

## Build-A-Beaver! Animal Adaptations

### Objective

Students will learn about some of the unique and interesting features (physical adaptations) of beavers and how those adaptations help beavers survive.

### Method

A student volunteer is built into a simulated beaver with the beaver's adaptations made from objects that are similar.

### Materials

Pictures of a beaver, some string and tape, chisel, pair of swimming fins, swim goggles, swimming earplugs or ear muffs, nose plug, snorkel, two inflated large red balloons, thermal underwear top, raincoat, can of silicone waterproofing spray, small wooden canoe paddle and two combs.

### Background

A beaver possesses an array of unique features that help it survive in its watery world. Its flat 12- to 17-inch long, paddle-like tail serves superbly as a rudder while swimming, and its fully webbed hind feet help it swim fast. The beaver also slaps its tail on the surface of the water to warn of danger nearby. A clear, see-through inner eyelid covers and protects the beaver's eyes, and watertight flaps of skin seal off its nostrils and ears. Its lips also can be drawn tightly behind its teeth to let the beaver chew wood with its chisel-sharp teeth while under water, and a special flap at the back of its mouth seals off the mouth cavity from the air pipe. Large lungs hold extra oxygen for long dives. Also, waterproofing oil from a special gland, built in combs (split toenails on the fourth toe of each hind foot) to brush the oil over its coat, and dense water-repelling underfur keep the beaver warm and dry.

### Procedure

1. Share pictures of beavers with the students. Ask them if they were a beaver, what kind of features they might need to help them live in water as real beavers do.
2. Discuss the meaning of the word "adaptation" – in this case, a physical feature the beaver has to help it survive.
3. Ask one student to be a volunteer to become a beaver.
4. Use each of the items to then "build" a beaver by placing them on the volunteer. For each item, discuss how they represent the different adaptations that beavers have to help them survive.

**Fins** – fully webbed hind feet of a beaver that help it swim fast.

**Thermal underwear** – the warm under fur of a beaver that helps it stay warm.

**Rain coat** – the outer coat of the beaver that keeps it dry.

**Silicone spray** – the oil that the beaver spreads upon its fur to help its coat stay waterproof.

**Combs** – the spit toenails on the hind foot of a beaver used to spread the oil on its coat while grooming (attach with string or tape to the fins).

**Chisel** – chisel-sharp teeth a beaver uses to chew wood for building its dam, its lodge and for food (tie to a string to hang around the student's neck).

**Paddle** – rudder like tail of the beaver used for steering while swimming and for slapping on the surface of the water to create a warning sound when danger is near (have student hold this or attach with a string around waist).

**Goggles** – special clear eyelids that cover and protect the beaver's eyes, letting it see underwater.

**Ear and nose plugs** – valves that seal off the beaver's ears and nose when swimming underwater to keep the water out.

**Snorkel** – represents the structure in the beaver's mouth that lets it breathe without getting water in its mouth when carrying wood through the water.

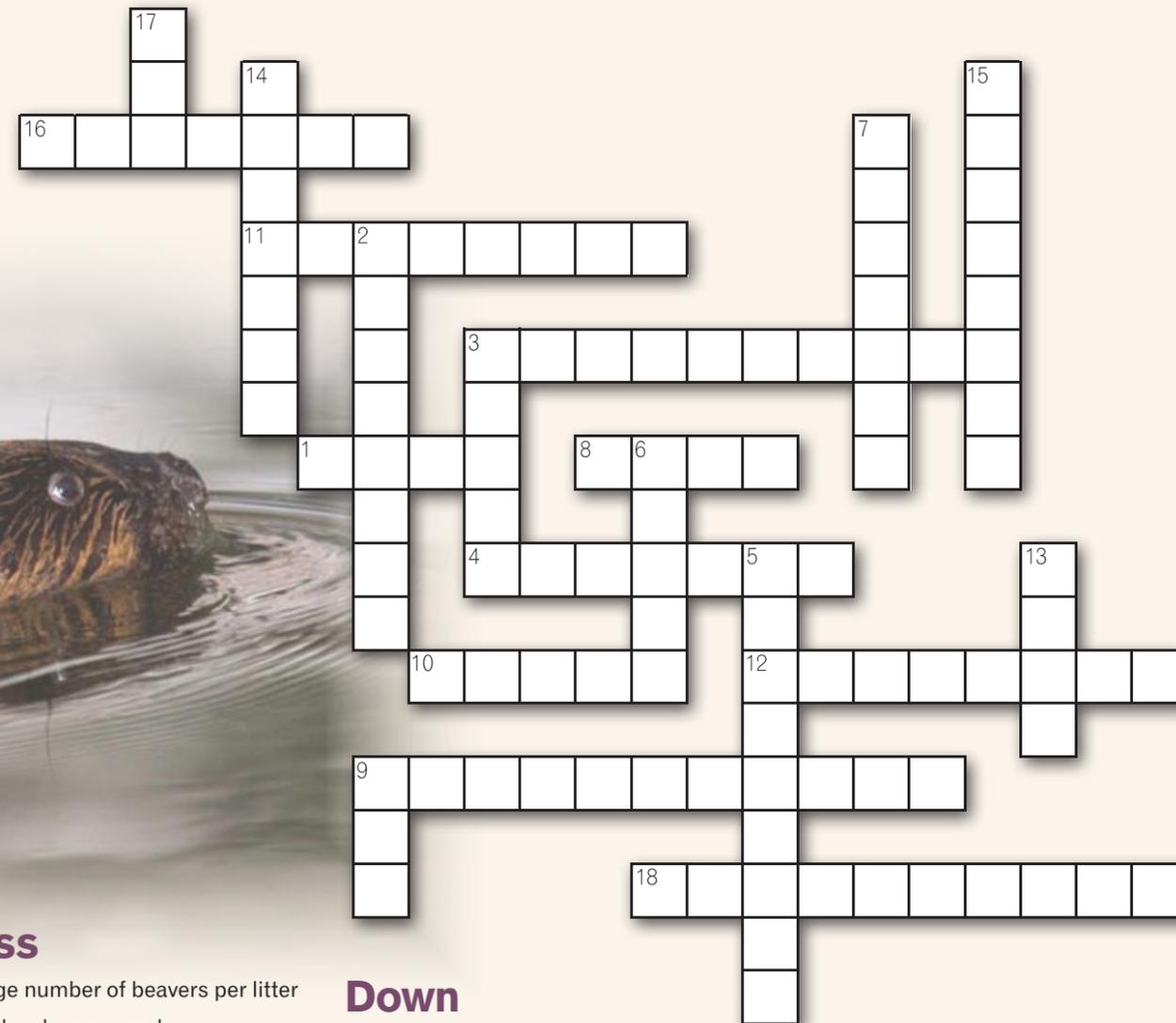
**Red balloons** – large lungs of the beaver that hold extra air so the beaver can hold its breath for a long time (tape these on).

### Discussion/Evaluation

Review the unique adaptations beavers have to help them survive in their environment. Have students draw their own beaver. Have them be sure to include details in their drawing showing the physical adaptations of the beaver, the way they are in reality (internal adaptations like large lungs may have to be skipped). Have them label the adaptations on their drawing.

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## West Virginia Wildlife Article Puzzle



### Across

1. Average number of beavers per litter
3. Describes beavers and walleye anglers
4. Fire that moves with the wind
8. Backing fires burn at this rate
9. DNR stocked 172,000 of these in 2009
10. Food stored underwater by beavers
11. One state used to get beavers for restocking West Virginia
12. One of first professions of early U.S. settlers
16. Home of beavers and many other animals
18. Opposite of wildfire

### Down

2. Tribe that sold furs to traders
3. Family to which walleye belong
5. Fires release these back to soil
6. Beaver home built in open water
7. Ol' Marble Eyes
9. Term for newly hatched walleye
13. Body part that beavers slap on water
14. Class of animals to which beaver belong
15. Ecological role of walleyes in lake
17. Young beaver



*Steve Shaluta/  
WV Dept. of Commerce Photo*



*Larry Berry/WV DNR Photo*