

Information for Teacher-Led Lesson about Pelts Adaptations for Camouflage and Warmth

PELT LESSONS OVERVIEW

- Focus on camouflage, examining cryptic, disruptive, and countershading colorations, as well as staying warm in winter and size.
- Teacher Resources: Notes below on Potter Park Zoo pelts. (Note that some of the body coverings are not actually pelts, such as those of the sea turtle, python, and rubber snake.)
- Zoo staff will select the coverings to be used in the lesson and group them as presented below, with disruptive coloration and mimicry grouped together. **(If you prefer a different set up, please let zoo staff know in advance.)** Most of those described below will be included. A packet of photographs that illustrate camouflage in these animals is available for use with this lesson.
- **Students may gently touch these items, moving only one finger in the direction of the covering.** All animals, except the rubber snake, were alive at one time. The coverings can be fragile, especially where tails connect to the bodies. Please respect these items. Students should not put writing materials on top of any coverings as they complete this activity. Anyone handling the coverings should wash their hands after the activity.
- The sources of our coverings are animals that die at the zoo (We do not kill the animals for the pelts, as students sometimes think) or confiscated items that we obtain from government sources.

Cryptic Coloration (primarily one color) – Blends in with surroundings

- Gray wolf and coyote
 - ✓ Blends with surroundings
 - ✓ In winter, denser woolly undercoat and layer of guard hair (coarse hairs that protect the undercoat and shed moisture).
 - ✓ Bushy tail can be wrapped across the nose to keep it from freezing while it sleeps.
- Caribou
 - ✓ Color blends in with surroundings.
 - ✓ In winter, warm, denser undercoat, and hollow guard hairs that trap air and keep heat in.
- Cottontail rabbit
 - ✓ Coat blends in.
 - ✓ Dense fur is longer in winter.
- Arctic fox
 - ✓ Blends with surroundings: This fox is an exception in that it has long, white, dense fur in the winter and loses it for the summer, when it has less dense gray/brown fur. (Our blue-phase fox appears silver in winter and black in summer.) The other above examples remain the same color year-round.
 - ✓ Fur on bottom of feet provides added warmth and better traction on snow and ice.
 - ✓ Thick tail acts as a “blanket.”
 - ✓ Ears are small and thickly furred to prevent frost bite.

Cryptic Coloration (spotted or striped) – Blends in with surroundings

- Snow leopard
 - ✓ Spots blend with surroundings in rocky, snowy mountains.
 - ✓ In winter, denser woolly undercoat and layer of guard hair (coarse hairs that protect the undercoat and shed moisture).
 - ✓ Fur on bottom of feet provides added warmth and better traction on snow and ice.
 - ✓ Long, bushy tail can protect nose from severe cold by being curled around the body with the end draped across the face.
 - ✓ Small ears minimize heat loss
- Amur tiger
 - ✓ Stripes blend with surroundings in forest.
 - ✓ In winter, denser woolly undercoat and layer of guard hair (coarse hairs that protect the undercoat and shed moisture).
- Python
 - ✓ Patterns blend with surroundings.
 - ✓ The python is cold blooded but lives in warm weather areas so it remains active.

Countershading – Dark on top and light on bottom; from above the dark blends in with its background, from below the light blends in with its different background.

- Seal
 - ✓ Countershading: In water from above, dark on top blends with water; from below, light on bottom blends with sky.
 - ✓ In zoo, penguins and river otters
 - ✓ Waterproof fur helps keep warm, as well as blubber and other adaptations.
- Sea turtle
 - ✓ Countershading: In water from above, dark on top blends with water; from below, light on bottom blends with sky.
- River otter
 - ✓ Not observable from pelt but countershading: In water from above, dark on top blends with water; from below, light on bottom blends with sky.
 - ✓ Warm undercoat traps body heat, and outer coat waterproofed with oils from oil gland. Together they insulate from cold air and water. Similar for penguins but feathers instead of fur.

Disruptive Coloration – Strongly contrasting markings such as spots or stripes that break up an animal's outline and confuse the predator.

- Zebra
 - ✓ Disruptive coloration of stripes: When in group, difficult to tell where one animal starts and another begins so it temporarily confuses predators.
 - ✓ It lives in warm weather areas so does not need denser fur for warmth.
- School of fish (photo)
 - ✓ Disruptive group: When in group, difficult to tell where one fish starts and another begins so it temporarily confuses predators.

Mimicry – An animal takes on the appearance of another animal to scare off predators.

- Milk snake (photo) & Coral snake (rubber toy)
 - ✓ The venomous coral snake has brightly colored bands to warn predators not to go after it.
 - ✓ The milk snake, which is not venomous, mimics the coral snake's colored bands. This may confuse predators that will avoid the coral snake.
- Viceroy butterfly & Monarch butterfly (photos)
 - ✓ Viceroy butterfly is non-poisonous and mimics the monarch butterfly, which is poisonous.