Audubon | Center for Birds of Prey

Owl Adaptations

Teacher Pre-Visit Packet

Audubon | Center for Birds of Prey

Welcome!

Dear Teacher,

Thank you for booking a program with the Audubon Center for Birds of Prey! We are very excited to meet you and to teach your students.

This packet was designed to help you be able to prepare your students for their Owl Adaptations program with the Audubon Center. The following pages include vocabulary your students should be familiar with, a reading list, lesson ideas, and more! I hope these ideas help you and your students better connect to birds of prey, and extend their learning around their program with the Audubon Center.

If you have any questions or concerns, please do not hesitate to contact me. See you soon!

Laura VonMutius

Education Manager

Audubon Center for Birds of Prey

lvonmutius@audubon.org

407- 644 - 0190

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Vocabulary

Before you visit the Center, familiarize your students with some important vocabulary terms that we may use throughout the program:

1. Adaptation: adjustment to meet certain environmental changes.
2. Birds of Prey: birds, which generally prey upon other animals for food; generally meaning eagles, hawks, kites, falcons, ospreys, owls, and vultures; also known as Raptors.
3. Crepuscular: most active in the twilight hours (dawn and/or dusk).
4. Camouflage: markings possessed by an animal which helps it blend in with its surroundings.
5. Diurnal: active during the daytime, as opposed to nocturnal.
6. Environment: surroundings in which an organism lives
7. Facial Disks: a disk shaped mask on an owl, formed by very small feathers which fan out from the eyes to the ears.
8. Habitat: the place where a particular organism or population normally lives.
9. Nocturnal: active during the night, as opposed to diurnal.
10. Talons: the claws of a bird of prey.

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For your visit:

The Audubon Center for Birds of Prey has about 50 permanent resident birds that your group will be able to see when they visit.

Please let your students know that none of the birds that they are going to see are pets, they are all wild birds that are too injured to be released back into the wild. Because of this, students will not be able to touch any of the birds; in fact, we don't even touch them!

Most of the center is outside, so sunscreen, bug spray, jackets, and/or umbrellas are all suggested depending on the weather. In case of the prediction of severe inclement weather, the teacher should call the Center so the tour can be rescheduled.

There is a gazebo on Center property over Lake Sybelia, as well as a historic house. Both of these locations are places we do not include on the tour, but you are most welcome to take your group there and stay as long as you'd like after your tour.

The gazebo is also a great place to stop and have a snack or lunch if you choose. Please let us know If you are bringing food so we can be sure to show you where to go after the program concludes.

The Audubon Center for Birds of Prey does not allow pets at the center, but following ADA standards, trained service animals are permitted.

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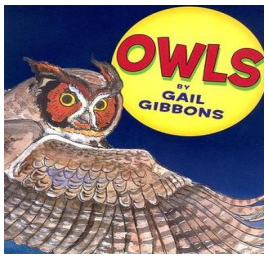
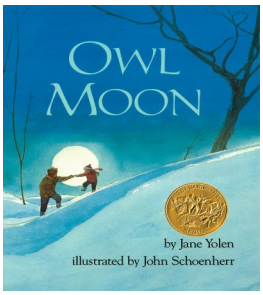
Reading List

Here are some suggested titles to read before or after your visit:



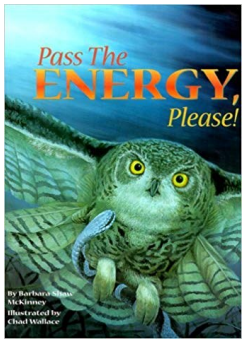
Owls by Gail Gibbons (Grades 3-5)

With their striking appearance and distinctive hoot, owls are one of the most well known birds in the world. Gail Gibbons explores the differences that make them unique, highlighting their adaptations.



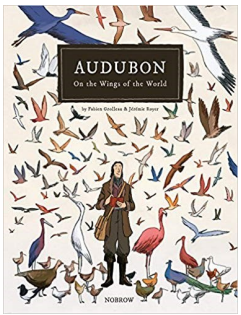
Owl Moon by Jane Yolen (Grades 3-5)

Late one winter night, a little girl and her father go owling. Jane Yolen provides a poetic tale of a young child and her father, showing the importance of maintaining a connection to the natural world.



Pass the energy please! by Barbara Shaw McKinney (Grades 3-7)

Each of natures creatures "passes its energy" in its own unique way. In this upbeat rhyming story, the food chain connects herbivores, carnivores, insects, and plants together in a fascinating circle of players.



Audubon On the Wings of the World Graphic Novel (Grades 7-12)

Follow John James Audubon's quest across North America to gather information about native avian species!

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Reading List

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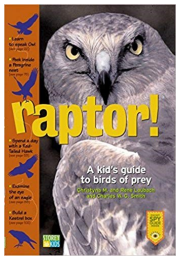
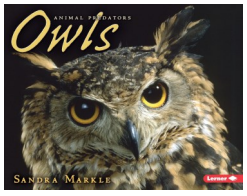


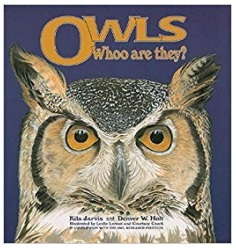
Raptor! A Kids Guide to Birds of Prey by Christyna M. and Rene Laubach (Grades 5-8)

Explore life at the top of the food chain with this exciting look into the world of raptors. This fun activity book immerses children in vulture culture, hawk talk, and owl prowls as they learn about the behavior and hunting strategies of these raptors!



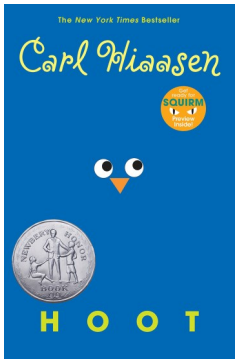
Animal Predators: Owls by Sandra Markle (Grades 3-6)

Read along a story of hatchlings, who grow up to be some of the fiercest predators around! See how they develop instincts and skills that make them best suited for their environment!



Owls, Whoo Are They? by Kila Javis (Grades 4-7)

From tufts to talons, you will learn fascinating facts about owls who live in the United States and Canada!



Hoot by Carl Hiaasen (Grades 3-12)

Hoot is a fun tale for all about the conservation of burrowing owls. Can the new kid on the block save these endangered owls from being built on top of?

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Owl Adaptations

Class time:

1 hour

Skills:

- Compare and contrast
- Work in a group
- Fine Motor Skills

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided Craft Sheets
- Writing Utensil
- Excited Students!

Making Connections: Grades 3-5

What is an Adaptation?

Adaptations play a very big role in an animal's survival, especially in the many different environments that they live in! Adaptations help owls with a lot of things, and in this activity, we are going to see how owls are different from other birds of prey!

Venn Diagram

i. Make copies of the Venn Diagram that is attached on page **16** and have students get into groups. On a projector or Smart Board, put up photos of both a hawk and an owl. The Venn diagram compares hawks and owls, based on the different adaptations that they have in order to survive in the wild.

ii. After the students have completed their Venn diagrams, ask the following questions to help facilitate conversation about their group work:

A. Which adaptations go with the hawk?

B. Which adaptations go with the owl?

C. Which adaptations go with both?

*** To make this activity more challenging for older students, eliminate the word bank, and just place pictures of both an owl and a hawk on the board. See if they can come up with their own ideas on which adaptations fall into which category.**

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Owl Adaptations

Class time:

15-20 minutes

Skills:

- Listening to directions
- Quick thinking

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided game instructions
- Excited Students!

Making Connections: Grades 3-5

Owl Hoots!

Owl Hoots! Can you guess what this owl needs to do to survive? This is a fun way to get your students thinking about what makes an owl special, and why they may need their adaptations to survive in the wild!

i. Model this game after "Simon Says," so whenever you say "Owl Hoots," you will describe a scenario that calls for a certain adaptation.

ii. The commands for "Owl Hoots" could be along the lines of:

   a. Owl Hoots its night time!

      i. Students should bring their hands up to their eyes to simulate owl eyes, showing that owls use their eyes to see in the dark.

   b. Owl hoots, its quiet tonight!

      i. Students should bring their hands up to their ears, to simulate that owls rely on their hearing to hunt in the night.

   c. Owl Hoots there's a mouse!

      i. Students should hold their hands up like talon, to simulate that owls will catch a mouse with their talons, and that it is an important part of hunting!

You may also make it more challenging to see who is really using their listening skills, and remove the words "Owl Hoots" and just describe an action, and whoever moves is counted out. You may also choose to employ helpers, so that they can help spot the "owls" who are doing well, and those who are moving without command.

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Owl Adaptations

Class time:

1 hour

Skills:

- Making inferences
- Visual learning
- Critical thinking

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided Owl Sheets
- Writing Utensil
- Excited Students!

Making Connections: Grades 3-5

Adaptation Anatomy!

In this activity, we will explore visually which adaptations make an owl special. There are a lot of physical adaptations that are present on an owl, just by looking at them, but there are also some adaptations that might be hard to see with the human eye. Can you guess which ones they are?

i. Make copies of the owl cut out found on page **17** of this packet. Instruct students to figure out which parts of the body go with which label.
   a. For younger grades, there will be a word bank that you can put up on the board for them to source from.
   b. For older grades, you may leave it up to them to challenge them to think a little harder. You may verbally describe the types of adaptations they will be looking for when labeling the diagram.

ii. This activity should get them thinking about why owls have these adaptations, and how these will help them survive when looking for food or staying away from predators.

iii. After they have finished, have a completely filled out sheet of what should have been labeled, and go through each one to describe why the owl needs that adaptation.
   a. Eyes
   b. Feathers
   c. Talons
   d. Neck
   e. Ears
   f. Beak
   g. Wings
   h. Facial Disk

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Owl Adaptations

Class time:

1 hour

Skills:

- Making inferences
- Critical thinking

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided KWL Sheets
- Writing Utensil
- Excited Students!

Making Connections: Grades 3-5

KWL Chart

In this quick activity, we want to get students thinking about owls from their owl previous knowledge, making observations and conclusions about their adaptations, and what they hope to learn when they have their visit. This way, students can gather their scientific thoughts and learn how to ask scientific questions regarding animal adaptations!

i. Initiate a conversation to get students to think about what they want to learn about when visiting the Audubon Center for Birds of Prey with the following questions:
    a. Why do owls have really good hearing?
    b. Why do owls need to turn their head so far around?
    c. What kind of animals do owls eat?
    d. Why would an owl need very sharp talons?

ii. Make copies of the attached KWL chart found on page **19** and distribute them to students individually.

iii. Have students fill out the first two columns of the KWL chart before the visit.

iv. After you have visited, they may fill out what they learned during their program!

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Owl Adaptations

Class time:

1 hour

Skills:

- Making inferences
- Visual learning
- Critical thinking
- Fine Motor Skills

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided Food Chain Sheets
- Coloring tools
- Excited Students!

Making Connections: Grades 3-5

Whoo's in the Food Chain?

In this activity, we will explore energy: where it comes from and how it ties into the adaptations that owls have! It is important to have an understanding of which organism feeds on what, and to visualize a chain to see what the chain looks like when it is complete, or in contrast, to see when a link is missing, which can cause the entire ecosystem to be at stake!

i. Use the food chain puzzle on page **20** make enough copies for your class, and cut out the puzzle pieces.

ii. Place students into groups and have the, color their puzzle pieces.

iii. Once they have colored, have students attempt t organize the food chain in the correct order, and when they are done exploring the pieces of the puzzle, initiate a conversation about how the food chain works, and how the pieces may fit together. There are many different ways the food chain can be organized.

iv. Once the students have figured out the food chain, have them talk about the kinds of things they can do to help protect all of these animals and plants in the wild.

Examples:

1. Discuss recycling and how it can keep trash out of unwanted places, and how picking up trash can make sure it gets to the right place!
2. Discuss how they can bring an injured bird with their parents to Audubon Center for Birds of Prey to help it get better.
3. Discuss the importance of learning more about these species at places like

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Owl Adaptations

Class time:

1 hour

(30 min each)

Skills:

- Analysis of animal traits
- Critical thinking
- Compare and contrast

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided Adaptation Station Sheets
- Writing Utensil

Making Discoveries: Grades 6-8

Adaptation Stations!

Part 1

Adaptations play an immense role in an animal's fitness and survival, especially when compared to the environment surrounding them. In this two part activity, let's take a closer look at some of the owl's most significant adaptations!

i. Print pages **21-22**and set them up into stations where students can individually identify the differences between the adaptations:

1. Eyes
    a. Owl Eyes
    b. Hawk Eyes
2. Feather ID
    a. Flight feather of a Swallow-tailed Kite
    b. Flight feather of an Owl
3. Talons
    a. Bird of prey talons
    b. Perching bird feet
    c. Webbed feet
4. Neck
    a. Human vertebrae
    b. Owl vertebrae

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Owl Adaptations

Making Discoveries: Grades 6-8

What Makes Owls So Special?

Part 2

Class time:

1 hour

(30 min each)

Skills:

- Analysis of animal traits
- Critical thinking
- Group work

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided article and worksheets
- Writing Utensil
- Excited Students!

After the students have completed their individual observations, go through each one of the stations and have students describe the differences they observed in each of the stations. Once that is complete, students will have a chance to explore their comprehensive reading skills as well as their scientific skills to discover the many adaptations that owls have. Dive into an article that is full of information about the different types of adaptations, and try to figure out what the adaptations can help with in the wild!

i. Print out the article and critical thinking questions on pages **23-24** Students should be in groups for this part of the activity, so pass out one article to each group, but have individual discussion and critical thinking worksheets for each student to complete on their own.

ii. Once the groups all have an article, please read the article aloud and have them follow along.

iii. Once you have completed reading, have students the contents of the article as a group for about 5 minutes, and then have them break off on their own to work on their discussion and critical thinking questions.

iv. As they complete their worksheets, facilitate a conversation about how each of these adaptations may help owls survive in the wild.

    a. You may also include the subject of the Kingdom Animalia and Phylum Chordata. Which one of the adaptations suggests that owls are a part of Phylum Chordata? Why is this important?

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Owl Adaptations

Making Discoveries: Grades 6-8

Human vs. Environment

Class time:

1 hour

Skills:

- Analysis of animal traits
- Critical thinking

Florida Standards:

Science: SC.3.L.15.1, SC.3.L.17.1, SC.4.L.16.3, SC.4.L.17.2, SC.4.L.17.4, SC.5.L.15.1, SC.5.L.17.1

Materials:

- Provided cards and worksheets
- Writing Utensil
- Excited Students!

In this activity, we will explore the connections that human impacts can have on the environment. These impacts can be so significant that they can change the efficiency of the adaptations that animals have. It is important to remember the adaptations develop over time, so if the environment changes too quickly, these animals may not be able to use the adaptations that took years to develop.

i. Print Owl ID cards on pages **25-26** and laminate them if you wish.

ii. Print the activity worksheet that is on page **27**for students to use during their activity.

iii. Place the cards around the room, either taped to the walls or on the desks, and have students go around the room and read them to try to investigate which human impact on their sheet goes with which owl.

iv. Once the students are done, go over the matching pairs and see how they did! The answer key can be found on page **28**.

    a. Be sure to mention things they can do to reduce their environmental impact such as recycling, making sure they pick up trash, and not wasting water! All of these things can help birds in the wild have a better life with less interference from humans.

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Activity Pages

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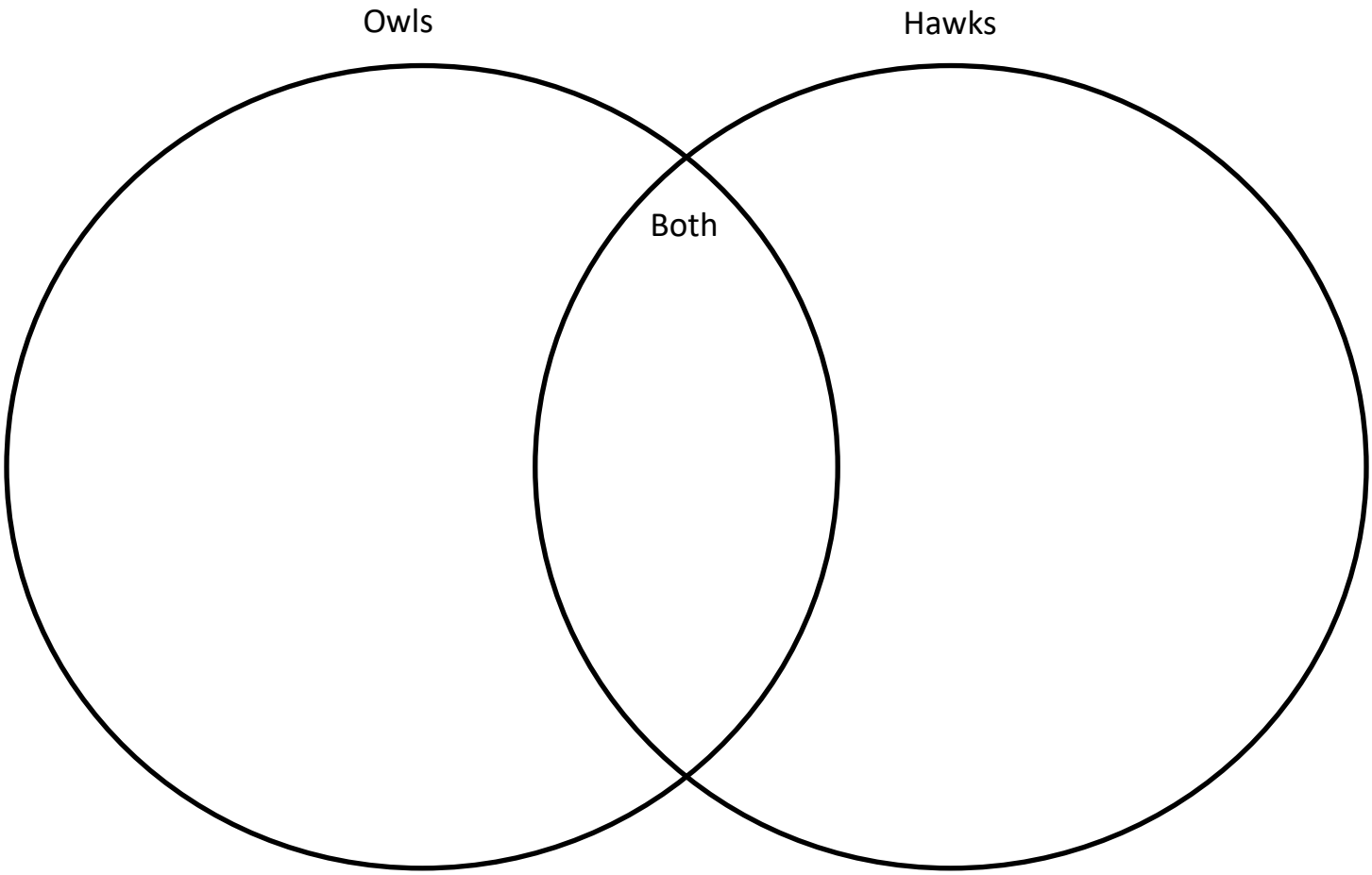
Venn Diagram

Name: _____ **Date:**_____



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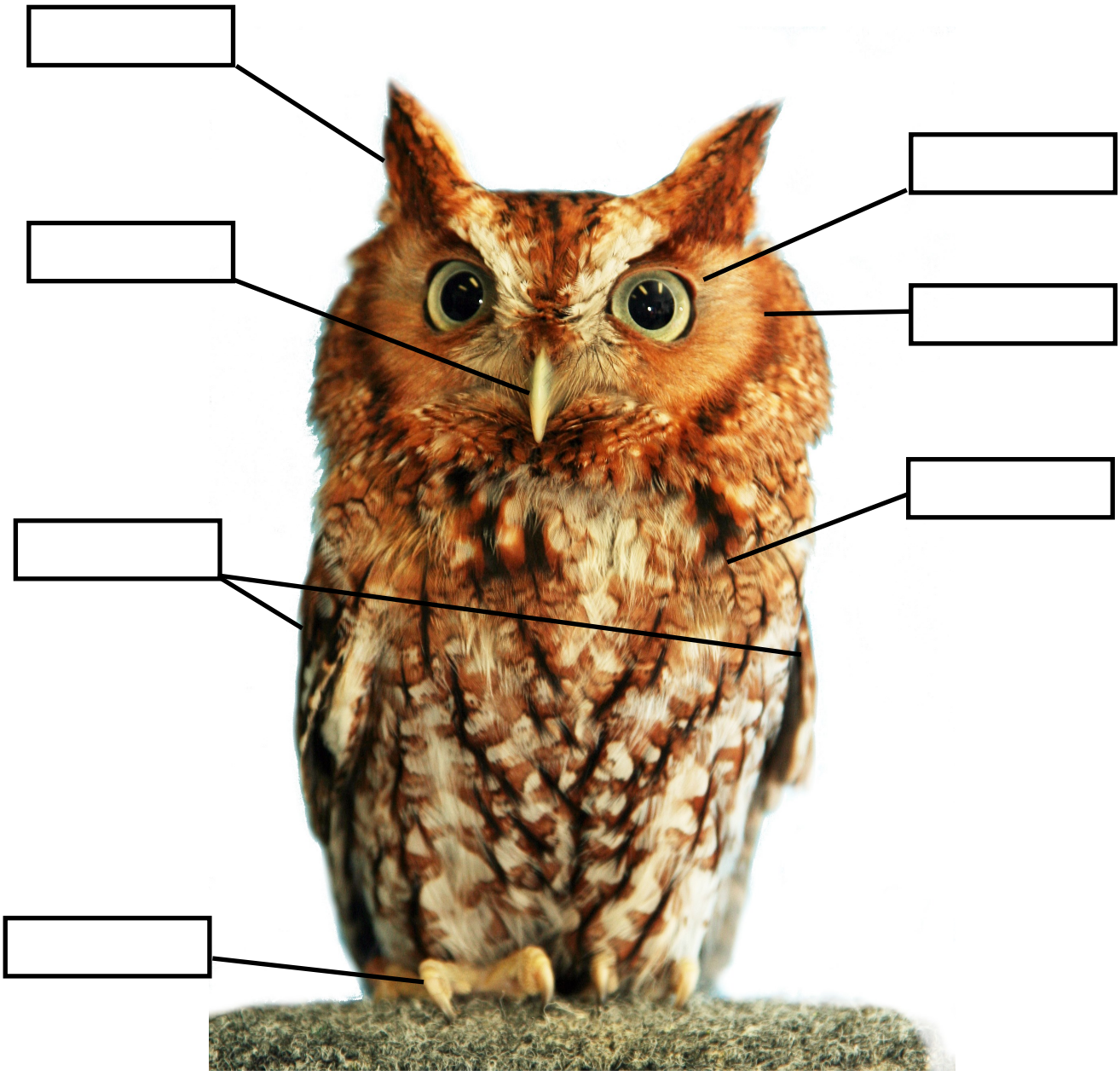
Adaptation Anatomy!

Name: _____ **Date:**_____



Word Bank:

Eyes, Feathers, Talons, Ears, Ear Tufts, Beak, Wings, Facial Disk

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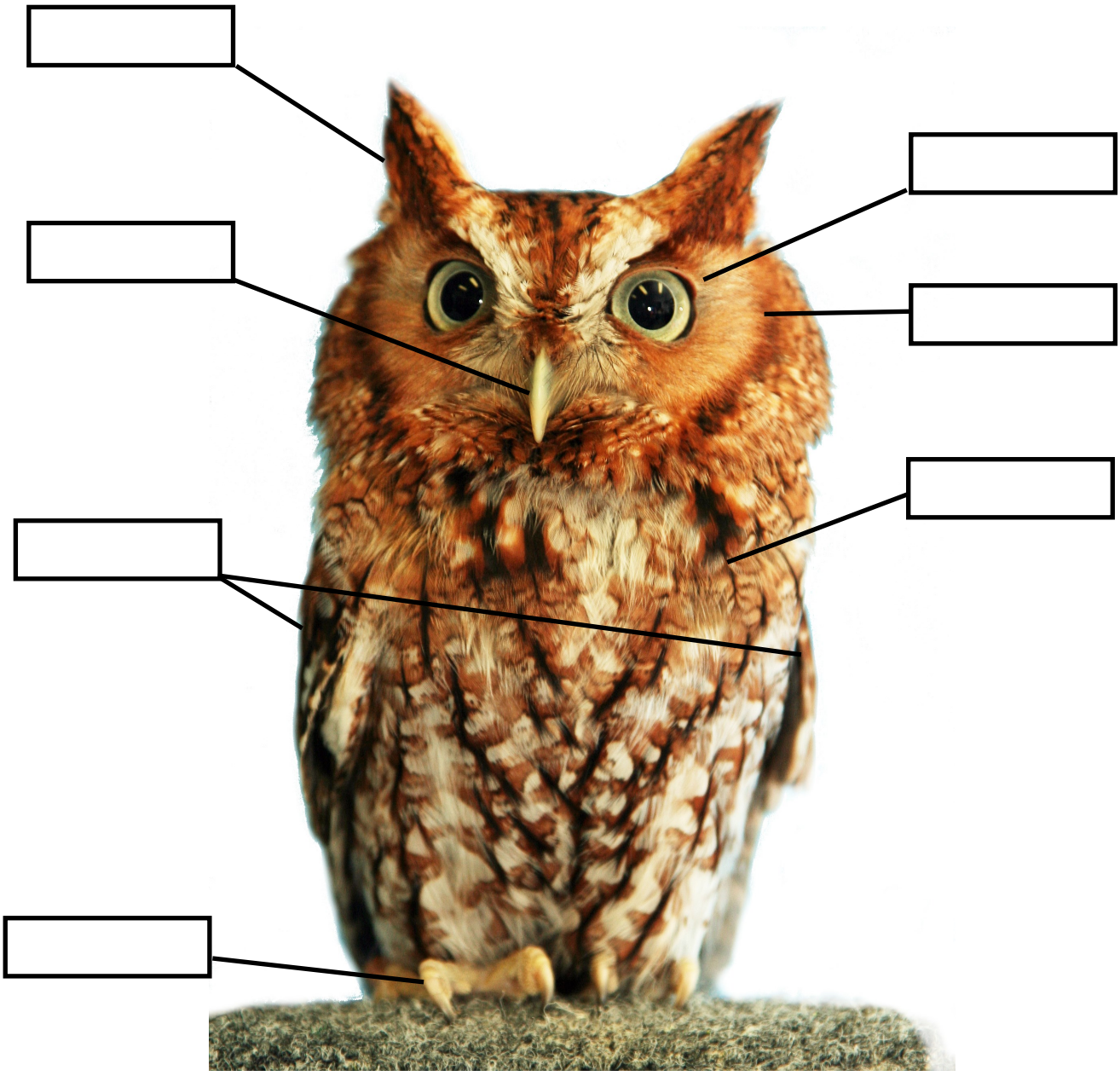
Adaptation Anatomy!

Name: _____ **Date:**_____



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KWL Chart

Name: _____ **Date:**_____

What I Know	What I Want to Know	What I Learned

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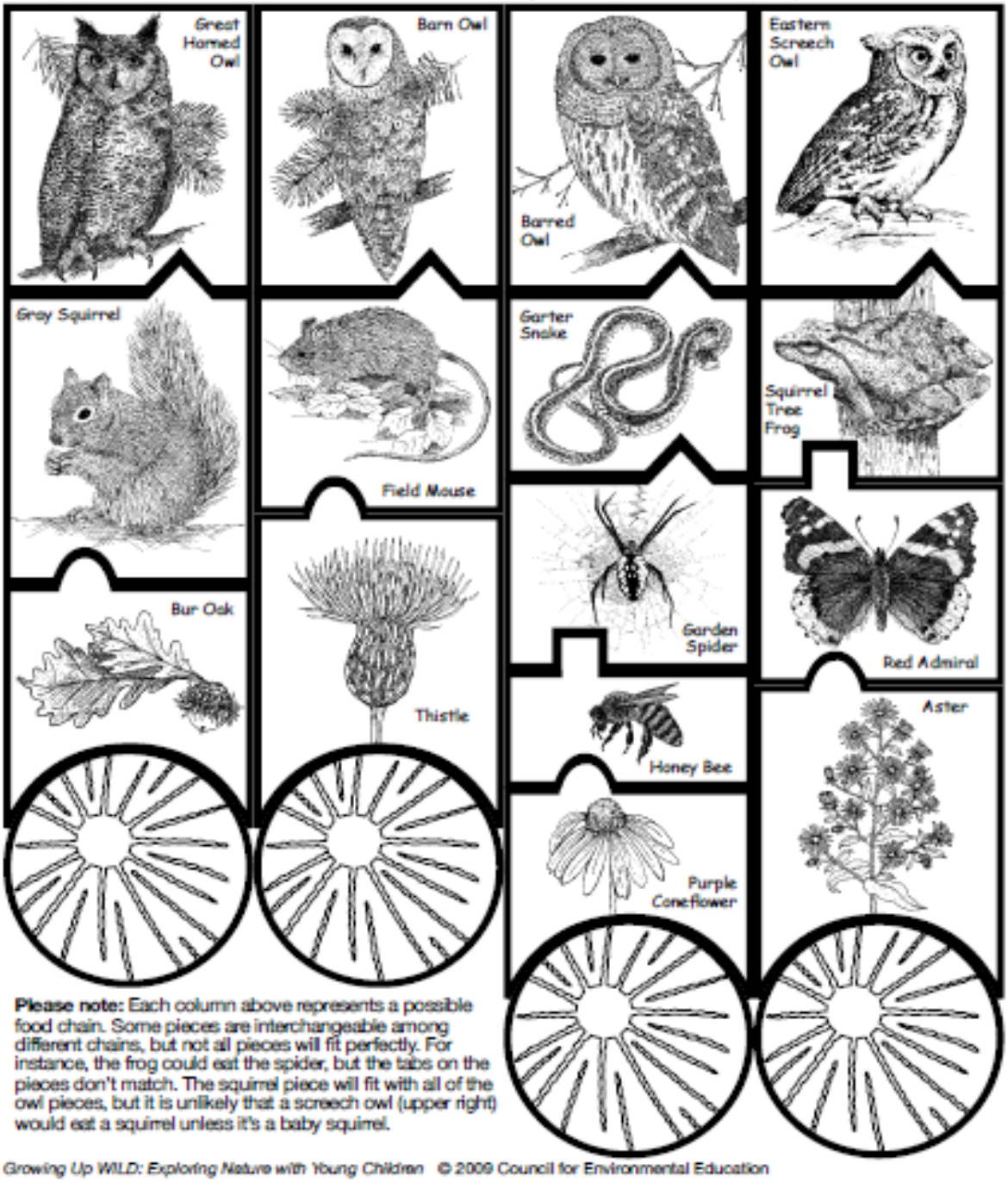
Whoo's in the Food Chain?

Directions: Copy the **Food Chain Puzzles** onto card stock and cut them out. Color and laminate the pieces, if desired. Place one or more puzzles at a station (see note below). As children explore the puzzles, engage them in a conversation about how the pieces fit together and what the puzzle represents—a food chain. **Quick Facts:** Food chains trace the path of energy from one living thing to the next. Most food chains begin with energy from the sun. Plants turn energy from the sun into food energy. Animals that eat plants get food energy from them. When they are eaten by other animals, the food energy moves "up" the chain, and so on from one animal to the next. There are some animals, including large owls, that eat other animals, but are not eaten themselves. They are considered to be at the "top" of the food chain.



Please note: Each column above represents a possible food chain. Some pieces are interchangeable among different chains, but not all pieces will fit perfectly. For instance, the frog could eat the spider, but the tabs on the pieces don't match. The squirrel piece will fit with all of the owl pieces, but it is unlikely that a screech owl (upper right) would eat a squirrel unless it's a baby squirrel.

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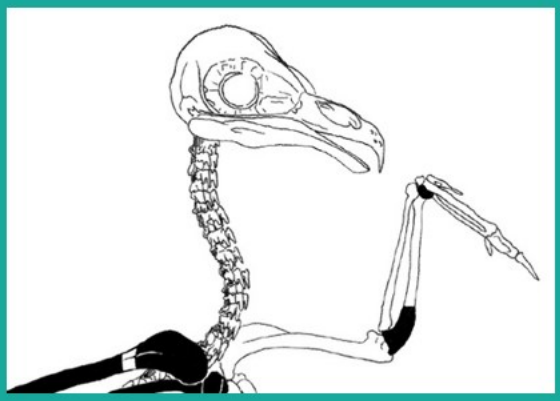
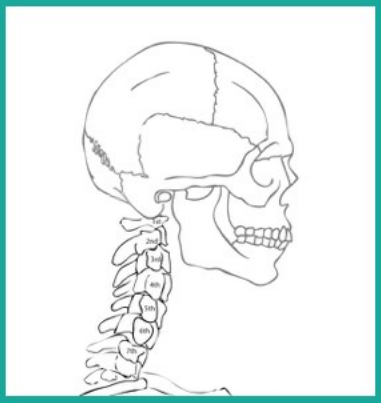
Adaptation Stations





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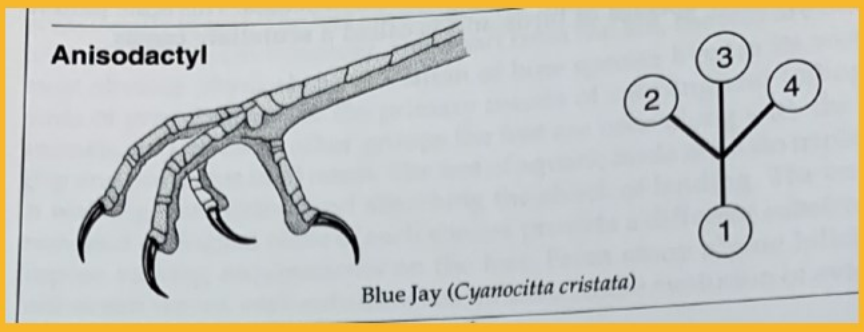
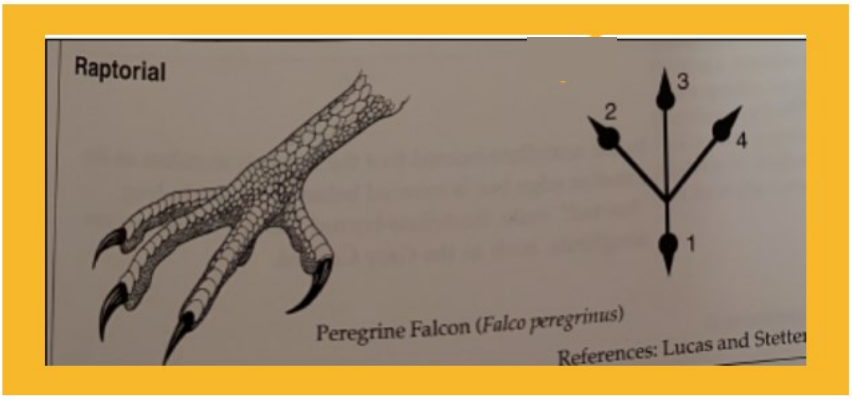
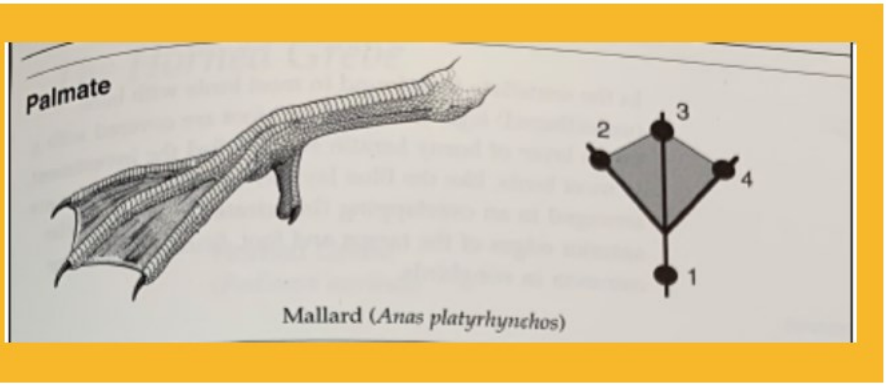
Adaptation Stations







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Owl Adaptations: What Makes Them So Special?

An **adaptation** is a trait that lets an animal be better suited for its environment. This trait is **inherited**, which means it is passed down from parents. These adaptations can help the animal survive in the wild for longer, help them find food, and let them have more offspring. Many adaptations allow the animal to also be protected from predators, and cope with harsh weather conditions.

Owls are known for having a lot of specific adaptations that make them very effective predators. Owls are usually **nocturnal**, so they have completely silent flight feathers. These feathers are specialized and have fringes on them that muffle the sound of air passing through. Owls also have very good hearing, and their ears are often asymmetrical, to help them hear from all around. Their eyes are also very large, and point straight forward, something we call **binocular vision**, which helps them to see extremely far to spot their prey. To grab their prey, they use their **talons**, which are strong and sharp, and extremely efficient for hunting. You may have also noticed that owls can turn their head very far around. While humans only have about 7 bones in our neck, owls have 14! These bones in our neck are called **vertebrae**, and since the them to turn their heads up to 270 degrees around! All of these **physical adaptations** are what makes an owl so special, and allow them to survive in their habitats!

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Discussion and Critical Thinking Questions

Owls have adaptations that help them survive in the wild. We saw that there are a number of ways that these adaptations can help them.

1. Name two owl adaptations, and discuss how it may help them survive in the wild:

a. _____
_____
_____

b. _____
_____
_____

2. We discussed how owls are nocturnal, and how a lot of their adaptations help them hunt during the night. How might an owl's adaptations differ from a hawk's adaptations if they hunt during the day?

_____
_____
_____
_____
_____

3. What is another adaptation that would explain why owls might have special colors on their feathers?

_____
_____
_____

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Human vs. Environment

Barn Owl

Habitat: Prairies, urban and agricultural areas.

Diet: Rats, mice, occasionally birds.

Fast Facts: Barn Owls are strictly nocturnal, and found worldwide. Nest year-round in natural cavities, barns, and abandoned structures.

Great Horned Owl

Habitat: Hardwood forests.

Diet: Birds and mammals.

Fast Facts: Also known as the “hoot” owl, and is the largest owl found in Florida. Known to steal the nests of other birds, especially Bald Eagles.

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Human vs. Environment

Barred Owl

Habitat: Rivers, wetlands, urban areas

Diet: Small mammals, amphibians, reptiles, and fish.

Fast Facts: Barred Owls are known for their call that sounds like “who-cooks-for-you.” They are common in Florida and prefer to live near water.

Burrowing Owl

Habitat: Live in burrows underground here in Florida, especially on open spaces like cattle pastures.

Diet: Insects and rodents.

Fast Facts: Diurnal and nocturnal. This species of owl is on our state endangered species list due to habitat loss.

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Human vs. Environment

Name: _____ Date:_____

Match the following owls to the human impact that affects them:

_____ Barn Owl	A. Getting hit by a car
_____ Great Horned Owl	B. Deforestation
_____ Burrowing Owl	C. Rat Poison
_____ Barred Owl	D. Barbed Wire

For each owl, explain why you chose that environmental impact in 1-2 sentences:

Barn Owl:

_____
_____
_____

Great Horned Owl:

_____
_____
_____

Burrowing Owl:

_____
_____
_____

Barred Owl:

_____
_____
_____

Human vs. Environment

1. **Barn Owl and Rat Poison**: Often times we see many Barn Owls come in with rodenticide poisoning. Barn Owls are nature's pest control, since their primary diet consists of rodents. When we put out poison to eliminate rodents from our yards, we are also running the risk of accidentally killing Barn Owls, or making them very sick.
2. **Great Horned Owl and Deforestation**: Great Horned Owls primarily nest in hardwood forests. If the forests are being cut down, it leaves a lot less space for the Great Horned Owls to live and nest in. It is important that we protect these forested areas, and take care of the ones that are around us so that these owls can have a healthy forest to live in.
3. **Barred Owl and Cars**: Barred Owls are a crepuscular species of owl, which means they are awake at dawn and at dusk. Since they hunt at these times, they could be at risk for being hit by a car when going after their prey. When they swoop down to capture prey, they could be going straight into the road and not even realize it, because they are so focused. So it is important to look out for owls when on the road!
4. **Burrowing Owl and Barbed Wire**: Burrowing Owls are a diurnal species of owl, that live on pasture lands and open plains. A lot of the times these areas will have fencing around them because humans use pastures for livestock. Many of these fences have barbed wire on them, and many Burrowing Owls can suffer injuries from running into the wire.

Created By: Amber Plaksin