Virginia Science - VAAP

High School

Life at the Molecular/Cellular and Systems/Organisms Levels

1 **Recognize that humans and animals need oxygen to breathe, water to drink, and food to eat in order to grow and obtain energy.** S-HS.1

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the difference between air/oxygen, water, and food, and that humans and animals need these to survive and grow to • recognizing that air/oxygen, water, and food help provide energy to humans and animals to • recognizing that energy and growth may change based on the type, amount, or availability of air/oxygen, water, and food. S-HS.1.CC

2 **Recognize that plants need light, air, and water to grow and create energy through photosynthesis.** S-HS.2

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing the difference between light, air, and water and that plants need them to survive and grow 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 to • recognizing plant parts associated with the basic inputs (water, sunlight, carbon dioxide) and outputs (oxygen, sugar) of photosynthesis (e.g., roots take in water during photosynthesis, leaves take in sunlight during photosynthesis, leaves release oxygen during photosynthesis). S-HS.2.CC

3 **Recognize that bacteria and viruses have an impact on human health and that people can take simple steps to support health and wellness.** S-HS.3

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple steps that people can take to support their health (e.g., washing hands, brushing teeth, washing and eating healthy food, getting regular sleep) to • recognizing that simple steps to support health can be framed as choices that people can make compared to other unrelated or poor choices to • recognizing that bacteria, viruses, and germs are too small to be seen with the naked eye and that they can cause illness/sickness if simple steps are not taken to support health and wellness. S-HS.3.CC

4 **Recognize that reproduction produces offspring with similar, though varied, traits.** S-HS.4

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 (plants, animals, humans) to • recognizing that the offspring of a living organism (plants, animals, humans) may not be identical, may have variations of the same or similar traits, and could develop a helpful trait. S-HS.4.CC

5 Recognize and compare plants and animals and the ways in which their unique structures and behaviors are connected to their functions. S-HS.5

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing plants and animals from each other to • recognizing common structures and behaviors of plants and animals to • connecting structures and behaviors plants and animals to their primary functions (e.g., the flower of a plant attracts bees, a rabbit's ears help it hear predators, a cheetah's legs help it run fast to catch prey). S-HS.5.CC

Interactions of Life Forms and Ecosystem Dynamics

6 Recognize that animals have traits that help them reproduce and survive and those with advantageous traits are more likely to reproduce and survive. S-HS.6

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple traits of animals that help them reproduce or survive compared to traits from other species that are unrelated (e.g., birds, bats, and insects have wings while other animals do not) to • identifying the function of the trait of the animal from among other traits from the same species (e.g., the trait that helps giraffes reach food in the tall trees, the trait that helps owls see prey in the dark) to • recognizing survival of an animal or group of the same animals is related to variations of a trait (e.g., camouflage) and environmental conditions (e.g., beneficial or challenging changes in habitat). S-HS.6.CC

7 Recognize ways in which living organisms' traits help them adapt to and survive their environment. S-HS.7

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple traits (i.e., body parts, behaviors) of humans, animals, and plants that involve survival to • identifying the function of the traits of humans, animals, and plants that involve survival to • identifying a simple trait based on the function or purpose of the trait (e.g., rabbits use their ears to detect predators, ducks use their webbed feet to swim). S-HS.7.CC

8 Recognize resources and factors that affect living organisms and how living organisms respond to changes within their ecosystem. S-HS.8

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple resources or environmental factors that individual living organisms or groups of living organisms need to grow, reproduce, and sustain their population to • identifying simple changes in resources or environmental factors and how the change could affect living organisms (e.g., removing a forest habitat decreases animal populations in an area) to • recognizing how the variety of life on Earth (plants and animals) might change based on environmental factors (e.g., changes in resources like food, water, habitat). S-HS.8.CC

9 **Recognize ways in which living organisms interact with other living and non-living parts of environments and ecosystems and how interactions might change under different conditions.** S-HS.9

CC. Using simple pictures, diagrams, or representations, concepts could range from: • recognizing simple interactions between living organisms and the living and non-living parts of an environment or ecosystem (e.g., living organisms' homes, habitats, shelters, access to water) to • recognizing simple interactions between living organisms including in simple food chains (e.g., predator-prey, competitive, mutually beneficial) to • recognizing a change that affects interactions between living organisms and living and non-living parts of an environment or ecosystem and the result (e.g., loss of habitat forces groups of animals to relocate or decreases their population, loss of predators results in an increase in prey population) including the use of simple food chains/webs. S-HS.9.CC