

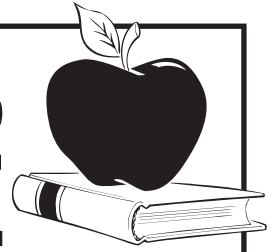
GRADE LEVELS: 3 - 4

CORRELATION TO NEXT GENERATION SCIENCE STANDARDS: 3-LS4-3, 4-LS1-1

SKILLS/PROCESSES: observation, analysis, comparison & generalization, identification, creativity

OBJECTIVE: Students will be able to identify the five characteristics by which mammals are determined.

TEACHER'S GUIDE



UNIT ONE ■ LESSON ONE

What Makes a Mammal a Mammal?

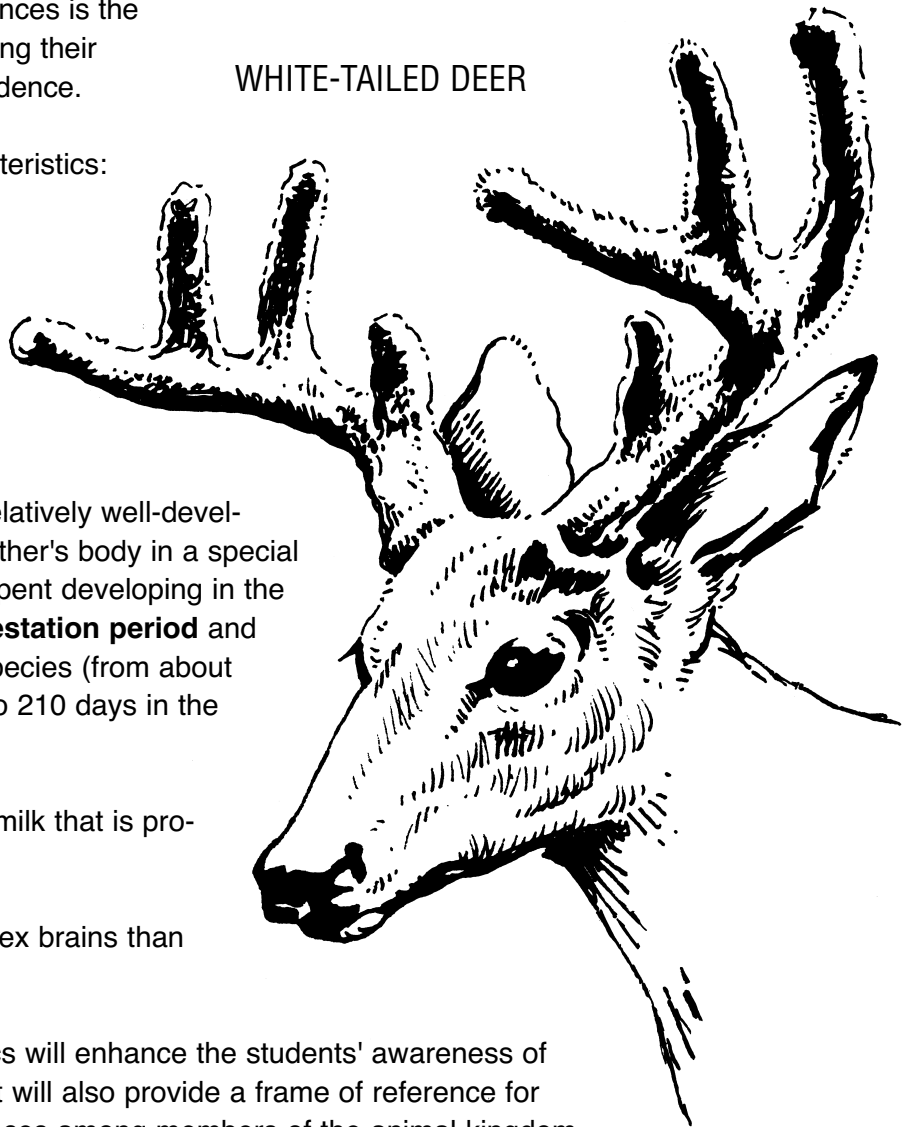
BACKGROUND

Classifying animals into categories and groups based on their similarities and differences is the first step in studying and understanding their origins, development and interdependence.

Mammals have the following characteristics:

1. They are covered with hair or fur.
2. They are **warm-blooded** (meaning their internal body temperature is maintained at a constant level regardless of external conditions).
3. They are usually born alive and relatively well-developed, having grown inside the mother's body in a special organ called a **uterus**. The time spent developing in the uterus before birth is called the **gestation period** and varies in length from species to species (from about 13 days in the Virginia opossum to 210 days in the white-tailed deer).
4. After birth the young are fed with milk that is produced by **mammary glands**.
5. They have larger and more complex brains than any other group of animals.

WHITE-TAILED DEER



Focusing on these five characteristics will enhance the students' awareness of and interest in mammals of Illinois. It will also provide a frame of reference for exploring the similarities and differences among members of the animal kingdom and how those characteristics relate to the environment and lifestyle of individual species.

PROCEDURE AND DISCUSSION

Review the student information with the class, providing students with (or inviting them to provide) examples of each of the five mammal characteristics. Encourage them to look for differences within individual characteristics, such as long, shaggy hair versus short, stiff fur; fully developed young at birth, such as deer, versus less developed young at birth, like rabbits and mice. A list of mammal species found in Illinois is included with these lessons to help you lead the discussion on the Activity Page. Use the *Illinois' Natural Resources Trading Cards*, the *Illinois Furbearers poster* and the *Illinois Wild Mammals poster* from the Illinois Department of Natural Resources to see photographs of mammals.

1. What five characteristics do mammals have in common?

Mammals have hair or fur; are warm-blooded; most are born alive; the young are fed milk produced by the mother's mammary glands; and they have a more complex brain than other animals.

2. How do mammals feed their young?

With milk produced by the mother in special organs called mammary glands.

3. Why are mammals described as warm-blooded?

They maintain a constant internal body temperature, regardless of the outside temperature.

4. What is a gestation period?

A gestation period is the length of time a mammal develops and grows inside its mother's body before being born. In humans the gestation period is nine months; in dogs it is approximately 60 days; in cows, 280 days; in rabbits, 26-30 days; and in mice, 20-30 days depending on the species.

5. Where do mammals grow and develop before they are born?

In a special organ, called a uterus, in the mother's body.

ACTIVITY PAGE EVALUATION

Evaluate the students on the content of their report, attention to detail and ability to follow instructions.

EXTENSIONS

Take a walk to a local park, wooded area or schoolyard and look for mammals and mammal signs (nests, dens, mole hills, tracks, droppings, etc.). Place emphasis on mammals by contrasting them with birds, reptiles, fishes, amphibians and insects.

Have the students begin a journal to keep records of wild mammal activities and habits around their school, home and community. Use this journal throughout their study of *Wild Mammals of Illinois*.

VOCABULARY

gestation period—the length of time a mammal develops inside the mother's body prior to birth

mammals—animals having these five characteristics: hair or fur; warm-blooded; usually born alive; young are fed on milk produced by the mother; larger brain than other animals

mammary gland—a special organ in female mammals that produces milk to feed the young

uterus—the organ in a female mammal in which the young develop prior to birth

warm-blooded—maintaining a constant internal body temperature

CHALLENGE YOURSELF EVALUATION

1. Answers will vary.
2. Answers will vary.
3. Three places where wild mammals live in Illinois include forests (trees), grasslands, underground, in water and in thickets.
4. Other animals catch food and bring it to their young. Some animals don't stay with their young at all, and the young are on their own.
5. The characteristics that make a mammal a mammal include presence of hair or fur, warm-blooded, young born alive, mammary glands and complex brain.

What Makes a Mammal a Mammal?

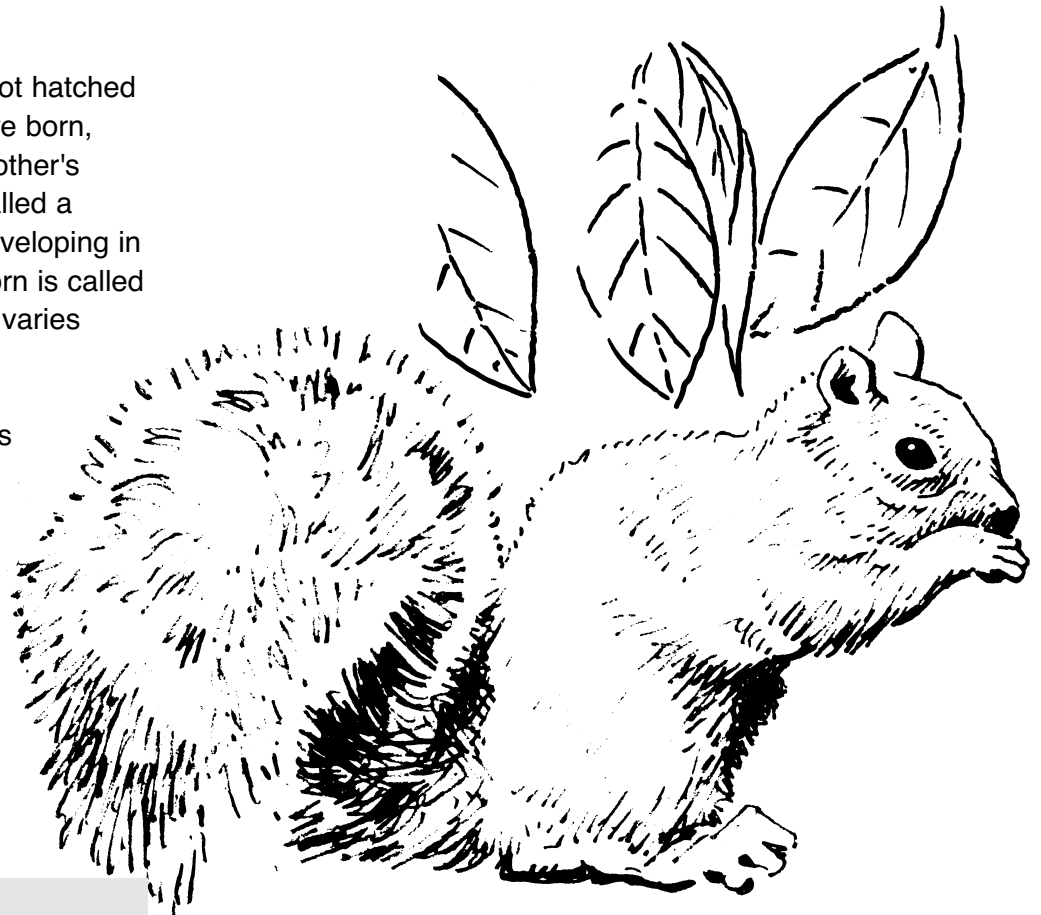
STUDENT'S GUIDE

There are many different kinds of animals in Illinois. Insects, spiders, fishes, amphibians, reptiles, birds and many others are all animals. Another group of animals is the **mammals**. Let's take a closer look at the mammals. What makes an animal a mammal? Any animal is a mammal if:

- 1) it has hair or fur;
- 2) it is **warm-blooded** (which means its body temperature is kept at the same level regardless of the outside temperature);
- 3) its young are born alive (not hatched from eggs). Before they are born, they develop inside the mother's body in a special organ called a **uterus**. The time spent developing in the uterus before being born is called the **gestation period** and varies from mammal to mammal;
- 4) after birth the mother feeds the young with milk that is made in specialized organs called **mammary glands**; and
- 5) it has a larger and more complex brain than any of the other animal groups.

CHALLENGE YOURSELF

1. Name five animals in Illinois that are mammals. Name five that are not.
2. What kind of hair or fur do the mammals you've named have?
3. Name three places where mammals live in Illinois.
4. Mammals are the only kind of animals that feed milk to their young. How do other kinds of animals feed their young?
5. What characteristics make a mammal a mammal?



EASTERN GRAY SQUIRREL

VOCABULARY

gestation period uterus
mammals warm-blooded
mammary gland

ACTIVITY PAGE: Mammals in the News

What you will need

- paper
- art supplies or computer access
- old newspapers
- research materials such as the “Species Sheet” pages from this educational unit, field guides, the *Illinois Wild Mammals* resources trunk from the IDNR, Internet access

What You Do

1. Discuss the mammals that are found in Illinois (see list on pages iv-v). Ask students to talk about the Illinois wild mammals they have seen or are familiar with. If they talk about any mammal species that are domesticated, it is a good time to point out the differences between wild and domesticated mammals.
2. Provide newspapers for the students to look at. Have them look for mammals (other than humans) in the news. Also have them review the structure of the newspaper’s front page.
3. Each student should select one Illinois mammal species and research it. Make sure that each student selects a different species. The students should collect information about the mammal’s life history, range, endangered/threatened status and any other information they can find. They should compile this information in the form of a newspaper front page, complete with illustrations.
4. Each student should show the completed page to the class and present a short report on the information.



What’s the difference between wild and domesticated mammals?

Wild mammals are those species that depend upon themselves to find the food, water and shelter that they need. In Illinois, raccoons, deer mice, foxes and bobcats are some wild mammals. Domesticated mammals are those that have been bred for special purposes. They are related to mammals that were once wild. Cows, horses, sheep and pigs are all examples of domesticated mammals. Domesticated mammals receive some of their survival requirements from humans. “Tame” mammals are pets. They are domesticated animals. However, not all domesticated mammals are tame. With most mammal species, a single animal may become “tame” while the rest remain wild. Some mammals that were once domesticated have become wild again. They are called “feral,” such as feral hogs and feral cats.