Ohio Science - Extended Learning Standards

Grade 3

Earth and Space Science

1 Earth's nonliving resources have specific properties. Soil is composed of pieces of rock, organic material, water, and air and has characteristics that can be measured and observed. Use the term "soil," not "dirt." Dirt and soils are not synonymous. Rocks have specific characteristics that allow them to be sorted and compared. Rocks form in different ways. Air and water are also nonliving resources. Note: Rock classification is not the focus for this grade level; this is found in grade 6. At this grade, the observable characteristics of rocks are used to sort or compare, rather than formally classification. 3.ESS.1

Complexity a

a1 Identify a measurable component of soil (e.g., water, particle size, weight). 3.ESS.1.A1

a2 Sort and classify rocks by specific characteristics. 3.ESS.1.A2

a3 Identify one way that rock can form. 3.ESS.1.A3

Complexity b

b1 Identify the organic and nonliving components of soil. 3.ESS.1.B1

b2 Sort rocks by a given observable characteristic (e.g., texture, color, hardness). 3.ESS.1.B2

Complexity c

c1 Identify the non-living components of soil. 3.ESS.1.C1

c2 Identify one characteristic of a rock. 3.ESS.1.C2

Learning Progression

- Recognize that different types of rocks are formed in different ways. 3.ESS.1.LP.A
- Compare the rate water passes through samples of different rocks and soils. 3.ESS.1.LP.B
- Describe the similarities and differences between two rocks. 3.ESS.1.LP.C
- Sort a group of rocks by a given characteristic. 3.ESS.1.LP.D
- List the things that make up soil (e.g., pieces of rock, organic material, water, air). 3.ESS.1.LP.E
- Identify characteristics of different soil samples (e.g., texture, color, moisture). 3.ESS.1.LP.F
- Identify characteristics of rocks (e.g., color, texture, crystal size). 3.ESS.1.LP.G
- Note: Properties of materials were introduced in K.PS.1. 3.ESS.1.LP.H

2 **Earth's resources can be used for energy. Renewable energy resources—such as wind, water or solar energy—can be replenished within a short amount of time by natural processes. Nonrenewable energy is a finite resource, such as natural gas, coal or oil, which cannot be replenished in a short amount of time.** 3.ESS.2

Complexity a

a Explain why a resource is renewable or nonrenewable. 3.ESS.2.A

Complexity b

b Sort resources into categories of renewable and nonrenewable. 3.ESS.2.B

Complexity c

c Identify a resource as renewable or nonrenewable. 3.ESS.2.C

Learning Progression

- Given a resource explain why it is renewable or nonrenewable. 3.ESS.2.LP.A
- Explain how nonrenewable resources work to produce energy (e.g., coal engine on a train, natural gas in a stove). 3.ESS.2.LP.B
- Explain how renewable resources work to produce energy (e.g., wind turbine using wind, solar panels, Niagara Falls producing hydroelectricity). 3.ESS.2.LP.C
- Categorize resources as renewable or nonrenewable. 3.ESS.2.LP.D
- Identify a variety of nonrenewable energy resources using children's literature or media. 3.ESS.2.LP.E
- Identify a variety of renewable energy resources using children's literature or media. 3.ESS.2.LP.F

3 **Some of Earth's resources are limited. Some of Earth's resources become limited due to overuse and/ or contamination. Reducing resource use, decreasing waste and/or pollution, recycling, and reusing can help conserve these resources.** 3.ESS.3

Complexity a

a Explain a way to conserve a given resource. 3.ESS.3.A

Complexity b

b Match a limited resource to a means to conserve it (e.g., fresh water can be conserved by taking short showers). 3.ESS.3.B

Complexity c

c Identify a way to conserve a given resource. 3.ESS.3.C

Learning Progression

- Compare data on two means of conservation and choose the more effective. 3.ESS.3.LP.A
- Explain a way to conserve a given resource. 3.ESS.3.LP.B
- Sort behaviors as contributions to conservation or wasteful efforts. 3.ESS.3.LP.C
- State one way to conserve a given resource. 3.ESS.3.LP.D
- Classify behaviors as being conservative or wasteful (e.g., only taking as many paper towels as you actually need). 3.ESS.3.LP.E
- Identify behaviors as being conservative or wasteful (e.g., water running while brushing teeth or turning it off). 3.ESS.3.LP.F

Life Science

1 Offspring resemble their parents and each other. Individual organisms inherit many traits from their parents indicating a reliable way to transfer information from one generation to the next. Some behavioral traits are learned through interactions with the environment and are not inherited. 3.LS.1

Complexity a

a1 Explain why you can expect the offspring to have similar physical traits to the parent. 3.LS.1.A1

a2 Explain why a given trait is learned behavior or an inherited. 3.LS.1.A2

a3 Explain how a change in an environment can affect a behavior of an organism in that environment. 3.LS.1.A3

Complexity b

b1 Identify similar inherited physical traits that can be observed in a parent and offspring. 3.LS.1.B1

b2 Sort a set of given traits as either learned behaviors or inherited physical traits. 3.LS.1.B2

b3 Match an environmental change to a potential behavioral change of an organism. 3.LS.1.B3

Complexity c

c1 Identify one observable way an offspring resembles a parent. 3.LS.1.C1

c2 Identify a trait as either a learned behavior or an inherited physical trait. 3.LS.1.C2

c3 Given an environmental change, identify a behavioral change that would help an organism in that environment. 3.LS.1.C3

Learning Progression

- Describe how changes in the environment affect the behavior of organisms (e.g., raccoons eating from trash cans, squirrels hiding nuts, animals hibernating). 3.LS.1.LP.A
- Explain how learned behaviors help an organism survive (e.g., birds leaving the nest, mother lion teaching cub to hunt, cubs playing). 3.LS.1.LP.B
- Classify a set of traits as learned or inherited. 3.LS.1.LP.C
- Give examples of behaviors that are not inherited but are learned after birth (e.g., a bird learning to fly, children learning to read, a lion learning to hunt). 3.LS.1.LP.D
- Know that some traits are inherited and some are learned. 3.LS.1.LP.E
- Explain that information that determines physical and behavior traits is passed on from one generation to the next. 3.LS.1.LP.F
- Describe the growth of a organism from birth to adulthood and note the changes (e.g., watch a nesting webcam, plant seedlings). 3.LS.1.LP.G
- Describe similarities and differences in the appearance of parents and offspring (e.g., dogs and puppies have fur but puppy fur is softer). 3.LS.1.LP.H

- Match offspring to parents.Recognize that offspring look like parents (e.g., kittens look like cats, small trees look like bigger trees, children and adults have the same body parts). 3.LS.1.LP.I

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2 Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing. Plants and animals have physical features that are associated with the environments where they live. Plants and animals have certain physical or behavioral characteristics that influence their chances of surviving in particular environments. Note: The focus is on the individual, not the population. Adaption is not the focus at this grade level. 3.LS.2

Complexity a

a1 Describe how a variation in a physical or behavioral trait would give an individual an advantage. 3.LS.2.A1

a2 Explain why one physical or behavioral trait within a species would be an advantage in a given environment. 3.LS.2.A2

Complexity b

b1 Identify variations in physical and behavioral traits within the same species. 3.LS.2.B1

b2 When given an environment and given variations of the same organism, select the one variation that will be an advantage to the organism. 3.LS.2.B2

Complexity c

c1 Identify that there is variation within the same species. 3.LS.2.C1

c2 Identify traits in an individual organism that would help it be successful in its environment. 3.LS.2.C2

Learning Progression

- Explain why a particular trait is advantageous in a given environment. 3.LS.2.LP.A
- Identify traits as advantageous in certain environments. 3.LS.2.LP.B
- Describe the traits of an organism that help it live in its environment (e.g., thick covering on cactus, thick fur on Arctic animals, the ability to camouflage, fast running speed of predators, ability to climb). 3.LS.2.LP.C
- Identify that variations in traits may provide a survival advantage. 3.LS.2.LP.D
- Match organisms and the environment in which they are found (e.g., fish in water, deer in forest). 3.LS.2.LP.E
- Using pictures or actual organisms identify differences among traits in members of the same species (e.g., litter of puppies have different coloration or fur texture). 3.LS.2.LP.F

3 **Plants and animals have life cycles that are part of their adaptations for survival in their natural environments. Worldwide, organisms are growing, reproducing, dying, and decaying. The details of the life cycle are different for different organisms, which affects their ability to survive and reproduce in their natural environments. Note: The names of the stages within the life cycles are not the focus.** 3.LS.3

Complexity a

a Describe how a specific environment supports a specific organism's life cycle (e.g., flowering plants do not flower outside in the winter). 3.LS.3.A

Complexity b

b Match an organism's life cycle to an environment. 3.LS.3.B

Complexity c

c Identify the main stages of an organism's life cycle: birth, growth, adulthood, reproduction, and death. 3.LS.3.C

Learning Progression

- Recognize that different organisms may have different life stages (e.g., metamorphosis). 3.LS.3.LP.A
- Match stage of the life cycle to what is going on in the environment (e.g., many babies are born in the spring when food is plentiful, seeds germinate when the soil is moist). 3.LS.3.LP.B
- Know that an individual organism may die at any point in the life cycle. 3.LS.3.LP.C
- Identify different stages of a life cycle (e.g., watch nature videos that trace the life cycles of a variety of organisms, observe mealworms in the classroom). 3.LS.3.LP.D
- Recognize that organisms are born/germinate, grow, reproduce, die and decay. 3.LS.3.LP.E

Physical Science

1 All objects and substances in the natural world are composed of matter. Matter takes up space and has mass. Differentiating between mass and weight is not necessary at this grade level. 3.PS.1

Complexity a

a Using non-traditional measurements, measure the volume of different objects, and using metric or non-traditional measurements, measure the mass of different objects. 3.PS.1.A

Complexity b

b Using non-traditional measurement, units (e.g., paper clips, cubes), identify the volume or mass of an object. 3.PS.1.B

Complexity c

c Identify one or more characteristics of matter (takes up space and has mass). 3.PS.1.C

Learning Progression

- Compare objects of the same size and shape that have different masses (e.g., by finding their mass or by lifting to see which is heavier). 3.PS.1.LP.A
- Compare the volume of two containers (e.g., which holds more pieces of popcorn, which holds more milliliters of water). 3.PS.1.LP.B
- Recognize that all matter (solids, liquids, gases) has mass and volume. Note: Air having mass and volume was explored in 2.ESS.1. 3.PS.1.LP.C
- Measure mass using SI units (e.g., using a balance). 3.PS.1.LP.D
- Measure mass using nonstandard units (e.g., paperclips, washers, marbles). 3.PS.1.LP.E
- Recognize that mass is the amount of material in an object or substance. 3.PS.1.LP.F
- Measure volume using SI units (e.g., unit cubes, milliliters). 3.PS.1.LP.G
- Measure volume using nonstandard units (e.g., cubes, marbles).Recognize that volume is the amount of space taken up by an object or substance. 3.PS.1.LP.H

2 **Matter exists in different states, each of which has different properties. The most recognizable states of matter are solids, liquids, and gases. Shape and compressibility are properties that can distinguish between the states of matter. One way to change matter from one state to another is by heating or cooling.** 3.PS.2

Complexity a

a1 Match a given property to its state of matter. 3.PS.2.A1

a2 Given a substance, predict how it will change if heated or cooled. 3.PS.2.A2

Complexity b

b1 Identify the possible states of matter for a given property (e.g., gas or liquids can take the shape of a container). 3.PS.2.B1

b2 Identify how the state of matter will change if a substance is heated or cooled. 3.PS.2.B2

Complexity c

c1 Identify an object as being either a solid, a liquid, or a gas. 3.PS.2.C1

c2 Identify if something is being heated or cooled. 3.PS.2.C2

Learning Progression

- Predict how various objects will change when heated or cooled. 3.PS.2.LP.A
- Match properties with states of matter (e.g., definite shape with solid, fills any volume with gas). 3.PS.2.LP.B
- Identify the changes that exist as a material heats or cools (e.g., freezing, melting, boiling/evaporation, condensing). 3.PS.2.LP.C
- Recognize that matter can change state when heated (e.g., observe ice changing state from solid to liquid to gas) or cooled (e.g., freeze water, watch condensation form on a cold beverage). 3.PS.2.LP.D
- Given a situation identify whether something is being heated or cooled (e.g., sun shining on a sidewalk, ice cubes placed into water). 3.PS.2.LP.E
- Recognize that different states of matter have different properties (e.g., manipulate various materials to determine how solids, liquids and gases differ. 3.PS.2.LP.F
- Given objects, substances or pictures identify which are solids, liquids and gases. 3.PS.2.LP.G

3 **Heat, electrical energy, light, sound, and magnetic energy are forms of energy. There are many different forms of energy. Energy is the ability to cause motion or create change. The different forms of energy that are outlined at this grade level should be limited to familiar forms that a student is able to observe.** 3.PS.3

Complexity a

a1 Explain the difference between two or more types of energy. 3.PS.3.A1

a2 Design a simple experiment that would show a form of energy making a change. 3.PS.3.A2

Complexity b

b1 Identify multiple forms of energy. 3.PS.3.B1

b2 Match a type of energy to an example of change (e.g., light bulb on, light bulb off - electrical energy). 3.PS.3.B2

Complexity c

c1 Identify a form of energy. 3.PS.3.C1

c2 Identify a change in energy (e.g., a light turned on after being plugged in). 3.PS.3.C2

Learning Progression

- Demonstrate a way that energy can cause a change (e.g., dropping a ball in a bucket of sand, turning on a light, turning on a fan, rice vibrating on the surface of a drum). 3.PS.3.LP.A
- Match pictures to the type of energy depicted. 3.PS.3.LP.B
- Identify when there is a change of energy (e.g., flipping on a light, turning the volume up on a speaker, watching a magnet move an object, lighting a candle and observing heat and light). 3.PS.3.LP.C
- Identify objects that use different types of energy (e.g., heat, electrical, light, sound, magnetic). 3.PS.3.LP.D
- Recognize that there are different types of energy (e.g., heat, electrical, sound, light, magnetic). 3.PS.3.LP.E