Nashua River Watershed Investigations for Grades K-8

Lesson # 1-1

Title: 1-1 Whooo's Out There? Owl adaptations for the "Super Hunter".

Grade Level & Standard: Grade 1
1-LS1-1. Use evidence to explain that (a) different animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air, and (b) plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.

Objective: Students will explore specific physical adaptations of the Barred Owl through four table stations and one outdoor game. Best accomplished with an adult volunteer at each of the stations to assist students with activities and outdoor game time.
Stations will include:

1. Vision - extra large eyes (compare with two oranges for human eyes); use tubes from paper towel or toilet paper rolls to demonstrate why an owl with eyes that do not move in their sockets can turn its head almost 180 degrees in both directions by comparing their field of vision with and without tube
2. Hearing - use face disks to demonstrate how this improves hearing ability; the **facial disc** is the concave collection of feathers on the **face** of some birds—most notably **owls**—surrounding the eyes. The concavity of the **facial disc** forms a circular paraboloid that collects sound waves and directs those waves towards the **owl's** ears.
3. Feet and talons - create an owl foot to grasp a "mouse" cotton ball; owls have 4 talons on each foot and scales on the bottom of their feet
4. Appetite - owls average 6 rodents per night; display a dissected pellet to demonstrate how owl gets rid of excess weight; compare to eating watermelon or cherries (spit out seeds) or peeling a banana.

Play active Predator and Prey Game using owls and other local animals as subjects to better understand connections between animal species.

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

Vocabulary:

- **Rodent** - a gnawing mammal that includes rats, mice, squirrels, and voles.
- **Owl Pellet** - the bones, fur and feathers in a small oval package that is coughed back up by the owl after a meal of rodent or bird.
- **Talon** - a claw belonging to an owl or other bird of prey.

Discussion Points:

Owls are birds that have very special body parts designed to help them hunt and catch prey. They have “super powers” including extra special eyesight and hearing. With only a sharp beak and NO teeth, they make a “super pellet” in their stomach when they eat their food and then cough up and spit out this pellet filled with fur and bones. They have “super feet” that can grasp and hold a small animal (talons) and can sleep on a wet branch without slipping (scaly bottom of foot).

Materials with station #:

- Picture of Barred Owl (#1)
- 2 large oranges (#1)
- 6 - 10 empty toilet paper tubes (#1)
- 10 paper plates cut in half with inside edges cut to slight curve inward (#2)
- Drawing of Barred Owl catching prey with foot close up (#3)
- 12 cotton balls on a tray (#3)
- Pipe cleaners cut in half (four pieces per student) (#3)
- Small straight sticks cut in 3 inch lengths (one per student) (#3)
- One pair of childrens’ stretch gloves with rubber bumps on palms (#3)
- One tree branch 2-3 inches in diameter (#3)
- FOOD FOR OWLS sheet (#4)
- Owl pellet on small tray (#4)
- 2-3 hand magnifiers (#4)
- FOUR parent volunteers to assist students at stations

Procedure (45 to 60 minutes):

Introduce the Barred Owl image and review discussion points above with the class. Set up four stations and place an adult volunteer at each station to lead the students through the activity. Break class into four groups and have each group rotate through stations.

> **Station 1:** “Super Eyes” - Show students picture of Barred Owl and look at face discs; each child hold two large oranges to their eyes to imagine having eyes as large as the owl; each student holds two toilet paper tubes to their eyes pretending that their eyeballs cannot move and then rotate their head left and right to look around them; Adult can hold a hand up on each side of their head.

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

Can they find the adult's hands? How far can they turn their head? (owls can turn all the way to the back 180 degrees).

Station 2: "Super Ears" - Students stand in rows facing adult 10 feet away. Adult whispers or talks in a very quiet voice. Then students put on their "owl facial disc" holding the two half plates against their head behind their ears and listen again to the adult. *Can they hear the adult better?*

Station 3: "Super Feet" - Examine picture of owl foot; each student makes an owl foot using one stick for the leg bone and four half pipe cleaners each wrapped around lower stick half way and use the other half for the toe and talon. Students pretend to catch mice (cotton balls) using their owl foot. Each student also tries on rubber bumped stretch gloves and grabs onto large branch to feel grip.

Station 4: "Super Pellets" - Adult introduces FOOD FOR OWLS sheet to students and explains that owls have a sharp bill but no teeth. Owls have to swallow their prey in large chunks including fur and bones; show students owl pellet on small tray partially dissected and have them use hand magnifiers to see bones. Explain that owls spit out this "super pellet" to get rid of bones and fur and make themselves lighter so they can fly easily. *Can the students think of a food they eat that they need to spit out some part that they don't want in their bellies? (watermelon or cherry seeds)*

Students go outdoors or in large open space to play Animal Game: Predator and Prey (see attached sheet)

Data Sheets: (attached)

- Barred Owl Information Sheet
- Adaptation of Owls Sheet
- Animal Game: Predator and Prey
- Food for Owls Sheet

Evaluation:

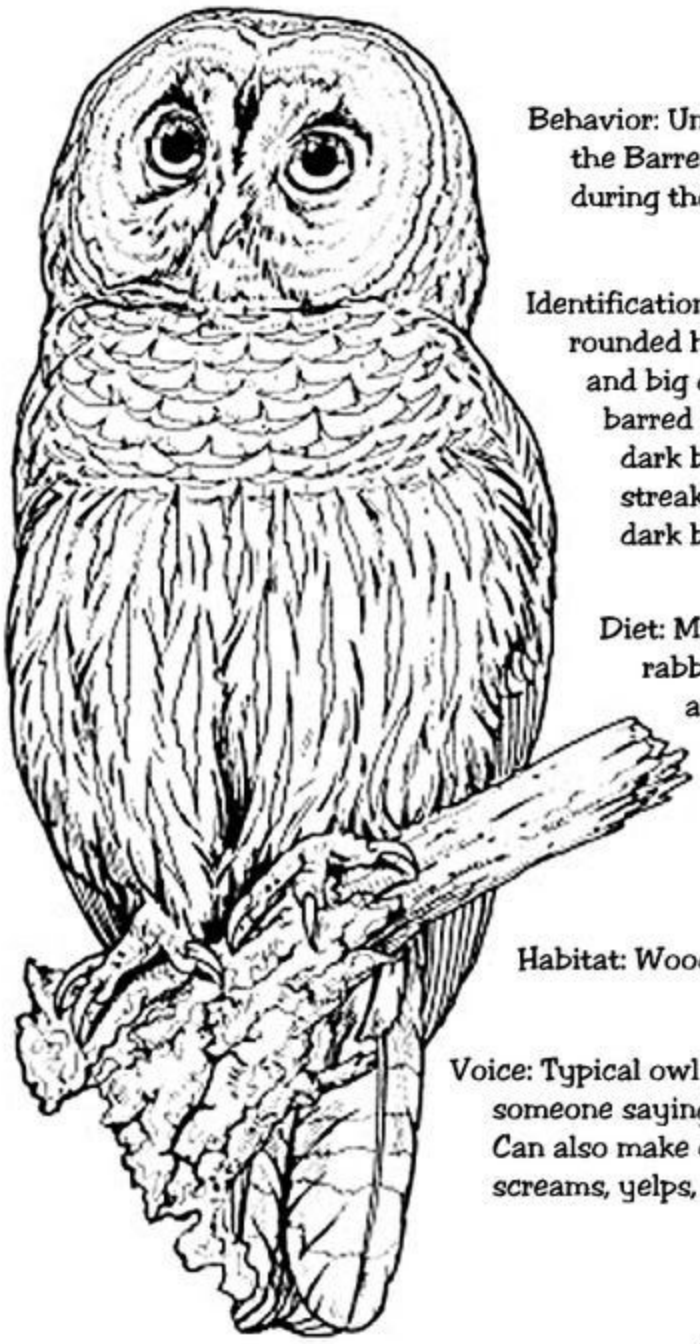
Talk as a group about what they learned about owl adaptations and compare them to the eyes, ears, feet, and mouth of another animal or human.

Extension:

- Video of owl coughing up pellet: *https://www.barnowltrust.org.uk/owl-facts-for-kids/owl-pellets/*

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

Barred Owl



Behavior: Unlike most other owls, the Barred Owl will call and hunt during the day.

Identification: This owl has a large rounded head with no ear tufts and big dark eyes. The chest is barred (horizontal lines) with dark brown while the belly is streaked (verticle lines) with dark brown.

Diet: Mice, squirrels, shrews, rabbits, amphibians, reptiles, and insects.

Size: Length 17 - 24"
Wingspan 40 - 50"

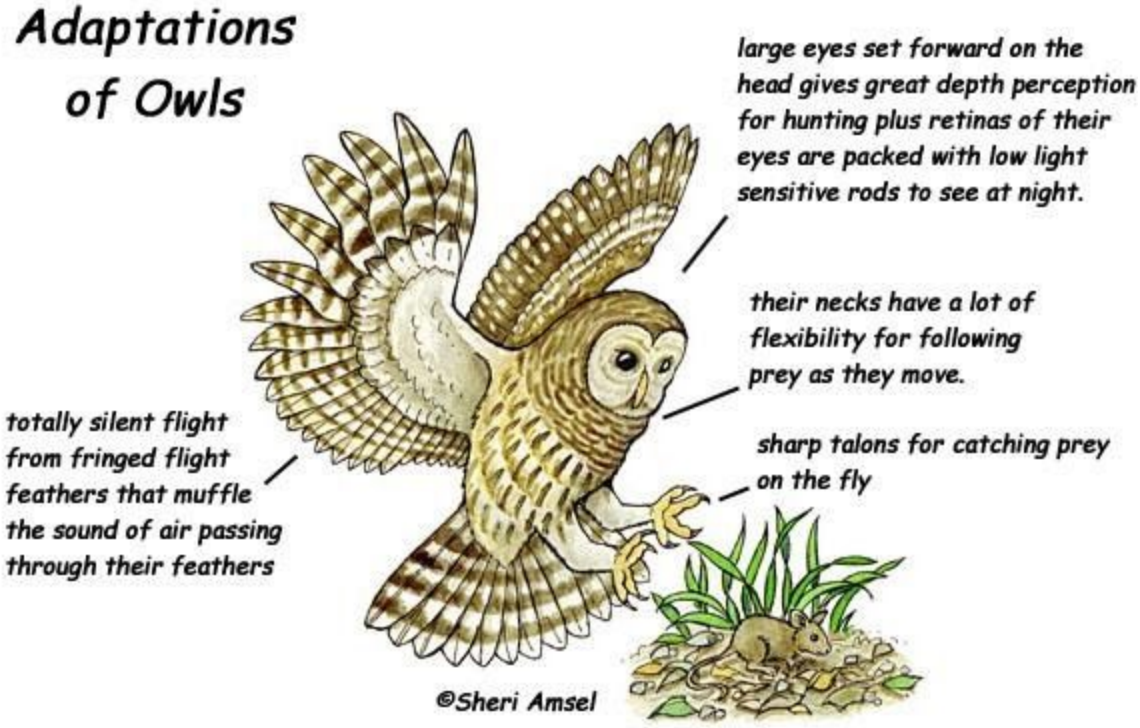
Habitat: Woods and wooded swamps.

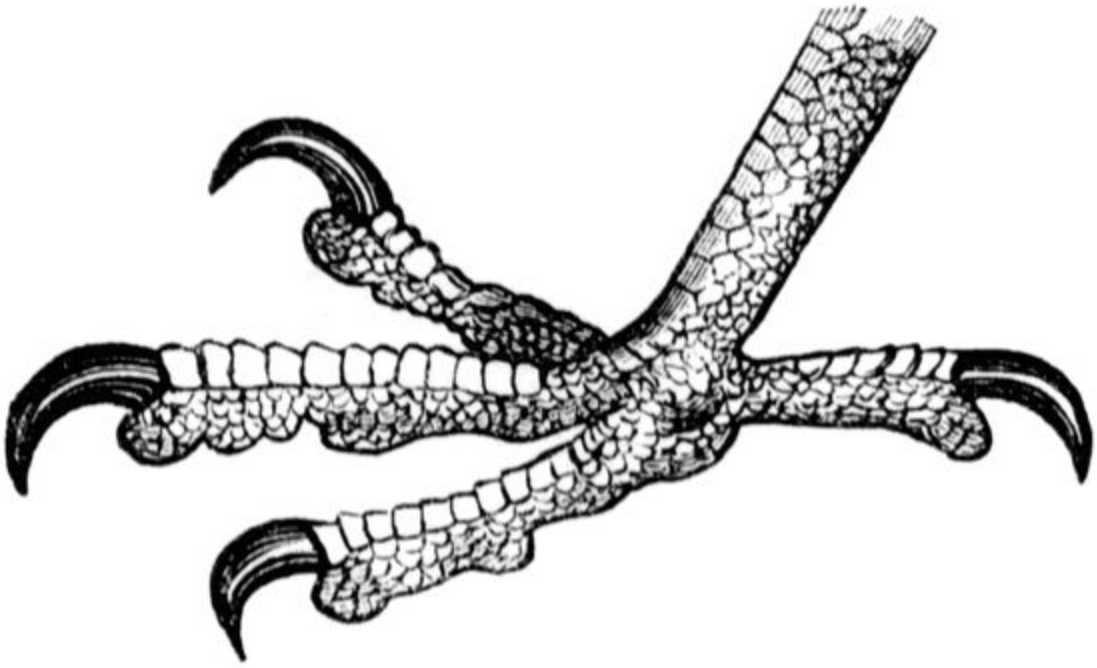
Voice: Typical owl hooting that sounds like someone saying "Who cooks for you?". Can also make other sounds such as screams, yelps, and barks.

Copyright 2002 KidWings.com

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

Adaptations of Owls

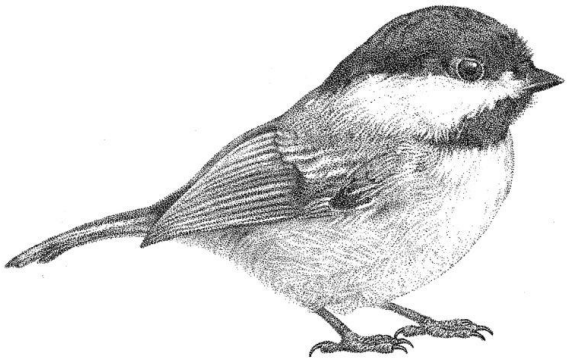




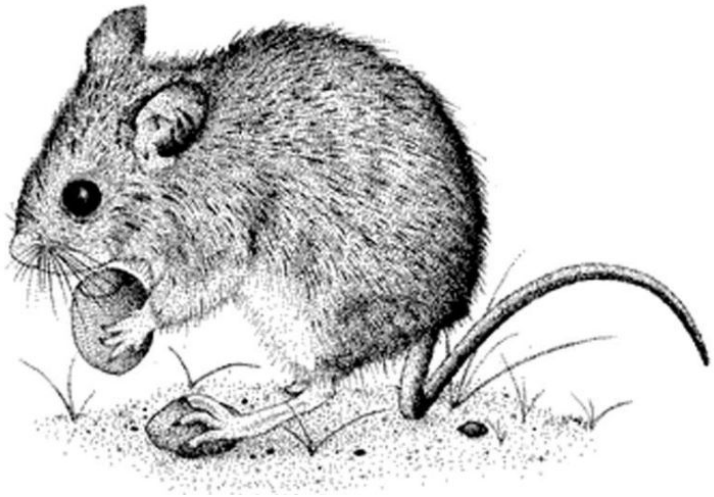
© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

FOOD FOR OWLS SHEET

(www.pinterest.com)



(www.paintingvalley.com)



(www.pinterest.com)

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

Animal Game: Predator and Prey

This is a great game to play if you are with a group of kids who need an outside tag-type game. You can choose a food chain relationship, do a craft to create the props, and get into character! It's fun to act like an animal! While you could try this with as few as two people, the more the better.

How to prepare:

- Talk about food chains in nature. What eats what? (Dragonflies and frogs eat mosquitoes, snakes eat frogs, eagles eat snakes, etc)
- How do animals, birds and insects hunt for food? (Looking for movement, camouflage, speed and strength, etc).
- What do the words predator and prey mean? Can you be both?
- How do the prey sometimes save themselves from getting eaten? (Hiding, freezing movement, camouflage, etc).
- What bugs and animals are you afraid of? Are they important in the food chain? What else would disappear if all the [name a prey] died?

If you could be a predator or prey animal or insect, what would you be? Choose 1 relationship (ie. frog and grasshopper).

Do a craft! Using construction paper, pick out one colour for the predator (grasshopper) and a different colour for the prey (frog). Make headbands with each. There should be 1 predator for every 3-4 prey. With extra paper, cut out the shape of the animal, have the kids colour their animal, and staple or tape the animal onto headband. To skip the craft, use bandanas or fabric as headbands.

Lay out game field materials: Lay out a rope at each end of the field to denote safe/food areas for the prey. Hula hoops or any other object that can go on the ground can be used to represent safe hiding spots for prey, about 3-4 of them scattered between each end of the field. For food tokens, you can make them from cardboard, or use poker chips or any other small object. Food tokens go at the far end of the field. There should be 3 for each prey.

How to play:

1. Object: The prey must get 3 food tokens home safely to survive until the next generation (or game round). They can only get 1 token on each trip. If tagged on the arm/back by a predator, they move to the sidelines and hand over their tokens to the predator. The predators do get to "eat" any prey they tag, but if the prey have no

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.

or few food tokens, then it might not be enough food to reproduce. The predators must each get 5 food tokens to survive to the next generation/game (so it pays to wait till the prey are “bigger”).

2. All the prey start at the end of the field, behind the rope with no food tokens.
3. The predators start on the sidelines, and must give a 10 second head start before coming on the scene, or smelling their prey (10 seconds to sunrise for diurnal animals, or sunset for nocturnal). They must stay between the two ropes, in the main playing area.
4. The prey and predators determine the rules, ie: A prey is safe at home behind the starting rope, hiding with one foot in a hula hoop, or when “frozen/camouflaged” anywhere and not laughing or moving. A laugh can get them tagged!
5. Prey moves to get food. After 10 seconds, the predators move in to tag them. This goes on until everyone is eaten or safe and fed.
6. For next round, have the survivors play their original part, and those eaten play the opposite part. (You may need extra headbands for this). It may be very unbalanced, ie. too many predators. Play it out, talk about how that might happen in nature and possible results. Determine how you would like to play the next round, perhaps giving everyone a chance at each role.

© Nashua River Watershed Association, Inc. Duplication permitted other than for commercial purposes.