



A Teacher's Guide to Fur, Feathers, and Scales Outreach & Discovery Lesson Grades Pre-K -2

Description Why do animals have fur, feathers, or scales? Learn about the importance of animal coverings and discover some of the differences between mammals, birds, and reptiles.

Outcomes Students will understand that animals need different coverings to help them to survive in different environments. Students will compare and contrast the fur, feathers, and scales of mammals, birds, and reptiles.

Suggested Activities Before Your Outreach/Discovery Lesson:

Vocabulary

mammal	warm-blooded
reptile	cold-blooded
bird	camouflage

- Create a K-W-L chart about habitats and fill in what the students already know about animal coverings and what they want to know. Leave the “What We Learned...” column blank and have students fill in new information after the outreach or discovery lesson. Discuss the words mammal, bird, and reptile.
- Discuss with students some of the reasons people wear specific types of clothing such as sweaters, raincoats, and boots. Then, read Animals Should Definitely Not Wear Clothing by Judi and Ron Barrett as a class. Discuss why animals don't wear clothing. What sorts of coverings do animals have that mimic sweaters, raincoats, and boots?
- Start an old clothing collection. Ask parents to send in clean, old adult clothes of all varieties (jackets, shoes, hats, etc.). Collect pieces of fabric in various patterns. Give the students a “purpose”- you need to stay warm, you need to stay dry, you need to hide in the bushes, etc. Have students select pieces of clothing from your collection that would help them with that “purpose.” As a class, discuss how we choose what clothing to wear each day and how animals do some of the same things without wearing clothes.

Suggested Activities After Your Outreach/Discovery Lesson:

Classroom Activities:

- Discuss the lesson with your students. What new ideas or information did they learn? Was anything confusing? What did they like best? Fill in the final column of the K-W-L chart.
- See the attached “Fur, Feathers, and Scales Activity: Animal Coverings Four-In-A-Row” for a fun activity that allows students to take a closer look at why animals have fur, feathers, and scales.

- Create the attached “Animal Coverings Flip Box.” Play a naming game in small groups. (Each student may play independently or they may play in teams.) One student/team rolls the flip box. Students or teams must name an animal that fits into the rolled category; either an animal with fur, feathers, slimy skin, scales, an animal that is warm blooded, or an animal that is cold blooded. If the team can successfully name an animal in the category, they receive one point and pass the flip box to the next team. This team repeats the process and the game continues. If a team cannot name an animal, they may pass to another team. The other team then has a chance to steal the point by naming an animal in the category. If no one can name an animal in the rolled category, the flip box is rolled again and play resumes with neither team collecting any points. The first group to receive 15 points wins. Another fun version is students vs. the teacher. The rules are the same, but the whole class pools its animal knowledge to try to stump the teacher!

Homework Assignments:

- Try the Fur, Feathers, and Scales Crossword (attached) to reinforce vocabulary concepts.

Interdisciplinary Activities:

- Try “Count on Your Coverings!” for a counting activity that helps students identify mammals, birds, and reptiles.
- Color the attached illustrations of animals from Wildlife of Pennsylvania (<http://www.pgc.state.pa.us> – Go to the “Education” link off the home page, then, the coloring book is under “Wildlife for Kids”) Talk about what kind of covering the animal has. Together, make a list of other animals with similar coverings.

Writing/Drawing Prompts:

- If you were an animal that lived in the arctic, what would you want to have on your body?
- I am a (an animal of the student’s choosing). My body is covered in (fur, feathers, scales, etc.). This helps me to...

Class Project Ideas:

- Start an “Animal Coverings Collection.” Label different sections of a wall “Mammal/Fur”, “Reptile/Scales”, “Birds/Feathers” and “Other Coverings.” Ask the students each week to either cut a picture of an animal out of a magazine or draw a picture of an animal. Then, ask them to sort the animal and place it on the appropriate wall section. (The “Other Coverings” category could range from a frog’s slimy skin to a shark’s smooth fin!) Discuss with the class why mammals, birds, and reptiles all look so different. Allow parents or students from other classes to visit your collection. Your students are now the “curators” of your new collection. They can conduct tours and answer animal covering questions.

Resources for Students

Eyewitness: Reptiles –Colin McCarthy

Mammals (Eyewitness Books) DK Publishing (2004)

Bird (Eyewitness Books) DK Publishing (2004)

- Learn how animal coverings help animals to camouflage in different environments in this online game- “Camouflage Field Book!”

<http://www.harcourtschool.com/activity/camouflage/camouflage.html>

- Amazing Mammals (Eyewitness Juniors) – Alexandra Parsons
- Winter's Tale : An Original Pop-up Journey -- by Robert Sabuda
- See if you can find camouflaged sea creature in “Hide and Seek Sea”- <http://www.units.muohio.edu/dragonfly/hide/hidemap.HTMLX>

Additional Resources for Educators

- For a searchable database of information on animals with different kinds of coverings, check out the University of Michigan Museum of Zoology’s “Animal Diversity Web” at <http://animaldiversity.ummz.umich.edu>
- For information on scaly animals, search the reptile database at <http://www.reptile-database.org/>
- Janice Van Cleave’s Animals: Mind-Boggling Experiments You Can Turn into Science Fair Projects- by Janice Van Cleave (general animal resource)
- How Nature Works (How It Works) by David Burnie (general animal resource)
- A Dictionary of Nature: 2,000 Key Words Arranged Thematically by David Burnie (general animal resource)
- Last Child in the Woods by Richard Louv. This is a wonderful book for any educator who wants to bring nature back into the classroom.

Standards

- Philadelphia Core Curriculum Grade Levels: K & 1
- National Benchmarks: 1C, 5A
- NJ Core Curriculum: 5.5.2A, 5.5.2B, 5.10.2A
- PA Academic Standards in Science & Technology
 - Inquiry and Design (3.2.4B)
 - Biological Sciences (3.3.4A)
- PA Academic Standards in Environment and Ecology
 - Threatened, Endangered and Extinct Species (4.7.4A, 4.7.4 B)

Fur, Feathers, and Scales Activity: Animal Coverings Four-In-A-Row

Why do some animals have fur? What makes scales so important to some animals? Find out with this classic four-in-a-row game!

This four-in-a-row game is one familiar to most students. In this format, it can be used to reinforce the idea that body coverings serve important purposes to animals in a variety of habitats.

Before you play:

Distribute a copy of the attached four-in-a-row sheets to each student- one with the photographs of the animals and one blank game board. Allow students to cut out each square with a picture of an animal and glue it to any square on the blank game board. Each game board will be different. Gather buttons, pennies or other "markers" to place on the boards as you play. Give each player a handful of "markers," and you are ready to play!

To play:

The teacher (or assigned "caller") will read one of the following clues without reading the name of the animal. Depending on the level of your students, you may want to discuss the clue with the whole class to figure out the animal to which the clue corresponds. Each player places a marker on the appropriate animal. Another clue is read and another animal is marked. The first player to get four markers in one row (horizontally, vertically, or diagonally) is the winner! Make up new clues and try again!

Clues:

Rat: Even though most of my body is covered in hair, my naked tail helps me stay cool in warm places.

Chameleon: My color-changing scales are famous! My scales change color to show other animals just like me how I feel!

Elephant: Even though you may not think of me as furry, I'm the biggest mammal on land.

Turtle: Scales cover the hard shell that keeps me nice and safe from animals that want to eat me. When I get scared, I just pull my head inside!

Frog: I breathe through my slimy, slick skin. I even have slimy skin between my toes to help me swim.

Rabbit: I am covered with fur-from the tips of my long whiskers to my short little cotton tail.

Snake: Because I do not have arms or legs, I use my scales to help me to move across the ground.

Cat: Stroke my soft fur; I'll let you know I like it when I purr.

Iguana: The stripes on the scales of my long tail help me disappear in the shadows of the rainforest.

Fish: My shimmering, golden scales and flowing tail let me swim gracefully through the water.

Alligator: The thick scales on my strong, flat tail help push me through the water. My lunch doesn't see me coming because my scales help me blend into my swampy home.

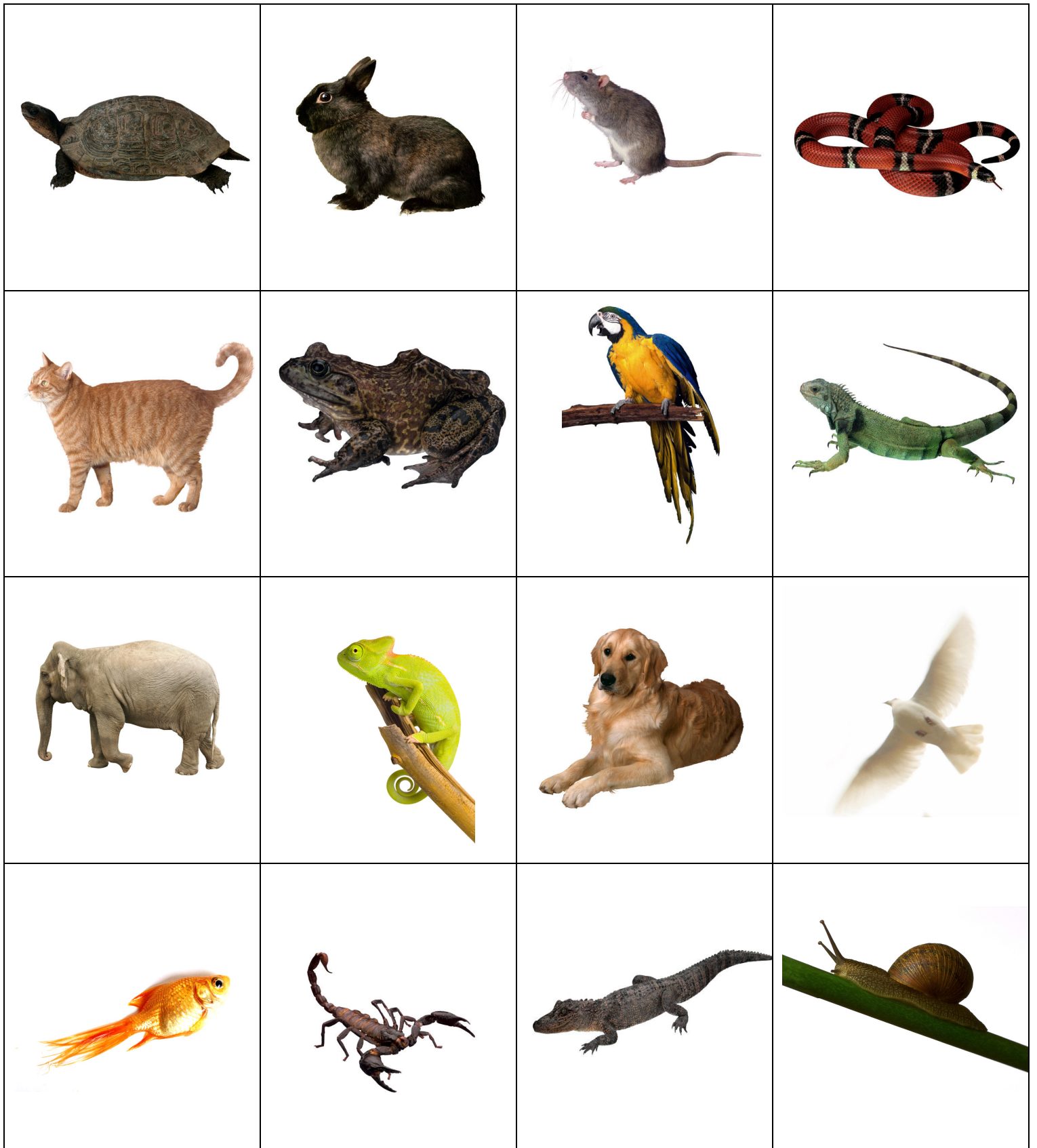
Parrot: I use my strong, curved beak to crack nuts and seeds, but I also use it to clean my long, beautiful tail feathers.

Dove: The short feathers of my tail let me slow down and stop when I'm flying.

Scorpion: I have a tough covering called an exoskeleton on my legs, on my head, and, of course, on the long tail that I use to sting prey.

Snail: I may not have legs, but the thick slime on my body lets me glide safely over the ground.

Dog: I use my furry tail to show how I feel. I wag it when I'm happy to see you, and tuck it under my body when I'm scared.



Animal Coverings Four-In-A-Row

Animal Coverings Four-In-A-Row

Animal Coverings Flip Box

Animals with fur...



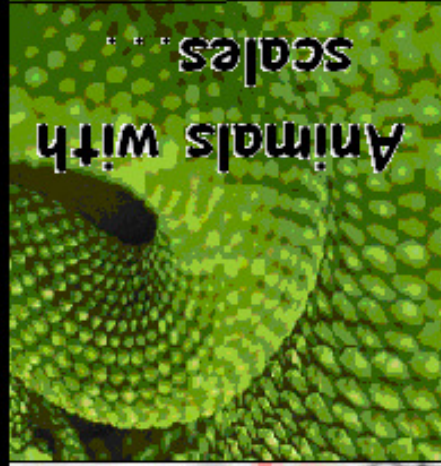
Cold-blooded animals...



Animals with feathers...



Animals with scales...

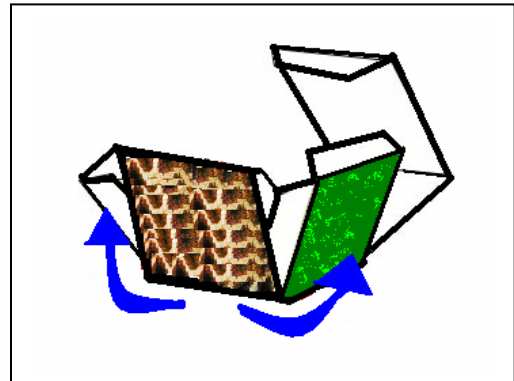


Warm-blooded animals...

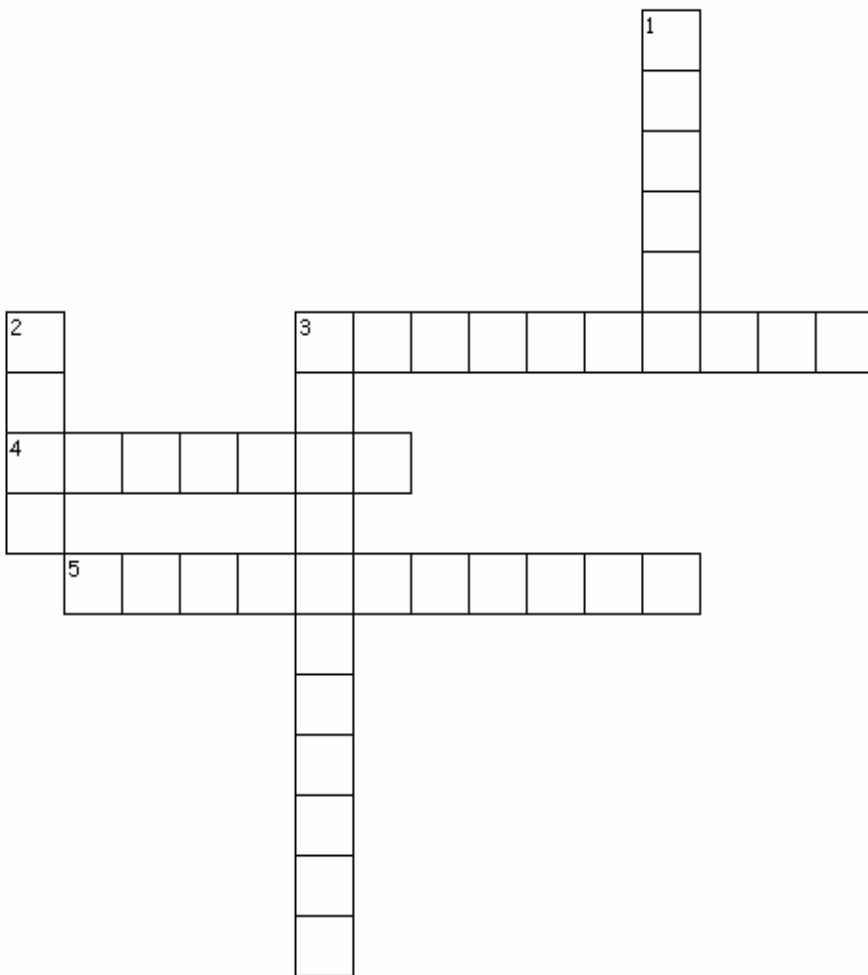


To create your **Animal Coverings Flip Box**:

- Copy **Animal Coverings Flip Box** on heavy card stock paper
- Cut along bold outside edge
- Fold along thin black lines as shown at the right
- Fold along tab lines
- Secure the tabs to the inside of the box with glue or tape



Fur, Feathers, and Scales



Word Box

mammal

bird

reptile

cold blooded

warm blooded

camouflage

Across

3. Some animals use their coverings to help them blend in with their environments. This _____ helps them stay safe from predators or sneak up on their prey!
4. An alligator is a type of _____ that has lots of tough scales on its body.
5. Mammals and birds are _____ which means that their bodies stay the same temperature - even if their homes are warm or cold.

Down

1. An animal that has fur on its body - just like you - is a _____.
2. An ostrich can't fly, but it's still a feathery _____.
3. Reptiles and amphibians are _____ which means that their body temperature changes with the temperature of their homes.

Name: _____

Count on Your Coverings!

1. Circle the animals below that are mammals.
2. Underline the animals that are reptiles.
3. Put an **X** on the animals that are birds.



Turtle



Macaw



Python



Dog



Monitor Lizard



Cat



Elephant



Cockatiel

Please turn over!

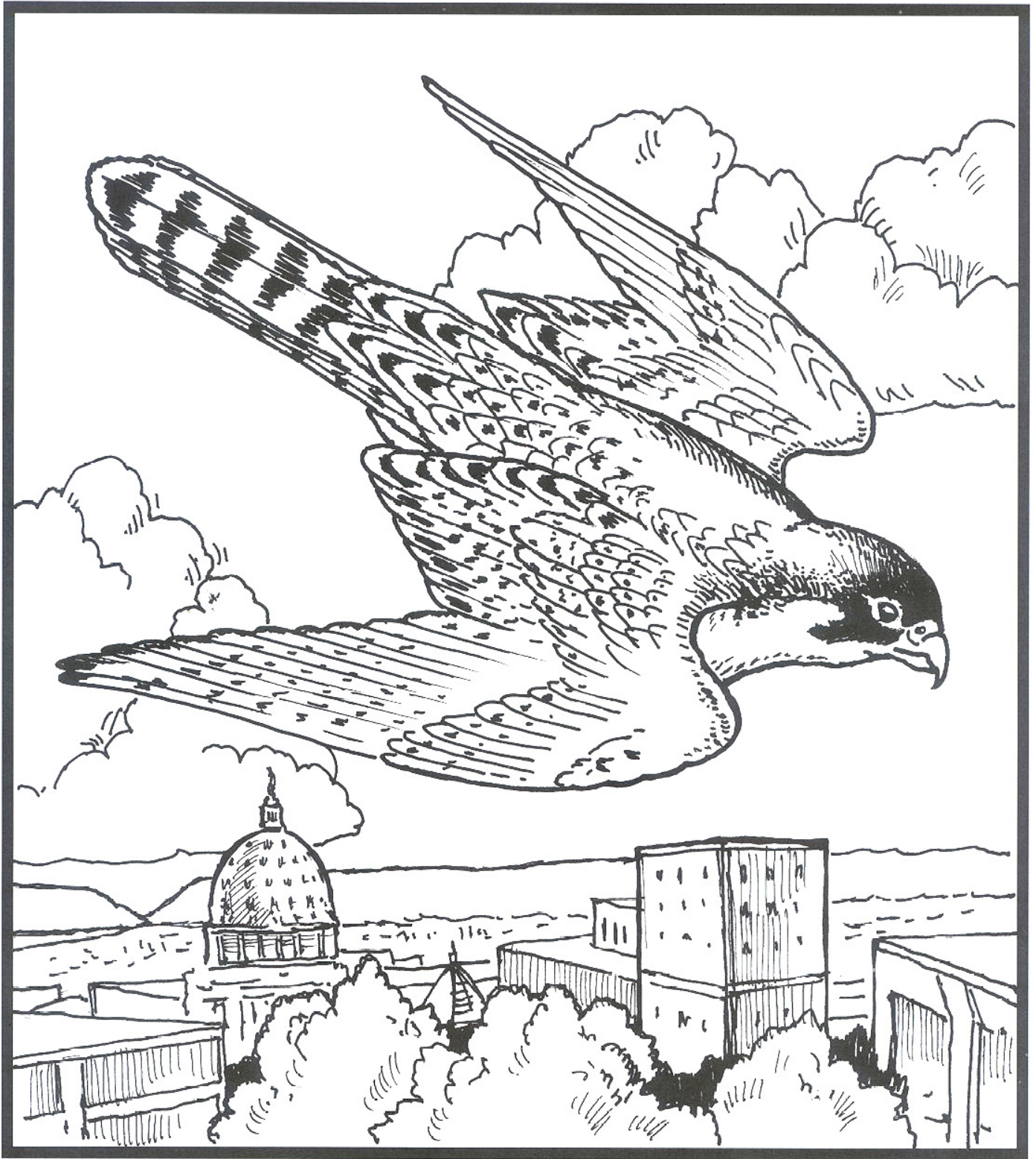
4. Count the number of animals. _____

5. Count the number of mammals. _____

6. Count the number of reptiles. _____

7. Count the number of birds. _____

8. Draw two mammals below.



Peregrine Falcon

The peregrine falcon is a raptor. Some peregrines live in big cities. They nest on tall buildings. They swoop down and capture birds like pigeons and starlings. The peregrine falcon is one of the fastest birds in the world. Diving after prey they may reach 200 miles per hour!



Red Fox

The red fox hunts farm fields for mice, birds and other small animals. Foxes also eat insects, berries and some kinds of fruit. The red fox is really more orange than red. It has a long, bushy tail with a white tip.