

## Cougars are Cats!

**Objectives:** Students will learn about the similarities and differences between cats of all sizes, wild and domestic. This will require some research on the student's part, therefore it can be done as a multi day lesson. Vocabulary in this lesson includes: retractable claws, protract, nocturnal, crepuscular, diurnal, adaptation, physical and personality traits, terrestrial, obligate carnivores, ambush, stalk, rotational inertia. A teacher's cheat sheet is provided at the end of the lesson.

**Audience:** Cougars are Cats! is a teacher or parent led lesson for any age and any number of students but best suited for third- sixth grade. If done with younger kids, it will require the teacher to do research with the students.

**Science Standards:** K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive; 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs; 2 LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats; 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment; 4 LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction; MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

**Background:** The animal family, felidae, or cats, is in the order Carnivora. Felids have the most diverse fur patterns of all **terrestrial** carnivores (lives on the land). Cats have retractable claws, slender muscular bodies and strong flexible limbs. Their teeth and facial muscles allow for a powerful bite. They are all **obligate carnivores** (they eat only meat, not plants), and most are solitary predators **ambushing and/or stalking** their prey (silently following to get close and then jumping out at them from a hidden place). Wild cats occur in Africa, Europe, Asia and the Americas. Some wild cat species are adapted to forest habitats, some to arid environments, and a few also to wetlands and mountainous terrain. Their activity patterns range from **nocturnal** (active at night) and **crepuscular** (active at twilight) to **diurnal** (active during the day), depending on their preferred prey species. In other words, cats are strong, powerful hunters that come in many sizes and fur patterns, and live all over the world in many diverse habitats. They are highly adaptable predators.

There are 41 distinct species of cats, ranging in size from the tiny 3 lb. black-footed cat of Africa to the giant 700 lb. Bengal and Siberian Tigers of Asia. Even though there is such a diversity of sizes, colors, and habitat types for cats, they all share some common characteristics:

1. They have five toes on their front feet and four on their hind feet.
2. The pads of their feet are three-lobed.
3. They actively **protract** (stick out) their claws with muscles in the toe and they passively **retract** (pull back in) them. Cheetahs have only semi-retractable claws because they run down their prey more like a canid than a felid.
4. They have flexible bodies with muscular limbs.
5. Their skull is shortened with a rounded profile and large eyes.

6. They have 30 teeth.
7. The canine teeth are large.
8. Their tongue is roughly textured, which aids in grooming.
9. Their nose projects slightly beyond the lower jaw.
10. Their eyes are relatively large and their night vision is especially good. The eyes of felids are about six times more light-sensitive than those of humans, and many species are at least partially nocturnal.
11. They have well-developed and highly sensitive whiskers above the eyes, on the cheeks, and on the muzzle. Whiskers help to navigate in the dark.
12. Their external ears are large and especially sensitive to high-frequency sounds in the smaller cat species. This sensitivity allows them to locate small rodent prey.
13. Felids have an organ in the roof of the mouth, allowing them to "taste" the air.
14. They cannot detect the sweetness of sugar, as they lack the sweet-taste receptor.
15. The standard sounds made by all felids include spitting, hissing, snarling and growling.
16. The big cats (tigers, lions, jaguars, and leopards) can roar.
17. The small cats (cougars and all smaller) can purr and meow. They can purr during both phases of respiration, inhaling and exhaling, though some cats only purr during mating, and as cubs when suckling.

**Supplies:** Picture of a cougar. (There are many on our website: [cougarfund.org](http://cougarfund.org)), white board, chalk board, or just paper for making a list, books or computers for research.

**Instructions:**

1. Show your students a picture of a cougar and ask if they know what it's called. What are some other names for this animal? Examples include mountain lion, puma, panther, and cougar.
2. Ask if they know what family the cougar belongs to. Cougars are cats!
3. Ask if anyone has ever seen a cougar in the wild. If so, have them tell you about it. If not, ask why that may be. They are shy, secretive, elusive, and avoid people most of the time. They are very catlike.
4. Cougars share a lot of characteristics with your house cat, but are also very different.
5. Make a chart with 2 columns, 1 headed myths / sayings and the other knowledge.

| Myths / Sayings | Knowledge |
|-----------------|-----------|
|                 |           |

6. Ask the students to tell you everything they know about domestic cats, both facts and myths or sayings, and list them on the chart.
7. Examples of knowledge include **physical traits** like retractable claws, whiskers, and long tail, as well as **personality traits** like aloof, lazy, and like to climb. (See teacher's cheat sheet.)

8. Examples of myths or sayings include things like cats always land on their feet, they have 9 lives, and other traits like that they hate dogs or water. You might need to prompt them to come up with this list. (See teacher's cheat sheet.)
9. Discuss and fact check their list of knowledge. If they say something obviously incorrect, like cats are afraid of heights or that they have bad eyesight, steer them towards actual facts with discussion and correct list.
10. Discuss and fact check myths column. Do cats really have 9 lives? If not, where did that saying come from? What about always landing on their feet? Is that true? **Have student(s) research where these sayings and myths came from.** There is usually some truth to myths.
11. Once you've established your list for domestic cats, compare it to cougars. How many items on your list are true for cougars as well as cats? **Have student(s) research which facts and myths are also true for cougars.**

#### Extensions:

1. How do an animal's traits help them to survive? These traits are called **adaptations** and include:
  - a. Having retractable claws helps cats and cougars protect those claws, which they need to hang onto their prey and to climb trees to get away from danger.
  - b. Strong senses of sight, hearing and smelling help cats and cougars to hunt and to stay away from other predators.
  - c. Small heads help the cat family to get into very tight spots. It is often said that if a cat can fit their heads into something, their body can follow.
  - d. Soft paws make animals in the cat family silent while hunting.
  - e. Cats and cougars are nocturnal and have big eyes that see in the dark so that they can hunt at night.
  - f. The long tails on cougars and most cats help balance and counterbalance. This is called **rotational inertia**.
2. Watch Gus the Cat videos (coming soon)

#### Discussion:

1. What do cougars and cats have in common?
2. How are cats and cougars different?
3. Explain that even though you've discussed many ways that a mountain lion is similar to a domestic cat, a cougar is not your pet. They are wild animals that live in wild places and we have to respect that fact. Wild animals can be dangerous.
4. Look over and discuss how to be safe when recreating around mountain lions at <https://www.cougarfund.org/education/living-with-cougars/safety-recreating/>

## Teacher's Cheat Sheet

★ Examples of what you might come up with in your lists of knowledge and myths/ sayings

| Myths / Sayings   | Knowledge  |
|---|--|
| Cats have 9 lives<br>Curiosity killed the cat<br>Cats always land on their feet<br>Fight like cats and dogs<br>Cat burglar<br>Cat naps<br>Scaredy-cat<br>Cat got your tongue?<br>Herding cats<br>Let the cat out of the bag<br>Look what the cat dragged in<br>Raining cats and dogs<br>Play cat and mouse<br>Cats hate water<br>Cats hate dogs | Retractable claws<br>Strong sense of smell, hearing, and eyesight<br>Whiskers<br>Small heads<br>Long tails<br>Big eyes / can see in the dark<br>Soft paws<br>Eat meat<br>Like to climb<br>Like to hide inside, above, or below items<br>Hunt mice<br>Sleep a lot / lazy<br>Nocturnal<br>Clean themselves<br>Purr and meow<br>Aloof / ignore people |

★ Websites with meanings of common cat sayings or idioms:

<https://owlcation.com/humanities/50-Cat-Idioms-and-Phrases>,

<https://cattitudedaily.com/common-cat-idioms/>,

<http://user.xmission.com/~emailbox/phrases.htm>

★ Physical descriptions of cougars for comparison to your list for domestic cats:

<https://www.cougarfund.org/education/about-the-cougar/>