

## Close Reading and Text Dependent Questions in Science

### What Makes Beavers Special (Animal Studies – Grade 4)

The text selection, *What Makes Beavers Special*, is found in the *STC Animal Studies Teacher's Guide*.



Look in the Student Learning Outcome (SLO) Documents for guidance on when this should be taught. These can be found on the BPS Science Department's website: <http://bpsscience.weebly.com/> You will find the Student Learning Outcomes documents organized there by grade level.

## Reading Selection

## What Makes Beavers Special?

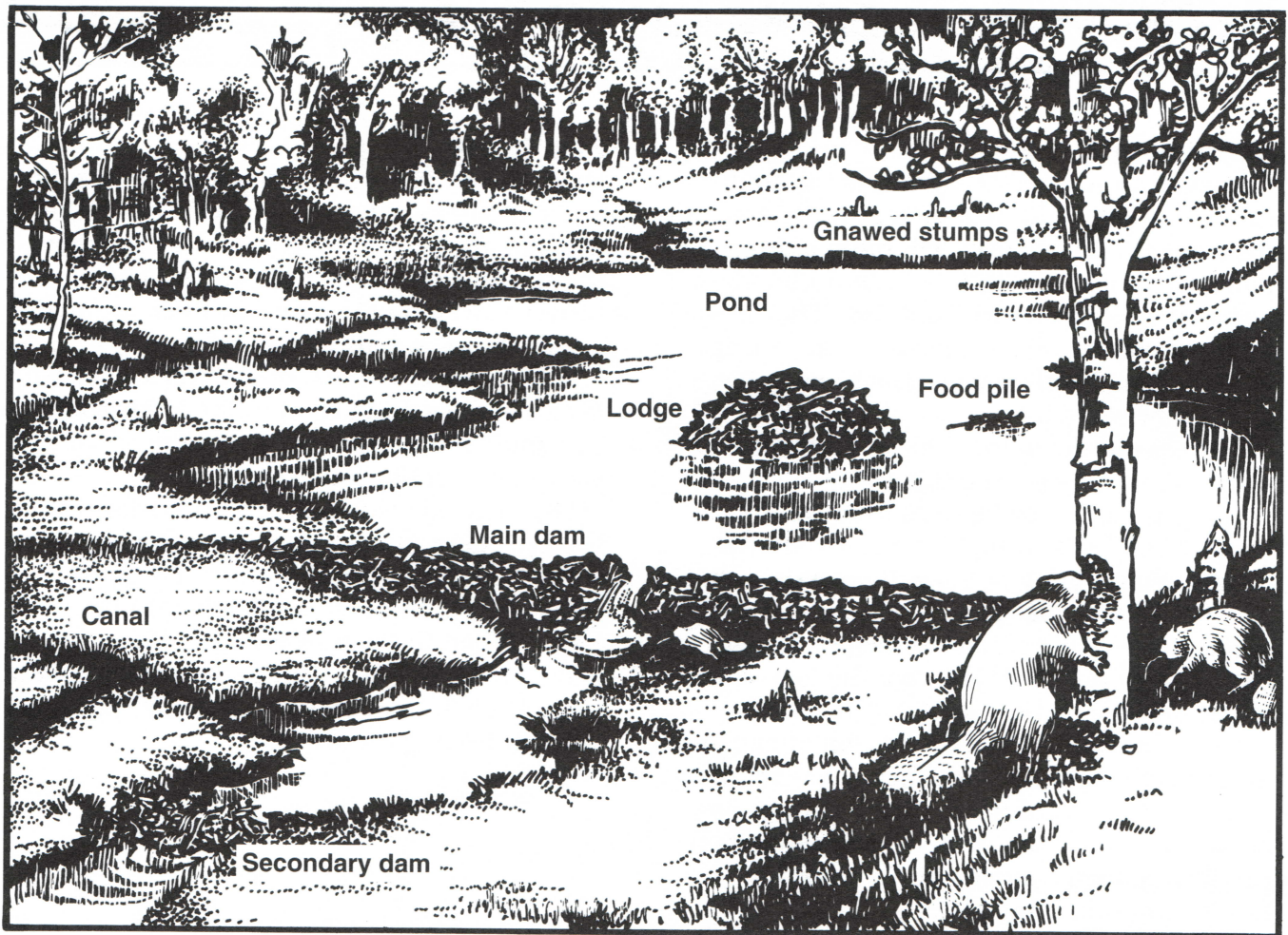
Look! Over there! Water is backed up behind a dam of sticks and mud. Pointed tree stumps stand along the water's edge. A mound of sticks floats in the middle of a pond. What do these signs tell us? This could be a beaver family's habitat.

Remember, a **habitat** is a place where an animal or a plant lives. Every animal has different needs for living. Most animals must find a habitat that meets these needs. But the beaver is different. The beaver is a lot like us. It finds a habitat and then changes it to suit its needs.

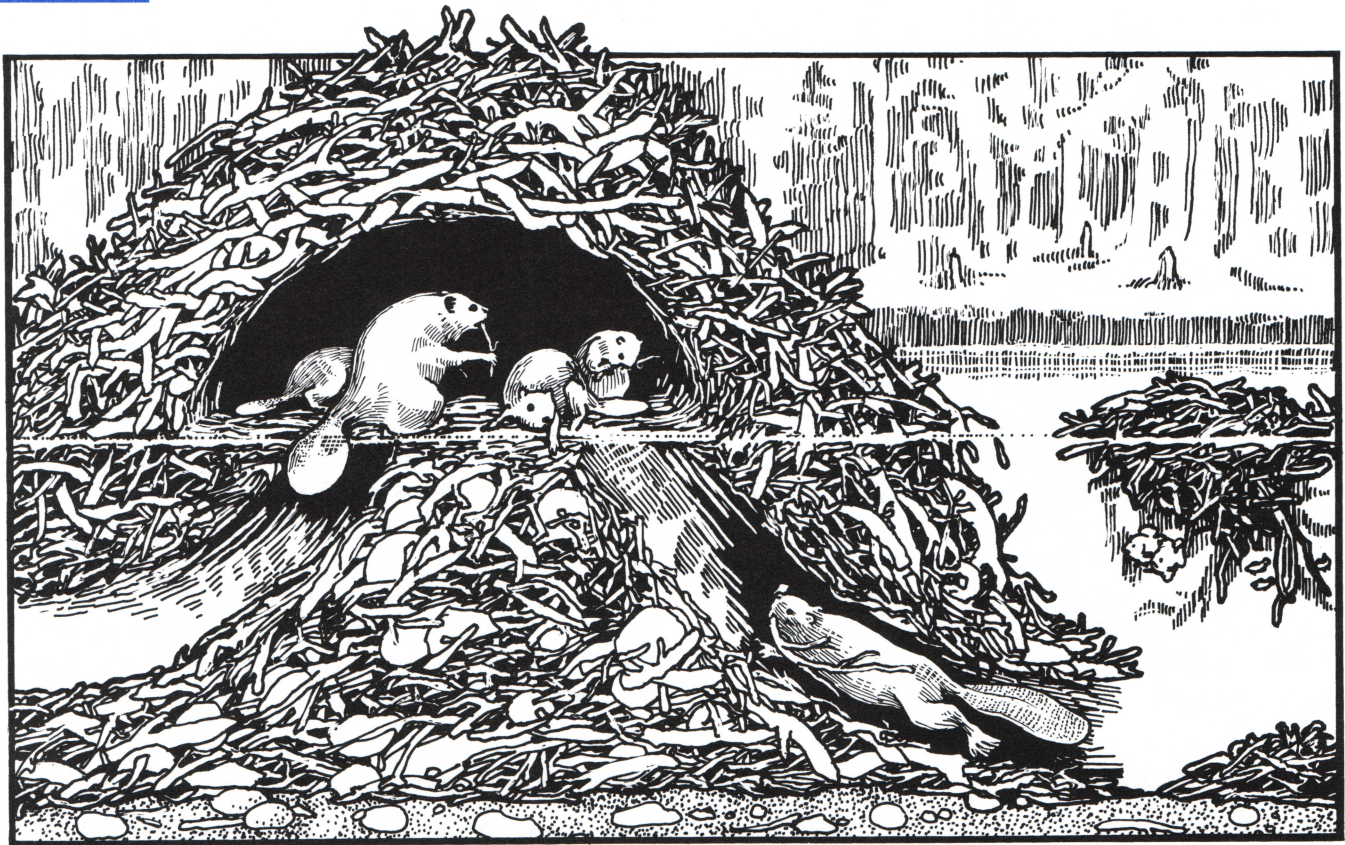
**On Land and Water**

Beavers live on land and in water. On land, beavers are clumsy. Their front legs are short. They cannot walk very fast. They cannot easily escape their enemies on land. But beavers are excellent swimmers and divers. In the water, they move quickly and gracefully.

Wolves and bears are the beaver's predators—they hunt and eat beavers. To keep its family safe, a beaver builds its home in the water. That home is called a **lodge**. The only way to get into the lodge is through an underwater tunnel.







### Why Build a Dam?

But what if the river or stream is too shallow to build a lodge? Rather than search for a different site, the beaver will build a **dam**. A dam holds back the water. To build the dam, beavers use their short front feet. They push mud, branches, and stones to create a ridge in the water. Then they use their sharp teeth to cut down trees.

Beavers cut down most of the trees near the water. Then they go into the woods for more trees. It is easier for beavers to move the heavy wood by floating it in water than by dragging it on land, so they dig **canals** in the ground. Water runs along the canals, which connect the wooded area to the pond. The beavers use the canals to float the logs down to the pond or river.

The beavers push the freshly cut sticks and logs into the muddy ridge they have created. Now the dam is complete. Water cannot flow above or around the dam. Soon the water in the stream forms a deep pond. And the beaver can build its lodge.

### Step Inside . . .

From the outside, a beaver's lodge looks like a pile of sticks in the water. But inside, the beavers are dry and cozy. Inside their home, they build ledges above the water. The beavers sleep on the ledges, which are made out of sticks, wood chips, and grass.

Before winter comes, the beavers will add layers of sticks and mud to the lodge roof. The mud will harden and keep the lodge warm even in the coldest weather.

The beavers also collect extra sticks and leaves. These make a good food pile. Beavers keep the food pile in the water. They put it just below the tunnel that leads into the lodge. When the pond freezes, the beavers leave the lodge and swim to the bottom of the tunnel. They can eat from the food pile without leaving the water.



### Keeping Warm and Dry

Like all mammals, beavers are warm-blooded and have fur. The outside layer of **guard hairs** are long and stiff. They protect the **underfur**, which is short and soft. The underfur traps air to protect the beaver against the cold and to prevent water from reaching the skin. A layer of fat under the fur also helps keep the beaver warm.

A beaver has glands on the bottom of its tail. The glands produce oil. The beaver puts the oil on its fur using a special "split toenail," located on the second toe of each back foot. The oil helps prevent the fur from absorbing water that can wet the beaver's skin.

### Special Body Parts

A beaver has other special body structures that help it swim and work. Its back, or **hind**, feet are webbed like a duck's. They help the beaver move through the water.

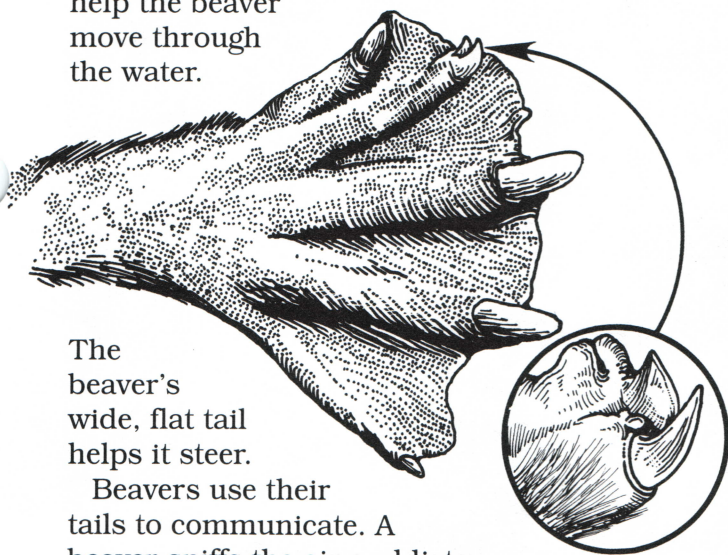


Like rats and squirrels, beavers are **rodents**, or gnawing mammals. A beaver has a hard orange coating on its two top and bottom front teeth. This coating keeps the teeth from chipping. There are two folds of skin behind the front teeth. These folds keep water out of the beaver's mouth while it gnaws on wood under water.

Have you ever used goggles in a pool? A beaver has its own built-in goggles. Each eye has a clear inner eyelid. This eyelid covers and protects the beaver's eye so it can see under water.

Beavers can stay under water for up to 15 minutes! Their lungs can hold a great amount of air. A beaver also slows down its heart rate when it dives. That way, it uses less oxygen when under water. A valve in the beaver's nose closes the nostrils while the beaver swims.

All of these characteristics help the beaver live in its habitat. Like humans, the beaver can change its environment more than most other animals on earth.



The beaver's wide, flat tail helps it steer.

Beavers use their tails to communicate. A beaver sniffs the air and listens. A fox is coming near. Whap! A beaver smacks its wide tail on the water's surface. Do you know why? All of the beavers in the area hear the warning and swim to the lodge for safety.

Beavers use their tails on land, too. The tail supports them like another leg. Beavers stand when they are cutting down trees. The tail helps them balance.

## What Makes Beavers Special (Animal Studies – Grade 4)

### Student Questions

1. What is a habitat?
2. Why do beavers build their home in the middle of water?
3. What is the purpose of building a dam?
4. How does the beaver change its habitat to “suit his needs”?



## What Makes Beavers Special (Animal Studies – Grade 4)

### Sample Answers

**1. What is a habitat?**

*A habitat is a place where an animal or a plant lives.*

**2. Why do beavers build their home in the middle of water?**

*They build their lodges in the middle of the water because they are excellent swimmers, and to protect themselves from their predators (wolves and bears).*

**3. What is the purpose of building a dam?**

*If a river or stream is too shallow to build a lodge, the beaver will build a dam to hold back the water and make it deeper.*

**4. How does the beaver change its habitat to “suit his needs”?**

*The beaver uses mud, branches, and stones to create a ridge in the water. They add cut trees so that water cannot flow around the dam, creating a pond.*

**5. The beaver’s tail has multiple functions. Describe one of the functions and why it is important to its survival.**

*The beaver can use their tail to steer in the water. –or–*

*The beaver will smack its tail on the surface to communicate to other beavers in the area. –or–*

*The beaver can use their tail to support them like another leg to help them balance.*

**6. Describe two other structures and functions that demonstrate beavers are well adapted to their environment.**

*The beaver’s webbed hind feet help the beaver move through the water. The underfur of a beaver traps air to help keep the beaver warm so that water can’t reach its skin. Beavers have a clear inner eyelid that protects their eyes so they can see under water.*

**7. Based on the reading selection, compare beavers with humans. Use evidence from the text.**

*Both humans and beavers change their environments more than other animals to suit their needs. However, beavers are well adapted to live and move in water and humans are better adapted to live and move on land.*