



Wyoming Game & Fish Department

Build a Beaver



Materials:

- Earmuffs
- Swim goggles
- Paper or foam "beaver teeth" on an elastic band
- Fleece coat
- Raincoat
- Gloves
- Webbed beaver "hind feet" made from cardboard or swim flippers
- Beaver "tail" made out of cardboard or foam on an elastic waistband
- Castor "can" (oil or perfume container)
- Aspen or willow stick (for "food")

Introduction

- Start by asking if students have seen a beaver before. What features did they notice? Where did they see the beaver/what type of habitat?
- Share these beaver facts with students.

Beaver Facts

Beavers are mammals, which means that they have fur, give live birth, are warm-blooded, and feed milk to their young. Beavers stay active year round, sheltering themselves from winter weather by staying primarily in their lodges and eating food that they cached during the warmer seasons.

Beavers are nocturnal, which means that they are active mainly at night. They are excellent swimmers and may remain submerged up to 15 minutes. They are more vulnerable on land, so they tend to stay in the water as much as possible.

Beavers are known for their natural trait of building dams on rivers and streams (which we call a riparian habitat), and building their homes (known as "lodges") in the resulting pond. Dams create flooding which can promote the growth of aspen and willow- two of the beaver's favorite food sources! This also creates more riparian habitat for other wildlife to use.

Beaver lodges, which the beavers build and live in, can have multiple rooms and several underwater entrances. Lodges can either be built into a bank or free-standing in the middle of a pond.

Beavers are the largest rodent in North America. As in all rodents, their front teeth grow continually and must be constantly ground down by chewing in order to prevent them from growing too long.

Beavers live in family groups of 4-10 beavers, with young beavers, called kits, being born in the spring. When kits are born, they have all of their fur, can swim, and their eyes are open. These young usually stay with their parents for two years before heading out to find a mate and start a family of their own.

Beavers usually weigh 30-60 pounds

Beavers may live up to 10-12 years in the wild. They are fairly safe from predators when swimming in the water, however they are more vulnerable to their predators, which include coyotes, otters, bears, wolves, wolverines, bobcats, lynx, mountain lions, and humans when on land.

The Fur Trade The beaver is responsible for much of the early exploration of North America. Early 1600's fashion in Europe was to wear a hat made from beaver pelts. Beavers were trapped nearly to extinction in Europe when they were discovered to be plentiful in N. America. Trappers and traders from France, Spain, England, and the U.S. explored much of the American West while looking for beaver. (Alexander Mackenzie, North West Co., blazed a trail to the Pacific in 1793 through southern Canada. In 1804, President Jefferson made the Louisiana Purchase, and sent Lewis and Clark to find a waterway to the Pacific. They came back telling of abundant game and beaver.) By 1750, an estimated two million beaver had been killed in North America. By 1834, pelts were becoming scarce. Thankfully, by the early 1800's there was a change in European fashion to silk hats.

- Ask if students can define an "adaptation." Adaptations can be either physical or behavioral. Adaptations are ways an animal looks (physical) or acts (behavioral) that help it to more successfully survive in its habitat.
- Ask students "what adaptations do you think beavers might have to help them survive in an aquatic ecosystem?"

Building the Beaver

- Select one student volunteer to become the “beaver” and explain that you’ll be transforming them into a beaver with tons of great adaptations to live in the riparian habitat.
- Introduce/review these following adaptations as you dress up the student.
- Discuss the adaptations as you go along. Why would a beaver need them? How do they help the beaver survive?
- Don’t forget to conclude with a photo! You can also review the adaptations once more as you remove them from the volunteer.

Adaptation/Use	Item to dress up with
<p>Beavers have valves that shut off their ears and nostrils keep water out when diving. Hearing is their best sense, followed by smell.</p>	<p>Earmuffs</p>
<p>Beaver’s eyes are protected by a transparent nictitating membrane so that they can see underwater easily while they swim.</p>	<p>Swim goggles</p>
<p>Beaver teeth are always growing. If they don't chew, the will grow too long which can have fatal results.</p> <p>The orange color indicates the presence of iron, which strengthens the teeth. The teeth are hard enamel in front and soft dentine in back, which allows them to remain sharp with chewing. (The dentine wears away first, while the enamel resists wear).</p> <p>Beavers can cut down a tree with a 5 inch diameter trunk in just 3 minutes, and have been known to cut down a tree with a trunk 5 feet thick.</p>	<p>Paper or foam “beaver teeth” on an elastic band</p>
<p>Beavers have two types of fur: long, silky guard hairs (which repel water) and a dense, wooly undercoat (for warmth).</p>	<p>Fleece coat & Raincoat</p>

<p>Beaver front feet are not webbed. They are very agile, and used for holding twigs when eating, digging, and placing mud on dams and lodges.</p>	<p>Gloves</p>
<p>Beaver hind feet are webbed, which helps them swim quickly.</p>	<p>Webbed beaver "hind feet" made from cardboard or swim flippers.</p>
<p>Beavers use their tail as a rudder (to help them steer) and diving plane (to help them dive under the surface), as fat storage, as a kickstand or prop while felling trees, and as thermo-regulator (radiates heat in summer, counter-current exchange keeps body heat in during winter.) Beavers are also known for their alarm signal: when startled or frightened, a swimming beaver will rapidly dip while forcefully slapping the water with its broad tail, audible over great distances above and below water. This serves as a warning to beavers in the area. Once a beaver has sounded the alarm, nearby beavers will dive and may not reemerge for some time. Beavers are slow on land, but are good swimmers, and can stay underwater for as long as 15 minutes.</p>	<p>Beaver "tail" made out of cardboard or foam on an elastic waistband</p>
<p>Located near their tail, castor glands secrete castoreum for waterproofing and scent marking. Castoreum was considered a "cure-all" by early settlers, and the castor glands were in high demand. Castoreum was also used in making perfume.</p>	<p>Castor "can" (oil or perfume container)</p>
<p>Beavers eat green inner bark layer called "cambium" from aspen, willow, cottonwoods, and other poplars.</p>	<p>Aspen or willow stick (for "food")</p>

This lesson plan was adapted from the Keystone Science School's Beaver Dress Up lesson plan.



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Updated October, 2017