



NYSDEC Environmental Education

Wild Defenses

For Students in Grades 1 through 6

A 45- minute program designed to teach about the defensive adaptations animals use to avoid being eaten.

Goal: Students will learn about animal defenses, and learn some of the animals that specialize in each defense. Students will draw conclusions about the benefits of these defenses. As often as possible, use native animals as examples.

NYS Elementary Science Core Curriculum

Standard 1: *Scientific Inquiry*

Key Idea 1: The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

Standard 1: *The Living Environment*

Key Idea 3: Individual organisms and species change over time.

Key Idea 5: Organisms maintain a dynamic equilibrium that sustains life.

Key Idea 6: Plants and animals depend on each other and their physical environment.

NYS Intermediate Level Science Core Curriculum

Standard 1: *Scientific Inquiry*

Key Idea 1: The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

Standard 4: *The Living Environment*

Key Idea 3: Individual organisms and species change over time.

Key Idea 5: Organisms maintain a dynamic equilibrium that sustains life.

Classroom Props

The following taxidermy mounts (non-living) may be used:

pangolin, armadillo, porcupine, spiny puffer, oyster shell, giant clam shell, sturgeon, alligator, sea turtle shell, snapping turtle. You may also use a live animal to display its wild defenses.

Animals in Armor Show

Discuss many of the ways animals defend themselves including:

Key defenses:

Prickly defense: sharp points such as quills, spikes, and spines make animals harder to swallow. Examples: porcupines, hedgehogs, some crabs.

Hard Outside: Hard plates on the body prevent damage from predators. Examples: turtles, lobsters, insects.

Shells: Some animals build a shell that they can hide their soft bodies in. Examples: snails, mussels, clams. *Try and differentiate between the shells of a turtle, those of crabs, and those of mollusks.*

Grow in size: Several species can make themselves inflate to make them more difficult to swallow. Examples: puffer fish, toads.

Curl into a Ball: Some animals will roll up to protect vulnerable body parts with harder and more durable plates or scales. Examples: sow bugs, armadillos, pangolin, millipede.

Fast animals: Many animals outrun their predators. Examples: deer, rabbits, pigeons.

Poison: Some animals are inedible, and can make a predator sick. Examples: poison dart frogs, monarch butterfly, skunks.

Venom: Some animals can bite back, and are more trouble than they are worth because of poisons. Examples: jellyfish, spiders, scorpions, bees, venomous snakes.

Warning colors: A few animals warn others to stay away with bright colors, usually red, orange or yellow, contrasted with black. Examples: wasps, venomous snakes, poison dart frogs, monarch butterfly.

Blend In: Many animals blend in, or *camouflage*, so well, the predator can't find them. Examples: chameleon, sparrows, rabbits, flounder.

Discussion

Ask students if they can think up of any other animals that have ways of protecting themselves. What animals are they familiar with and what defenses do they have? Are there any animals they can think of that don't have any type of protection? What about pets? What about people? Do the students do anything to avoid being hurt? Compare human safety precautions and devices (helmets, elbow pads, stop signs, etc) to defenses and warnings that animals use.

Conclusions

Draw all of the threads together, comparing the defenses reviewed. Encourage students to discuss which defenses they like the most and which defenses affect their lives the most. Are there defenses that may work against some animals rather than others? Are there defenses that work well against some animals but not against humans?

Allow students to see that different species of wildlife are well adapted to their habitat. There are interesting animal adaptations found all over the world, including in our own backyards. Encourage students to explore outside and learn environmental science by experiencing it for themselves.

Extension

Animal Game Show

Use a series of taxidermy mounts, shells and animal artifacts. These are divided into two groups. To demonstrate their new knowledge, the group will play a matching game. Select a volunteer “contestant,” who will then pick an animal from each group that has the most similar adaptations.

Likely pairs for the game:

pangolin	armadillo
porcupine	spiny puffer
oyster shell	snail shell
sturgeon	alligator
sea turtle shell	snapping turtle
lobster claw	crab

Defense:

(curls into a ball)
(spines and quills)
(shells)
(plates in skin)
(turtle shells)
(exoskeletons)