Compare the changes which occur during each season (e.g. temperature changes, leaves falling, snow, wind blowing, flowers blooming).

Structures and Functions of Living Organisms

NCES.EX.3.L.1 - Understand basic functions of the human body.

NCES.EX.3.L.1.1 - Identify basic functions of the human body (e.g. eating, breathing, moving, sleeping).

NCES.EX.3.L.1.2 - Identify basic needs of the human body (e.g. food, water, rest, protection).

NCES.EX.3.L.1.3 - Understand how the functions and basic needs of the human body are essential for life.

Ecosystems

NCES.EX.3.L.2 - Understand how plants survive in their environment.

NCES.EX.3.L.2.1 - Identify the structures (leaf, flower, roots and stem) of a plant and their functions.

NCES.EX.3.L.2.2 - Compare basic needs of plants (e.g. air, water, light, soil, food, space) to humans.

NCES.EX.3.L.2.3 - Compare soil components (sand/clay) and their capacity to retain water.

Forces and Motion

NCES.EX.3.P.1 - Understand the factors that affect motion.

NCES.EX.3.P.1.1 - Identify different ways objects move (to include falling to the ground when dropped): Straight, Up and Down, Fast and slow.

NCES.EX.3.P.1.2 - Describe the effect of a push or a pull on the motion of an object (e.g. how far, direction, magnitude).

NCES.EX.3.P.1.3 - Compare objects (e.g., ramps and barriers) that may change the direction or speed of things that are already in motion.

Matter, Properties and Change

NCES.EX.3.P.2 - Understand the properties of matter before and after they undergo change.

NCES.EX.3.P.2.1 - Identify liquids and how they take the shape of their container.

NCES.EX.3.P.2.2 - Compare properties of water to other objects (e.g. objects that can sink, float or stay suspended in water).



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NCES.EX.3.P.2.3 - Identify processes (e.g. heating, cooling, cutting, smashing) that result in a physical change.

NCES.EX.3.P.2.4 - Compare the effect of temperature change on matter (e.g. melting ice or ice cream, boiling water, or freezing water).

Grade 4:

Earth Systems, Structures and Processes

NCES.EX.4.E.1 - Use the tools for observing, recording and measuring changes in weather conditions.

NCES.EX.4.E.1.1 - Use a thermometer to record temperature changes, during the day, from day to day, and season to season.

NCES.EX.4.E.1.2 - Measure precipitation and note amounts (none, some, much) from day to day.

NCES.EX.4.E.1.3 - Understand that moving air is wind and it affects the weather and our environment.

Structures and Functions of Living Organisms

NCES.EX.4.L.1 - Understand the needs of living things.

NCES.EX.4.L.1.1 - Identify healthy and unhealthy food choices for humans.

NCES.EX.4.L.1.2 - Understand the effects of healthy and unhealthy food choices on the body.

Ecosystems

NCES.EX.4.L.2 - Understand the effects of environmental changes, adaptations and behaviors that enable plants and animals to survive in changing habitats.

NCES.EX.4.L.2.1 - Describe how animals adapt to their environment (e.g. bears hibernate in the winter, birds fly south for the winter, lizards change color).

NCES.EX.4.L.2.2 - Describe how plants adapt to their environments (e.g. plants grow towards the sun, leaves fall in the winter).

NCES.EX.4.L.2.3 - Identify ways that plants and animals protect themselves.

NCES.EX.4.L.2.4 - Understand why adaptations and changes in behavior are essential for survival.

Forces and Motion

NCES.EX.4.P.1 - Understand how force affects the motion of an object.

NCES.EX.4.P.1.1 - Describe the motion of a moving object (away from or closer).

NCES.EX.4.P.1.2 - Define force as a push or a pull.

NCES.EX.4.P.1.3 - Predict how forces can change the speed or direction of moving objects.

Matter, Properties and Change

NCES.EX.4.P.2 - Compare solid materials by their physical properties.

NCES.EX.4.P.2.1 - Identify different types of solid materials (wood, rock, plastic, rubber, glass, metal).

NCES.EX.4.P.2.2 - Compare physical properties of solid materials (weight, texture, hardness, flexibility, and strength).

Grade 5:

Earth Systems, Structures and Processes

NCES.EX.5.E.1 - Understand dangerous weather conditions.

NCES.EX.5.E.1.1 - Describe different types of weather (e.g. rain showers, thunderstorms, hail, tornadoes,



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hurricanes, blizzards).

NCES.EX.5.E.1.2 - Identify reasons for staying inside during severe weather (e.g. thunderstorms, hail, tornadoes, hurricanes).

Structures and Functions of Living Organisms

NCES.EX.5.L.1 - Understand how internal and external structures of the human body perform functions necessary for life.

NCES.EX.5.L.1.1 - Identify internal structures of the human body (e.g. heart, lungs, bones, stomach, muscles) and their functions.

NCES.EX.5.L.1.2 - Understand how the functions of internal and external structures (e.g. eyes, nose, ears, mouth) of the human body are essential for life.

Ecosystems

NCES.EX.5.L.2 - Understand the interdependence of plants and animals with their ecosystem.

NCES.EX.5.L.2.1 - Identify common ecosystems (e.g. oceans, lakes, deserts, forests, etc).

NCES.EX.5.L.2.2 - Identify animals and plants found in common ecosystems (e.g. ocean, forest, lake, desert, arctic).

NCES.EX.5.L.2.3 - Classify parts of different ecosystems as living and non-living.

Forces and Motion

NCES.EX.5.P.1 - Understand how force can change motion of objects.

NCES.EX.5.P.1.1 - Describe factors that would make it easier or harder to push or pull an object (wheels, round, flat, heavy, light).

NCES.EX.5.P.1.2 - Compare changes in motion (speeding up, slowing down) under certain conditions (e.g., steeper ramp, more weight, more or less force).

Matter, Properties and Change

NCES.EX.5.P.2 - Understand the structure and properties of matter before and after they undergo a change.

NCES.EX.5.P.2.1 - Identify processes (e.g. burning or cooking) that result in a chemical change in matter.

NCES.EX.5.P.2.2 - Compare physical and chemical changes of matter.

NCES.EX.5.P.2.3 - Classify changes in matter as physical (reversible) or chemical (irreversible).

Grade 6:

Earth Systems, Structures and Processes

NCES.EX.6.E.1 - Compare structures of the Earth's surface.

NCES.EX.6.E.1.1 - Identify Earth's land features (e.g. mountains, valleys, volcanoes, islands).

NCES.EX.6.E.1.2 - Compare Earth's land features (e.g. mountains, valleys) by using models, pictures, diagrams, and maps.

Structures and Functions of Living Organisms

NCES.EX.6.L.1 - Understand the major parts of a plant, including seed, root, stem, leaf, and flower, and their functions.

NCES.EX.6.L.1.1 - Identify functions of the parts of a plant.

NCES.EX.6.L.1.2 - Understand how the functions of plant structures (e.g. leaves, stem, roots, bloom) are



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essential for life.

Ecosystems

NCES.EX.6.L.3 - Understand the role of producers and consumers in an ecosystem.

NCES.EX.6.L.3.1 - Define producers and consumers.

NCES.EX.6.L.3.2 - Classify living things as either producers or consumers.

Forces and Motion

NCES.EX.6.P.1 - Identify properties of waves.

NCES.EX.6.P.1.1 - Recognize that vibrations produce waves.

NCES.EX.6.P.1.2 - Identify types of waves (e.g. water, light, seismic, sound).

Matter, Properties and Change

NCES.EX.6.P.2 - Compare the structure and properties of matter before and after they undergo a change.

NCES.EX.6.P.2.1 - Identify the melting point and boiling points of water.

NCES.EX.6.P.2.2 - Understand the difference between mass and volume.

NCES.EX.6.P.2.3 - Compare densities of water with other solid and liquid matter (e.g. oil and water, water and ice).

Grade 7:

Earth Systems, Structures and Processes

NCES.EX.7.E.1 - Understand the water cycle.

NCES.EX.7.E.1.1 - Recognize the water left in an open container evaporates over time.

NCES.EX.7.E.1.2 - Identify the parts of the water cycle (evaporation, condensation, precipitation, run off).

NCES.EX.7.E.1.3 - Describe the consequences of too much or too little water (e.g. drought, flooding).

Structures and Functions of Living Organisms

NCES.EX.7.L.1 - Describe characteristics of living organisms that enable them to survive.

NCES.EX.7.L.1.1 - Identify that insects spread pollen to help flowering plants make seeds.

NCES.EX.7.L.1.2 - Describe ways that a plant and an animal help each other.

NCES.EX.7.L.1.3 - Describe characteristics that help a plant or an animal survive.

Ecosystems

NCES.EX.7.L.2 - Understand the role of decomposers in an ecosystem.

NCES.EX.7.L.2.1 - Define decomposers.

NCES.EX.7.L.2.2 - Understand how decomposers and consumers are different.

NCES.EX.7.L.2.3 - Classify living organisms as producers, consumers, or decomposers.

Forces and Motion

NCES.EX.7.P.1 - Understand balanced and unbalanced forces.

NCES.EX.7.P.1.1 - Identify balanced and unbalanced forces.

NCES.EX.7.P.1.2 - Understand that motion is produced by unbalanced forces.

NCES.EX.7.P.1.3 - Understand that gravity is an unbalanced force that causes objects to fall towards the Earth.



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Matter, Properties and Change

NCES.EX.7.P.2 - Identify an atom as the smallest unit of matter.

NCES.EX.7.P.2.1 - Understand matter is made of smaller units.

NCES.EX.7.P.2.2 - Understand units are combined to make a whole object.

Grade 8:

Earth Systems, Structures and Processes

NCES.EX.8.E.1 - Understand the hydrosphere.

NCES.EX.8.E.1.1 - Identify water features on the earth's surface (oceans, lakes, rivers, glaciers).

NCES.EX.8.E.1.2 - Compare Earth's saltwater and freshwater features (oceans, lakes, rivers).

NCES.EX.8.E.1.3 - Understand that human health requires monitoring of the hydrosphere and stewardship (e.g. water conservation, pollution).

Structures and Functions of Living Organisms

NCES.EX.8.L.1 - Understand that germs can cause disease.

NCES.EX.8.L.1.1 - Recognize that germs can cause illness.

NCES.EX.8.L.1.2 - Identify illnesses that may be caused by germs.

NCES.EX.8.L.1.3 - Demonstrate hygienic practices that reduce the presence of germs.

NCES.EX.8.L.1.4 - Describe minor treatments to prevent infection and the spread of disease (Band-Aid on cut; Cover mouth for sneeze or cough; Use and disposal of tissues).

Ecosystems

NCES.EX.8.L.2 - Explain the interdependence of living organisms in the environment.

NCES.EX.8.L.2.1 - Identify that in a simple food chain, energy transfers from the Sun to plants (producers), to animals (consumers), and to organisms that cause decay (decomposers).

NCES.EX.8.L.2.2 - Understand the relationship between living things and their environment.

Forces and Motion

NCES.EX.8.P.2 - Understand that energy has the ability to cause motion or create change.

NCES.EX.8.P.2.1 - Identify forms of energy, such as light, heat, electrical, and energy of motion.

NCES.EX.8.P.2.2 - Describe the results of applying electrical energy (turn on lights, make motors run); heat energy (burn wood, change temperature); and energy of motion (go faster, change direction).

NCES.EX.8.P.2.3 - Identify that a hot object will make a cold object warm when they touch.

Matter, Properties and Change

NCES.EX.8.P.1 - Understand the interactions of matter and energy and the changes that occur.

NCES.EX.8.P.1.1 - Identify that a whole object weighs the same as all of its parts together.

