Adaptations

Grade Level: 3rd-5th grade

Virginia SOLs:
4.5 The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include:

a) plant and animal adaptations;
b) organization of populations, communities, and ecosystems and how they interrelate;
c) flow of energy through food webs;
d) habitats and niches;
e) changes in an organism's niche at various stages in its life cycle; and
f) influences of human activity on ecosystems.

4.9 The student will investigate and understand important Virginia natural resources. Key concepts Include:

a) watersheds and water resources;
b) animals and plants;
c) minerals, rocks, ores, and energy sources; and
d) forests, soil, and land.

5.5 The student will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment. Key concepts include:

a) basic cell structures and functions;
b) classification of organisms using physical characteristics, body structures, and behavior of the organism; and
c) traits of organisms that allow them to survive in their environment.

Description:
This is an activity which integrates the knowledge of adaptations with art. The lesson begins with the students exploring different ecosystems and discussing the adaptations necessary to live there. The students are then given a picture of a photoshopped animal that will be reference as the students create, draw and color their creation and describe the creature's adaptations.

Objectives: At the end of this lesson, the students will be able to:
Describe how plants and animals use adaptations to survive in a particular environment.

Explain how impacts on a habitat influence the adaptations of a species.

Background:
Many ecosystems exist on Earth- Grassland, Mountain, Aquatic, Desert, Forest etc. Wind, rain, temperature, and altitude all play a role in shaping each zone. Species have had to adapt to these different habitats over time. An adaptation is a change of form or behavior that helps a species survive in a specific environment. The trait or characteristic may be inherited from their parents. Other traits

can result from individuals' interactions with their environment, which can range from diet to learning. Many characteristics involve both inheritance and the environment. Most living things have a variety of adaptations. Some examples are: body coloring or camouflage, variations in the size and shape of a bird's beak to help it gather food, migration, hibernation, and defense behaviors. All forms of life are dependent upon both living and nonliving components of the environment. The living and nonliving components of an ecosystem all interact with each other and are interdependent.

Vocabulary:
***Adaptation*-** A change of form or behavior that helps a species survives in a specific environment.
***Survival*-** Meets the needs of food, water, shelter and space.
***Trait*-** A distinguishing characteristic or quality that makes one organism different from another.
Camouflage- Coloration or patterns that allow animals to blend into their surroundings.
***Interdependence*-** Dependent or relying upon each other, the interrelationships of species with one another and with the various elements of their environment.
***Migration*-** The act of moving from one place to another.
***Species*-** Plant, animal or insect.
***Abiotic*-** Nonliving.
***Behavioral adaptation*-** an animal's actions or things it does which helps it survive in a specific environment, including both learned and instinctive behaviors.
***Conservation*-** careful use and preservation of our natural resources.
***Hibernation*-** the act of passing the winter in a state of dormancy or sleep.
***Instinct*-** inborn tendency to behave in a way characteristic of a species; natural, unlearned, predictable response to stimuli.
***Interdependence*-** dependent or relying upon each other, the interrelationships of organisms with one another and with the various elements of their environment.
***Learned Behavior*-** behaviors that are taught in order for the animals to survive.
***Migration*-** the act of moving from one place to another.
***Mimicry*-** imitation in color, form, or behavior, of one organism to another or to some object in its environment.
***Physical Adaptation*-** a body.

Materials Needed:
- Animal Pictures- More pictures can also be found by searching "animal hybrids" online.
- Worksheet
- PowerPoint
- Coloring Materials

Procedure:
Step 1: Introduction and Definitions
- Provide the guiding question: What is your favorite animal? Why are there so many different types of animals and plants in the world? Record their ideas.
- Introduce key vocabulary words.
- Ask students for examples of some different types of plant and animal adaptations.
- Ask students examples of adaptations they might see at Manassas National Battlefield Park.

Step 1: Review a variety of ecosystems
- Many ecosystems exist on the Earth. Tell students the different types, and an overview of each.

    - For example: in an aquatic ecosystem the animal would need gills to breathe.
- Discuss what types of adaptations would be needed to survive in each.

Step 2: Brainstorm creation of a well-adapted creature

- Handout picture of animal hybrids. You can also find more pictures my searching "animal hybrids" online.
- After students receive their picture, they will think of what types of adaptations their creature has to help them to survive in an ecosystem of their choice (the ecosystem that they think the animal is best suited for). They should think back to things like the amount of water available, wind, temperature, soil, sun, and any threats within the ecosystem.
- Provide the following list of questions for the students to answer. They should connect each one with an adaptation that will help their creature survive.
    - Where will the animal live?
    - What will it eat?
    - Where will it get water?
    - How will it breathe?
    - How does it move?
    - What type of body covering will it have?
    - What is the name of the animal?

Step 3: Worksheet

- Students should then fill out the "Create a Creature" worksheet, answering the questions above, draw and color a picture of their creature and labeling its adaptations.

Step 4: Present Your Organism

- Have each student present their well-adapted creature to the class. Encourage students to ask questions about how the animal adaptations help it to survive within the ecosystem.

Assessment Tool:
Assess the animal model and types of relevant adaptations shown to see if the student connects the concept of the environmental influences on animal traits needed to help the animal survive.

Create a Creature

Species Name

Common: _____ Scientific: _____

Habitat (food, water, and shelter)

Life History (size, adaptations, how long does it live)

Trivia: Fun Fact—Did you know that?

If time and materials permit, draw a colorful picture of your animal on the back of this sheet or on another sheet of paper.