Virginia Science - VAAP

Grade 8

Life Systems and Ecosystems

7 Recognize common features of watersheds and why they are important in Virginia. S-8.7

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing common features found in watersheds (e.g., rivers, streams, lakes, reservoirs) to • connecting common features of watersheds to their function (e.g., that watersheds have inputs and outputs, that water flows from smaller into larger bodies of water) to • identifying simple steps that can be taken to improve the health of watersheds and why it is important to keep our water clean. S-8.7.CC

10 Recognize that animals and plants have characteristics related to different functions which can be used to tell these organisms apart. S-8.10

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing animals and plants from other common unrelated objects to • identifying different animal and plant behaviors and parts (e.g., the flower on a plant, the ear on an animal) to • identifying the function of animal and plant parts (e.g., legs that help an animal run fast, eyes that help an animal see prey). S-8.10.CC

11 Recognize that plants need light, air, and water to grow through a process called photosynthesis. S-8.11

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing that plants need light, air, and water to survive and grow to • recognizing materials or conditions that would not help them grow (e.g., complete darkness, no water, salt) to • recognizing the term and role of photosynthesis and characterizing or comparing the growth of a plant, tree, or flower when different amounts of light, air, or water are provided. S-8.11.CC

12 Recognize that living organisms need food to obtain energy and grow. S-8.12

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing that living things need food to • recognizing food is used for “energy” by living things to grow and survive to • recognizing the amount of energy or expected growth varies with the amount or type/quality of food. S-8.12.CC

13 **Recognize ways in which living organisms interact with other living organisms and non-living parts of an ecosystem.** S-8.13

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing living and non-living parts of an environment or ecosystem to • identifying interactions between living and non-living parts (e.g., habitat, shelter, water) of an ecosystem to • identifying and understanding more complex interactions between living organisms or among groups of living organisms (e.g., predator-prey, competitive, mutually beneficial) including through simple food chains/webs. S-8.13.CC

14 **Recognize traits that help living organisms adapt and survive.** S-8.14

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple traits of living organisms that help them survive (e.g., a rabbit's ears help it hear predators) to • recognizing traits that help one animal survive as compared to unrelated traits of other animals to • identifying the function of traits that helps individual animals or groups of the same animal adapt or survive (e.g., a giraffe's long neck helps it reach food from the tops of trees, a tiger's stripes help it hide in tall grass). S-8.14.CC

15 **Recognize living organisms in an ecosystem, the resources available in that ecosystem, and how changes in resources (i.e., food, water, shelter, habitat) affect the growth of their population.** S-8.15

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing individual living organisms and groups of living organisms to • recognizing various resources that living organisms need to grow and sustain their population to • recognizing that simple changes in resources, including those due to human activity, might affect an individual living organism or groups of living organisms or their population. S-8.15.CC

16 **Recognize that reproduction produces offspring with similar though varied traits.** S-8.16

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing that the offspring of a living organism (plants, animals, humans) are the same species of living organism to • recognizing the offspring of a living organism (plants, animals, humans) may not be identical and may have similar traits with variations. S-8.16.CC

17 **Recognize anatomically similar organisms.** S-8.17

CC . Using simple pictures, diagrams, or representations, concepts could range from: • recognizing highly similar animals based on their physical characteristics (e.g., dogs with other dogs, birds with other birds) to • recognizing similar animals based on broader physical characteristics (e.g., wolf with dog, lion with cat) to • recognizing fossils of common extinct organisms are similar to organisms living today (e.g., fern fossil similar to today's plants, dinosaur fossil similar to today's lizards) S-8.17.CC

Earth and Space Systems

1 Recognize and compare objects in the solar system and their features. S-8.1

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the sun, Earth, and moon as compared to everyday objects on Earth to • recognizing the sun, Earth, and moon as compared to other related objects in the solar system to • comparing characteristics (e.g., size, shape, position, composition) of various space objects (e.g., sun, Earth, moon, planets, comets, asteroids) in the solar system. S-8.1.CC

2 Recognize that gravity influences the way objects move on Earth and in space. S-8.2

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the direction that common objects fall due to gravity on Earth to • recognizing the role of gravity in the movement of Earth and the sun or Earth and the moon to • recognizing the role of gravity in the movement of other objects in the solar system (e.g., planets and the sun, moons of other planets, comets and the sun). S-8.2.CC

3 Recognize that the sun provides Earth with light and energy. S-8.3

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the difference between day and night to • recognizing that the sun gives the vast majority of light and heat energy to Earth and its organisms to • recognizing the connection between Earth's rotation and daytime and nighttime and Earth's tilt on its axis and the four major seasons. S-8.3.CC

6 Recognize different types of weather conditions and their characteristics. S-8.6

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple weather conditions (e.g., rainy, cloudy, sunny, foggy, thunder and lightning) to • recognizing that changes in simple weather conditions are connected to decisions about everyday activities or actions to • connecting weather to characteristics of the atmosphere (e.g., temperature, cloudy versus clear, windy versus calm) and common weather tools and information (e.g., thermometers, weather forecasts). S-8.6.CC

8 Recognize ways in which people and communities use and impact Earth's environment and resources. S-8.8

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing activities that pollute or harm Earth (e.g., automobile with exhaust, trash on the ground) compared to unrelated and/or common activities that help protect Earth (e.g., walking, riding bike, picking up trash) to • recognizing simple and common options that help protect the environment or conserve natural resources (e.g., picking up trash, recycling materials, turning off lights) to • identifying ways to protect Earth’s environment or conserve natural resources as compared to activities that pollute or harm Earth’s environment (e.g., pollution from a factory, plastic in streams or oceans). S-8.8.CC

9 Recognize different materials humans use that come from Earth's natural resources. S-8.9

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing different types of common objects or materials that come from Earth to • recognizing different natural resources and incorporating the term “natural resource” to • connecting renewable or nonrenewable natural resource with common uses and objects (e.g., paper from forests/trees/wood, energy from coal/sun, drinking water from watersheds). S-8.9.CC

Force, Motion, Energy, and Matter

4 Recognize temperature as a measure of how hot or cold matter is and that thermal energy is transferable. S-8.4

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the difference between hot and cold in common contexts to • recognizing that hot and cold are related to measures of temperature or changes in temperature to • recognizing common examples of heat transfer and how it can be minimized (e.g., wearing a coat to stay warm, using an oven mitt) or maximized (e.g., sitting in the sun to get warm, using a fan to get cool). S-8.4.CC

5 Recognize water phases and how water changes its phase through the water cycle. S-8.5

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the three phases of water to • connecting the phases of water to common experiences at different points in the water cycle (e.g., liquid water falling as rain, solid water falling as snow or hail, water vapor rising from a boiling pot of water) to • identifying a specific phase of water as compared to other phases of water using common examples at different points in the water cycle (e.g., ice melts to a liquid, a puddle of water evaporates to a gas, rain falls as a liquid from the atmosphere). S-8.5.CC

18 Recognize that objects, animals, and plants are made of smaller parts and identify various seen and unseen parts. S-8.18

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the smaller parts of large common objects (e.g., cars, trucks, buses, bikes, scooter - wheels; houses and other building - doors and windows; building blocks - smaller blocks; smart phones, computers, laptops, and tablets – screen, keyboard) to • recognizing smaller and more complex parts of common objects and living organisms to • identifying more complex parts of common objects and living organisms including those that are very small or too small to be seen with the naked eye (e.g., objects, water, animals, plants - atoms and molecules) including that we can use technology to see them (e.g., magnifying glass, microscope). S-8.18.CC

19 **Recognize and measure the physical and chemical properties of matter including before or after a physical or chemical change occurs.** S-8.19

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing physical properties of common objects including size and shape to • recognizing and comparing simple physical/chemical properties of common objects (e.g., size, shape, hardness/softness, weight, mass, and density) to • identifying changes in physical/chemical properties that result from common activities (e.g., cooking an egg, dissolving sugar in water, boiling water, burning wood). S-8.19.CC

20 **Recognize basic forms of energy and that energy is transferred and transformed.** S-8.20

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing basic forms/types of energy compared to other forms/types of energy (i.e., kinetic, electrical, sound, thermal, and light energy) to • identifying basic forms/types of energy based on common use or source to • understanding that energy is transferred and transformed to help people meet their needs (e.g., electrical energy lights a light bulb and heats a stove). S-8.20.CC

21 **Recognize objects in motion involving actions and reactions.** S-8.21

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing objects that are at rest or in motion while using common terminology (e.g., sitting, still, moving) to • recognizing objects that are at rest or in motion by incorporating the concepts of forces (force, push, pull) and changes in motion (e.g., change in direction, motion to rest, rest to motion) to • identifying and comparing simple actions and reactions for common objects at rest or in motion (i.e., more or less force, presence or absence of force). S-8.21.CC

22 **Recognize that the force, mass, and motion of objects are related and comparable.** S-8.22

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing common objects in relation to their weight and mass to • connecting mass, force, and motion in common situations, (e.g., pushing/pulling objects) to • comparing force, mass, and change in motion (e.g., more mass requires more force to move or more force moves the same mass more quickly) in common situations (e.g., pushing an object uphill, throwing/kicking/hitting a ball harder). S-8.22.CC