

BEAVERS



Introduction

The Wildwood Animal Workbooks for Key Stage 2 include Beavers, Badgers, Otters, Frogs, Owls, Red Foxes and Wolves. Each workbook follows a standardised pattern so that children can select different animals to study but still cover the same themes.

The activity sheets are appropriate for use either as an introduction before a visit or as follow up work. Each activity sheet is designed to link in with and support National Curriculum Programmes of Study for different subjects, including Science, Literacy, Numeracy and Art. There are also Key Stage 1 workbooks covering the same animals to aid differentiation.

Activity Sheets

The following list gives details of the activity sheets contained in the workbook, including the relevant National Curriculum P.O.S and the learning objectives which each sheet covers.

Adaptation



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES: To understand that different animals are found in different habitats.

To understand that animals are suited to the environment in which they are found.

Food Chains and Teeth



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES: To understand that most food chains start with a green plant.

To identify the structure of a food chain of a specific animal.

To identify important features of an animal's mouth in relation to its diet.



Food Chains and Diet



SUBJECTS:

Science & Maths

P.O.S:

Sc2 - Life processes and living things
Ma4 - Processing, representing and interpreting data.

LEARNING OBJECTIVES:

To understand that different animals have different diets.

To present evidence about foods eaten by an animal in a suitable bar chart.

Habitats and Homes



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES:

To identify different types of habitats.

Tracks and Signs



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES:

To identify beavers according to observable features.

Human Impact and Conservation



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES:

To recognise ways in which living things and the environment need protection.



Myths and Legends



SUBJECT:

English

P.O.S:

En2 - Myths, Legends & Traditional Stories

LEARNING OBJECTIVES:

To understand the difference between myths and legends and fact.

Quiz



SUBJECTS:

English & Science

P.O.S:

En2 - Reading for information
Sc2 - Life processes and living things

LEARNING OBJECTIVES:

To scan texts to find information.

The Wildwood Beavers



SUBJECTS:

Art & design

P.O.S:

Exploring and developing ideas

LEARNING OBJECTIVES:

To record from firsthand observation.

Life Cycle



SUBJECT:

Science

P.O.S:

Sc2 - Life processes and living things

LEARNING OBJECTIVES:

To understand that adults have young and that these grow into adults which in turn produce young.



Activity



SUBJECT:

English

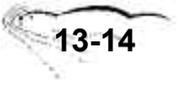
P.O.S:

En2 - Reading strategies

LEARNING OBJECTIVES:

To recognise words and show understanding of their meanings.

Activity



SUBJECT:

English

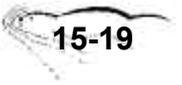
P.O.S:

En2 - Myths, legends & traditional stories

LEARNING OBJECTIVES:

To understand the difference between myths and legends and fact.

Activity



SUBJECTS:

Art & design & English

P.O.S:

Investigating and making art, craft and design

LEARNING OBJECTIVES:

En2 - Nonfiction and nonliterary texts.

To develop control of tools and techniques in art and design.

To understand the structural and organisational features of instructions.

Glossary



SUBJECTS:

Science & English

P.O.S:

Sc2 - Life processes and living things

En3 - Spelling

LEARNING OBJECTIVES:

To develop understanding of scientific vocabulary.

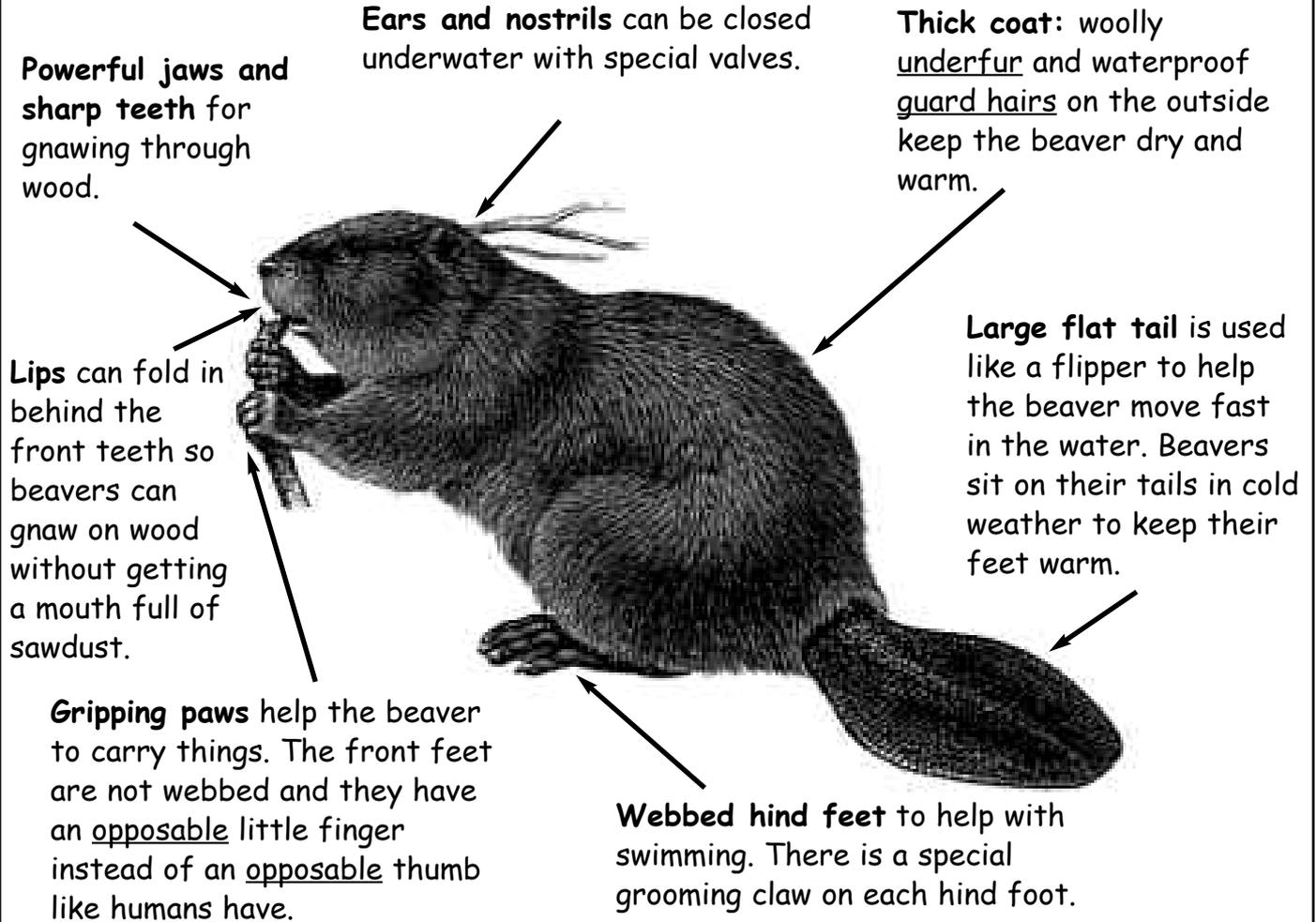
To have a secure understanding of the purpose and organisation of a glossary.

Please note that throughout the pack, underlined words can be found in the glossary.



Life as an Engineer

Beavers are large herbivores which live together in family groups. Beavers build their own homes and will also cut down trees for food and create canals and dams which change the landscape.



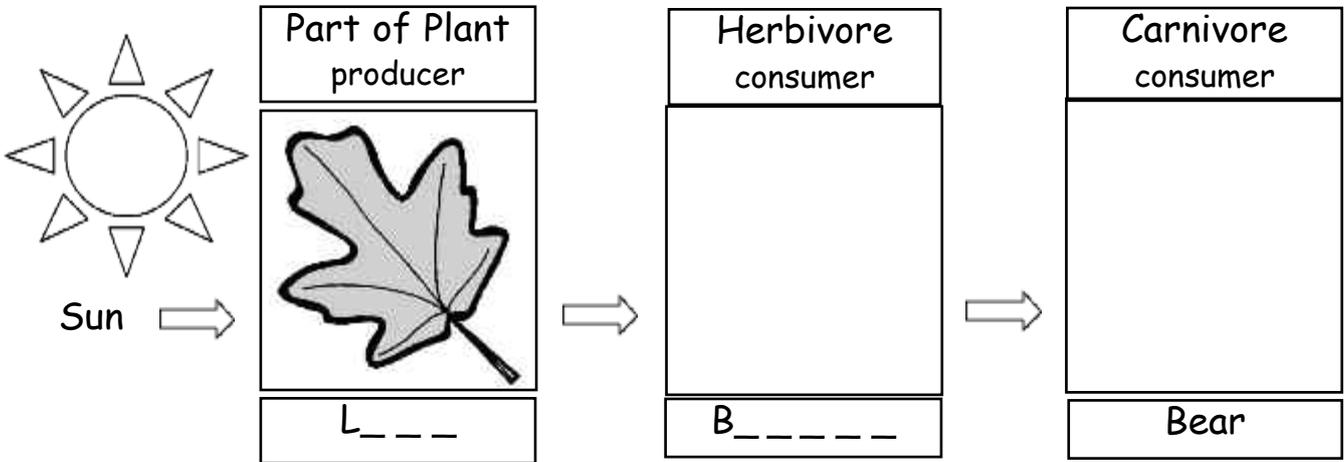
Question: A beaver's front teeth never stop growing. Why do you think this is useful?

Question: Beavers can make a loud noise by slapping their tail on the water. Why might they do this?



Food Chains and Teeth

Can you draw and fill in the gaps of this simple food chain?



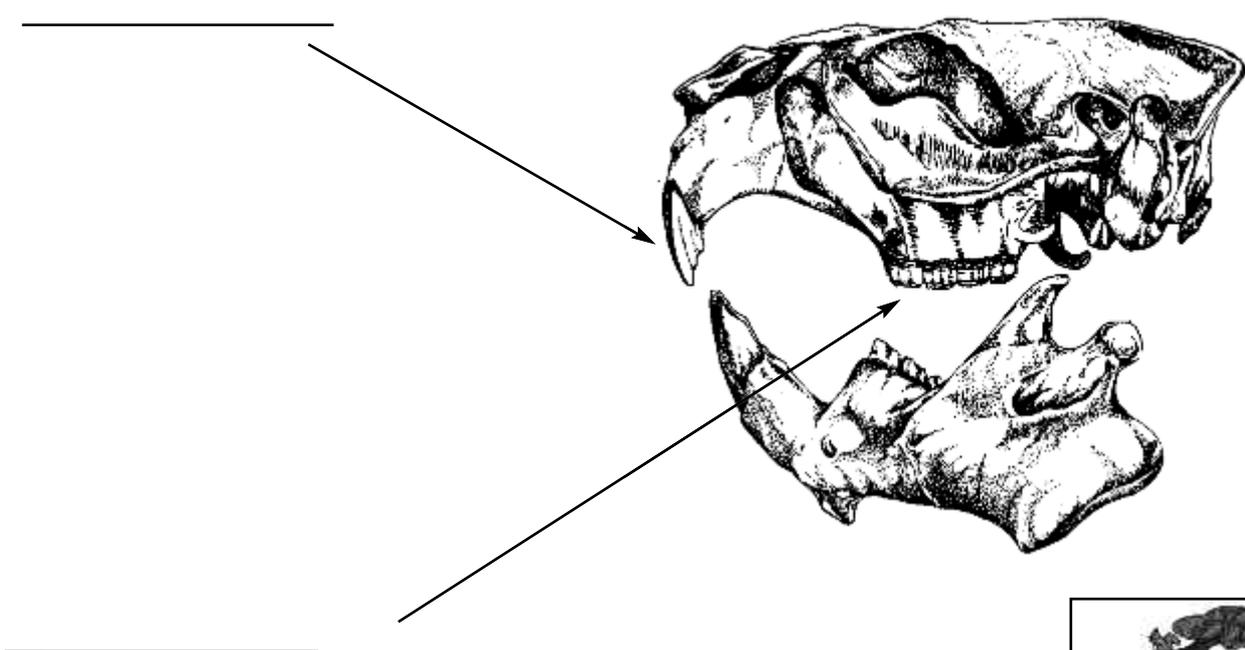
Beavers have teeth which are used mainly for eating wood and green plants.

The teeth are different shapes with:

- large incisors for cutting and gnawing.
- molars for grinding.

Beaver incisors are special because they never stop growing. Gnawing on wood wears the incisors down so they have to keep growing or they would just wear away. The incisors stay sharp by rubbing against each other to make a sharp edge for gnawing.

Can you name the different types of teeth on this beaver skull?

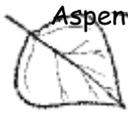


Feeding Time

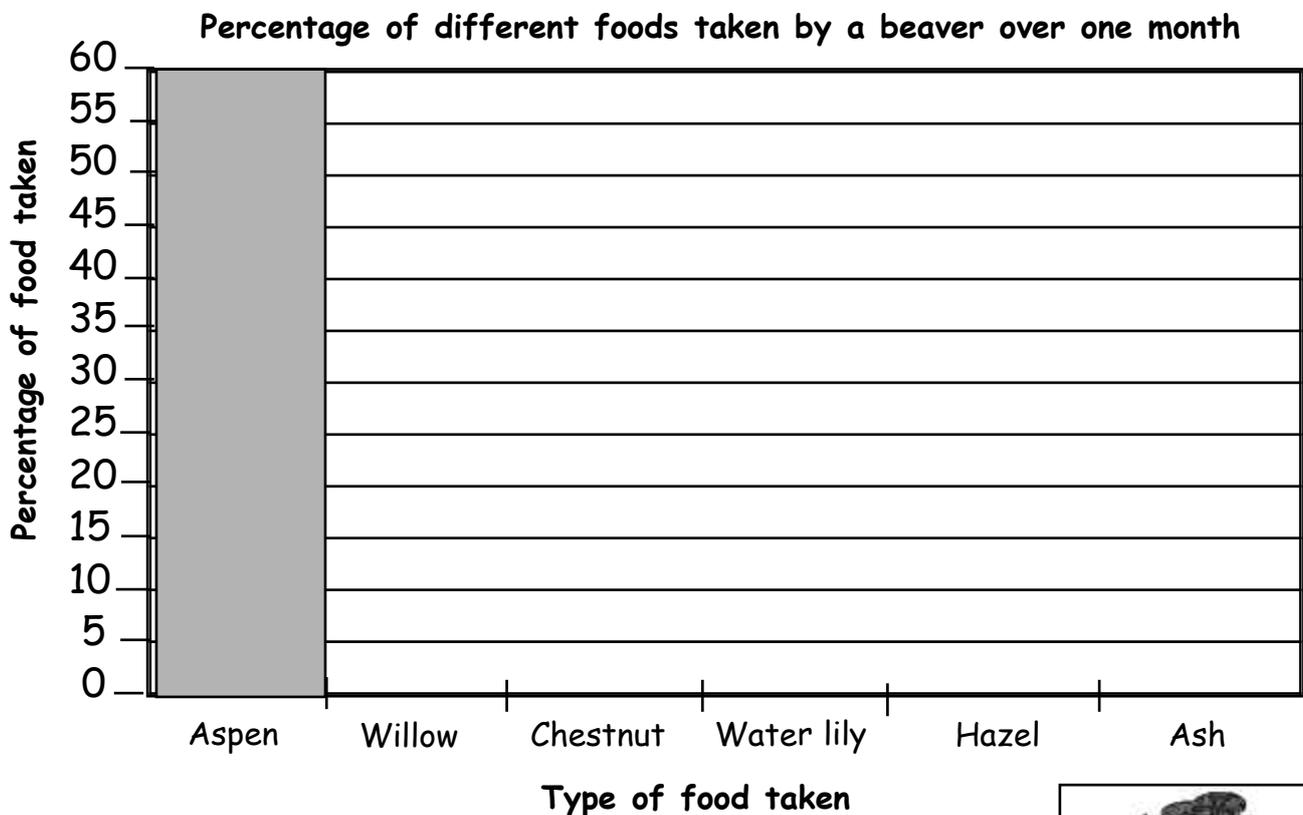
Beavers are herbivores or plant-eaters. They eat a wide range of different plants, from small green plants to trees. They will eat leaves, twigs, bark and wood. Beavers use their powerful incisors to bite off plants and gnaw through wood. Chewing through tough fibres such as wood wears teeth down very quickly so a beaver's front teeth grow throughout its life.

Plants are much harder to digest than meat so beavers actually eat their food twice. They digest it once, then they eat the runny green poo and digest it again. When they poo the second time, it looks like little balls of sawdust. In winter, plant food can be hard to find, so beavers store wood in their ponds. Even if the pond freezes, the beavers can come out of their lodge under the ice and eat the wood.

Percentage (fraction out of 100) of different types of food taken by one beaver over one month

	 Aspen	 Willow	 Chestnut	 Water lily	 Hazel	 Ash
Percentage % taken	60	15	15	5	3	2

Can you complete the bar chart below using the information from the table?
(To help you, aspen numbers have been done for you).



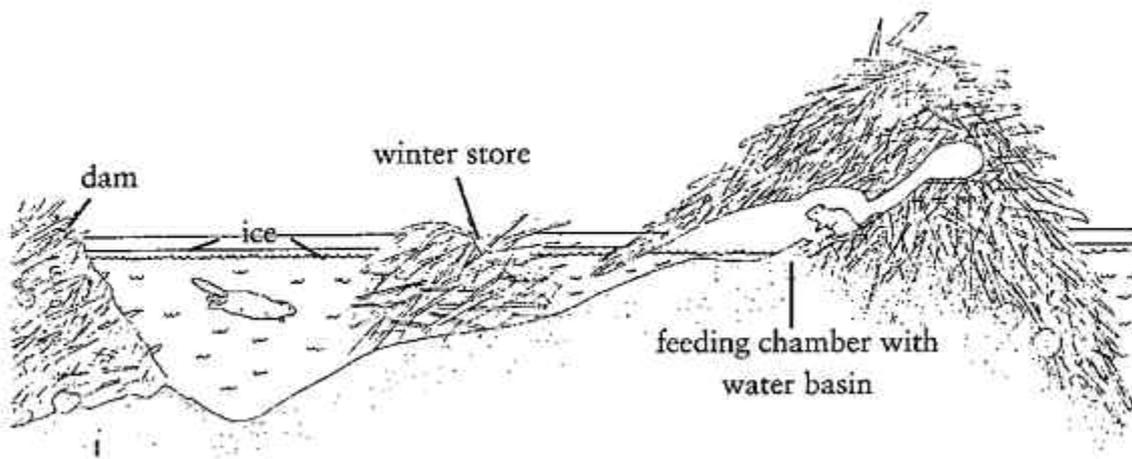
Habitats and Homes

Beavers are always found living near water. They also need trees nearby for food and to build their lodge. Beavers are brilliant engineers and so they will alter the landscape to suit them - just like humans do!

Many people think that beavers live in dams but they don't. They build dams but their home is called a lodge. Beavers like to have a constant water level around their lodge so that they can get in and out of it under the water.

This is why they build dams.

The dam also makes a large pond where the beavers can store food.



Look inside the beaver lodge in the picture. There is a feeding chamber where beavers eat, just like a dining room in a human house. They have another room for sleeping in, just like humans have a bedroom.

European beavers will often tunnel into riverbanks, rather than building dams and lodges. North American beavers, on the other hand, are famous for their dams - one in Alberta, Canada, was nearly 850m long!

Beavers are considered to be keystone species because they change their habitat and create wetlands. Wetland habitat is very important and nowadays it is quite rare. People often drain wetlands to make room for farming and houses but they are very important habitats for birds, reptiles, amphibians and endangered mammals, such as water voles and otters.

Beavers use their front feet for digging. Digging is important for making a tunnel into the lodge and also when beavers are building canals. Canals lead from feeding areas back to the water around the lodge. Beavers use them to make a quick getaway if predators are about and they also use them to transport food and wood for building.



Tracks and Signs

Like most wild animals, beavers are shy of humans which means that they are not easy to find. They are also nocturnal so they are rarely seen in the daytime. If you want to find out about beavers and where they live, you need to become a beaver detective and look for the signs that beavers leave behind.

Remember, we don't have wild beavers in this country yet. See if you can find any of the signs below when you are watching the Wildwood beavers.

Gnawed-down trees or gnawed branches

When beavers cut a tree down using their teeth, they leave a stump behind that looks like a badly sharpened pencil. Beavers don't kill the tree when they gnaw it down. The tree will sprout new shoots from the stump. Branches or twigs that have been gnawed by beavers also have pointed ends like pencils. If you get a close look, you may be able to see teeth marks on the wood.



Tracks

Beavers may leave tracks in the mud by the edges of rivers, lakes or streams. The tracks from their front and back paws look different because their back feet are webbed but their front feet aren't.



Beaver poo

This looks a lot like little balls of sawdust because of all the wood the beavers eat. Beavers normally go to the toilet in the water, so you won't see much poo on the banks beside their pond.



Can you see any signs of beavers in our beaver enclosure? Write down or draw a picture of any signs you see.



Beavers and People

Hundreds of years ago beavers lived in Britain but humans made the beaver extinct here. This means that there haven't been any wild beavers in this country for 400 years. Of course, there are still beavers living in the wild in other countries, so they are not extinct everywhere and even in Britain you can still see beavers in zoos.

As people farmed more land and built towns, cities and roads, forests were cut down and large areas of beaver habitat were lost. The last British beaver was killed about four hundred years ago. Humans hunted beavers for their fur, which they made into coats and hats. People used to eat beavers as well; beaver tail soup was once a very popular dish.

The striped areas on the map below are where European beavers can be found now. They would once have been found in almost every country that you can see on this map.



Can you find Great Britain on the map above and colour it in?

Making a comeback

Beavers have been reintroduced by humans into many of the countries where they used to live. Beavers will soon be living in Britain again. They are going to be brought back to Scotland in 2009. There are also plans to reintroduce beavers to England and Wales soon.



Question: Would you like it if beavers lived near you in England? Why?



What do you think?

Some people believe that beavers should be **reintroduced** to parts of Britain and others disagree. Read the arguments below and see if you can work out which are arguments **for (want it to happen)** and which are **against (don't want it to happen)** the reintroduction of beavers in this country.

1 How can we expect other countries to save their endangered species if we won't put back our own extinct animals?

2 Beavers may damage trees in orchards or trees that people want for timber.



3 Nowadays, many houses and other buildings are built on floodplains so when rivers overflow the houses get flooded. Beavers can help to prevent flooding by creating wetlands, slowing the speed of rivers etc.

4 People pay to go on wildlife watching holidays. Beavers would attract tourists to watch them which would bring in money and jobs.



5 Beavers used to be here - as people are the reason they aren't here any more (because they were hunted), people have a duty to put them back again.

6 Beavers change the landscape dramatically and might interfere with spawning grounds for fish such as salmon.

See if you can sort the arguments into **for** and **against** by writing the numbers of the arguments in the boxes below.

FOR

AGAINST

Activity

What do you think? Have a class discussion. Some of the children could role play the following characters and put their point of view to the rest of the class.

Fisherman
Land owner
Forester

Local resident
Manager of an Ecotourism company
Conservation worker

Do you still have the same opinion you started with?

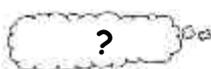
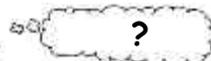


Beaver Myths and Legends

There are many tales about beavers from all over the world. Some are about European beavers, the kind that used to live in Britain. Some stories are about North American beavers, the kind that live in Canada and the USA. Both of these species of beaver are very similar.

Stories

✦ A common myth about beavers is that they eat fish. Otters spend lots of time swimming in water and they are carnivores and eat lots of fish. Some people think that because beavers also spend lots of time swimming, they must catch fish as well. In fact, beavers never eat fish. They only eat plants, which makes them herbivores.



✦ A few hundred years ago, Catholic people would not eat meat on certain days, particularly Fridays and during Lent. Fish didn't count as meat so they were allowed to eat it. So the Catholic church declared that beavers' tails were fish and that people were allowed to eat them on fast days. Only the tail counted as fish so they weren't allowed to eat any other parts of the beaver!

✦ Beavers produce an oily liquid called castoreum. In medieval times, people believed that it could cure just about anything! Castoreum is similar to aspirin, so sometimes it probably did make people feel better but it certainly couldn't cure all the diseases that they said it could! People often hunted and killed beavers just to get the castoreum.

✦ According to several Native American tribes, a beaver created land by dredging earth up from the bottom of the sea. In some of these stories, the beaver was helped by an otter.

✦ Early European explorers in North America were so impressed by the size of the beaver dams that they saw, they brought back stories of beavers as being almost as intelligent and civilised as humans. They said that the beavers built using cement, using their tails as trowels. In medieval times people also thought that beavers moved large branches and logs by lying on their backs with the wood on top of them and shuffling along the ground. Beavers never do this. Instead, they build canals and float heavy pieces of wood along in the water.



✦ American folklore tells that beavers build large lodges before cold winters and small ones before mild winters.



Beaver Quiz

1. Name one adaptation that helps a beaver to be an engineer.

2. What is a beaver's home called?

3. What is a baby beaver called?

4. Where could you go to see beavers nowadays?

5. Why do beavers build dams?



The Wildwood Beavers

A Pair of Beavers

We have two beavers living in the beaver enclosure at Wildwood. They came here from Bavaria in Germany. They are a male and female pair and they are both young beavers. They have not had any babies yet. Beaver babies are usually born in late spring or early summer.

Beavers are nocturnal but sometimes they wake up late in the afternoon and start swimming about. If our beavers are not out swimming in their pond, try looking through the windows into the lodge and see if you can spot them curled up asleep.

Beavers slap their tails on the water to warn other beavers of danger, such as a predator that might eat them. If young beavers or kits tail-slap, no one pays much attention. If the adult male (usually the father) slaps his tail, everyone swims over to see what's happening. But if the adult female (usually the mother) slaps her tail, everyone dives underwater or vanishes into the lodge as fast as they can. Watch our beavers. What happens if either of them slaps their tails?

Beavers at Ham Fen

Ham Fen is a nature reserve near Sandwich, owned by Kent Wildlife Trust. Wildwood has been helping Kent Wildlife Trust study the effect that beavers have on their habitat. We bring beavers to Wildwood from Germany, keep them here until they are out of quarantine and then they move to Ham Fen. They live on the nature reserve but because there are fences all around it, the beavers cannot escape and wander off into the countryside. The Ham Fen beavers do not count as wild British beavers because they are kept on the nature reserve and not allowed to leave.

Ham Fen is a very special habitat; it is the last remaining fenland in Kent. It has dried out because of farming and the beavers are there to turn it back into wetland. People are studying how they do this.



Have you seen any of our beavers

Swimming?

Sleeping?

Eating?

Splashing?

Choose your favourite Wildwood beaver and use the box to draw a picture of it.



Beaver Life Cycle

Beavers live together in family groups. Young beavers are called kits. Kits quickly learn all the skills that they need to survive from their parents but they may stay with them until they are several years old.

1. Beaver kits are born inside the lodge in late spring or early summer.



2. The kits drink milk from their mother at first but they may start eating other food when they are only 2 weeks old. Kits can swim at four days old and can dive by the time they are twelve days old.



5. Adult beaver. Kits stay with their parents for 1-2 years, even though they are fully grown before this age.



4. At six months old, the young beavers are capable of building their own lodge.



3. Young beavers will start carrying sticks around when they are two weeks old. By the time they are seven weeks old they have all the building skills of the adults but they don't always put things in the right place.

when they are two weeks old. By the time they are seven weeks old they have all the building skills of the adults but they don't always put things in the right place.

Question: Why might it be a good thing for young beavers to stay with their parents for a few years?



Beaver Word Search

Can you find all the words to do with beavers in the grid below?

There are 20, running forwards, backwards, up, down, across and diagonally. Some of the letters are used in more than one word.

To help you, here are some clues for the words you are looking for: D__ - what a beaver builds, L_____ - a beaver's home, G___ - what beavers do with their teeth, I_____ - front teeth, H_____ - an animal that eats plants, W_____, beavers always live near this, M_____ - the kind of animal a beaver is, K__ - a baby beaver, S_____ - beavers do this in the water, S_____ - the sound a beaver makes with its tail, F__ - people hunted beavers for this, L_____, B___ and W___ - things beavers like to eat, D___ - when a beaver goes underwater, M___ - what a baby beaver drinks, T___ - a beaver can slap this on the water, P___ - a beaver can carry wood in these, T___ - something a beaver would cut down, E_____ - when an animal is gone forever.

E	R	O	V	I	B	R	E	H	K
D	I	V	E	N	D	U	X	I	K
E	E	R	T	C	A	F	T	L	L
L	R	G	N	I	M	M	I	W	S
E	E	B	K	S	A	M	N	A	P
A	T	A	W	O	M	D	C	N	L
V	A	R	O	R	M	A	T	G	A
E	W	K	O	S	A	P	A	W	S
S	E	G	D	O	L	I	A	T	H



How Beaver Got His Tail

(an Ojibwa legend in the oral tradition)

Many moons ago there was a beaver who loved to brag about his tail. One day while taking a walk, Beaver stopped to talk to a bird. Beaver said to the bird, "Don't you love my fluffy tail?"

"Why, yes I do little beaver," replied the bird.

"Don't you wish your feathers were as fluffy as my tail? Don't you wish your feathers were as strong as my tail? Don't you wish your feathers were just as beautiful as my tail?" Beaver asked.

"Why do you think so much of your tail, little beaver?" asked the bird. This insulted Beaver and he walked away.

After walking for a while, he stopped for a drink by the river and saw a muskrat. He walked to the muskrat and said, "Hello little muskrat. What do you think about my tail?"

"Well, it is very beautiful and big and fluffy," answered the muskrat. "Is it also a strong tail?"

"Why, yes it is," Beaver answered. "Do you wish you had a tail like mine?"

"I didn't say I wanted a tail like yours. I just asked if it was strong," the muskrat replied with a disgusted voice.

Beaver quickly turned and began walking back to his dam. He was angry because he felt that the animals were being rude to him. He was very upset and decided to take out his frustration by cutting down trees.

After cutting down a couple of trees, he came to a very large one. He knew that it would be a great challenge for him. So he went to it. But as he was cutting, he kept thinking about his tail and didn't notice that he was cutting at a bad angle. Before he knew what was happening, the tree began to fall toward him. He jumped to get out of the way, but he didn't jump fast enough, and the huge tree fell on his beautiful tail!

He tugged and pulled and finally dug away the earth to free himself. When he finally pulled his tail from under the tree, he was horrified to see that it was flat.

Beaver was very sad and started to cry. As he was crying he heard a voice. It was the Creator.

"Why are you crying?" asked the Creator.



"A tree has crushed my beautiful tail," Beaver cried. "Now no one will like me."

The Creator told him that a beaver is not liked for his tail but for his kindness and wisdom. He also told him how to use his flat tail.

"Now your tail will help you swim rapidly," the Creator said. "And when you want to signal a message to a friend, all you have to do is slap your tail on the water."

Hearing this made Beaver happy again. When the animals saw his flattened tail they were shocked! But Beaver said, "It's better this way."

From that day on, Beaver never bragged about his tail, and all the animals liked him.

That's how Beaver got his flat tail.



Use the space to draw an illustration for the story.



Make a Gnawing Beaver!

To make your beaver, you will need:

- ♦ crayons or coloured pencils
- ♦ a pair of scissors
- ♦ 2 brass fasteners

1. Colour in the beaver and the tree.

2. Cut out all the pieces.

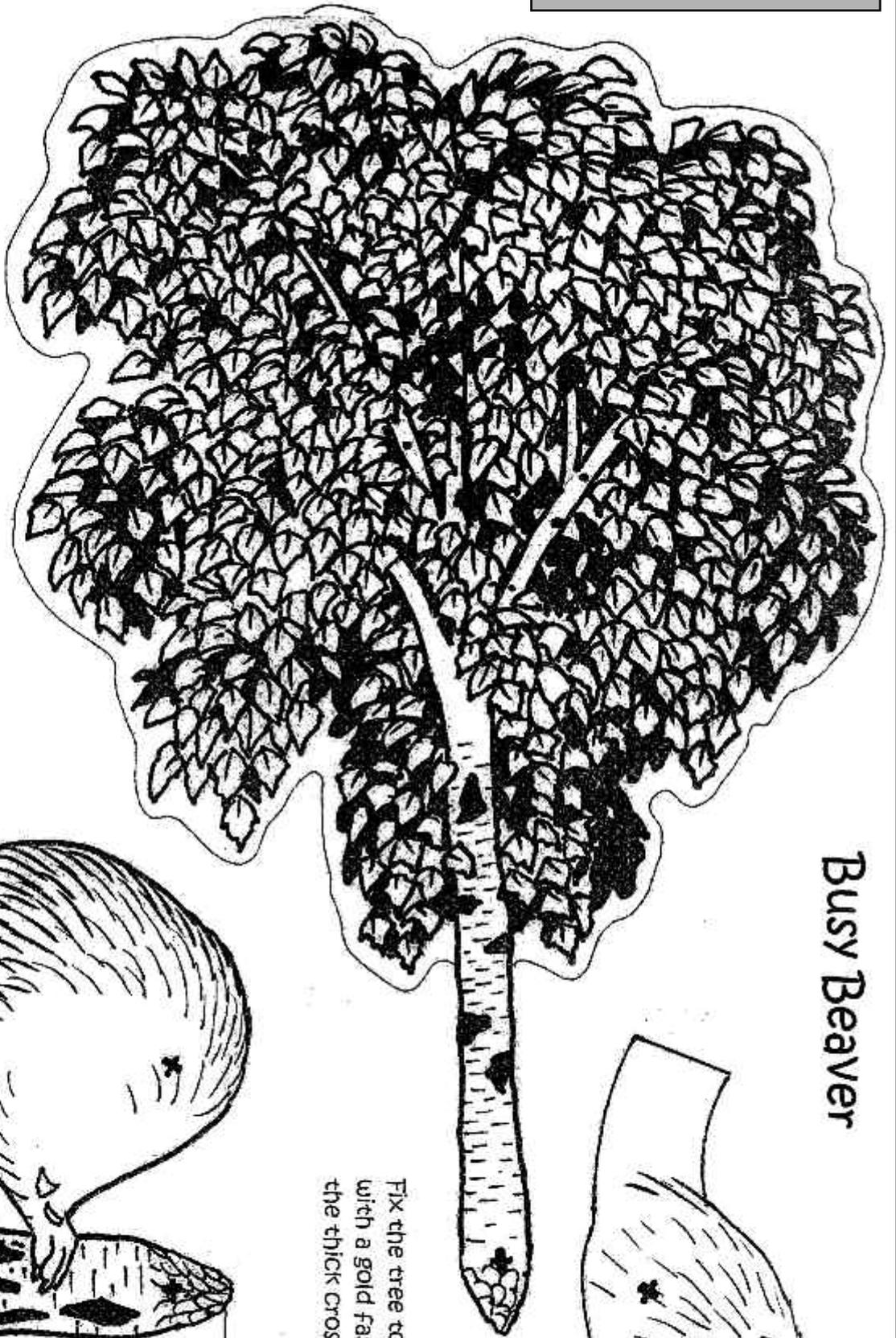
3. Line up the crosses on the beaver's head and body. Fasten through both layers.

4. Line up the crosses on the tree trunk and tree stump. Fasten through both layers.

5. Use the tab to move the beaver's head so that he gnaws down the tree!



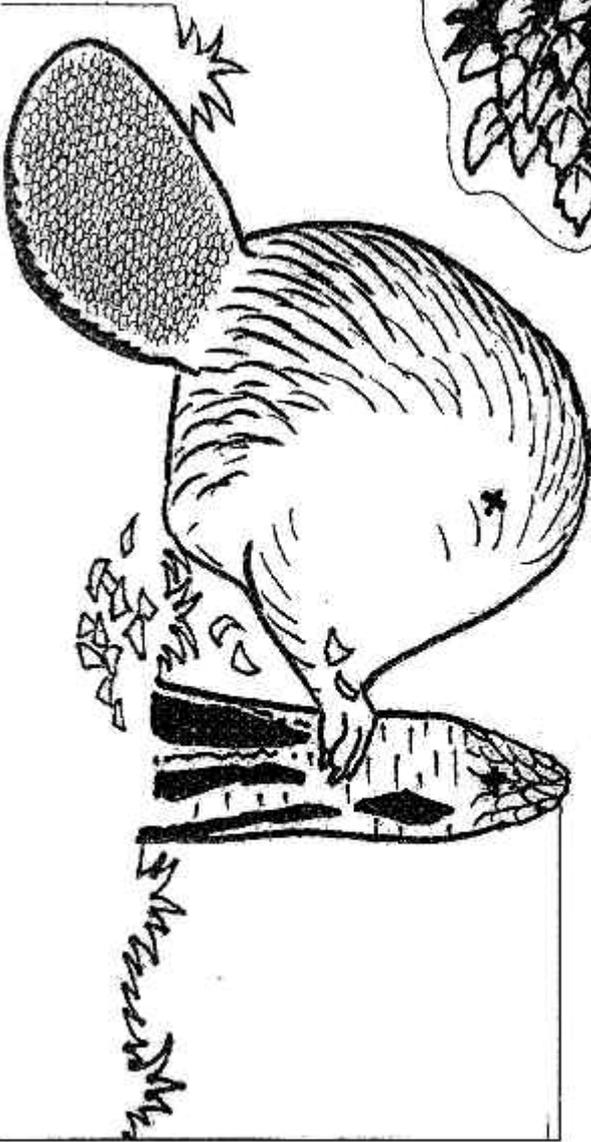
Busy Beaver



Cut out tree, beaver head with tab and beaver body on background.

Fasten head onto body with gold fastener through the thick black cross. The head goes behind the body. Use the tab to make the beaver gnaw.

Fix the tree to the stump with a gold fastener through the thick cross on each.



Make a Beaver Mask!

To make your mask, you will need:

- ♦ crayons or coloured pencils
- ♦ a pair of scissors
- ♦ sellotape or glue
- ♦ some thin elastic

1. Cut out the beaver face and beaver nose. Make sure you don't cut off the tabs!

2. Colour in the face and the nose. Ask a grown-up to help you cut out the eye holes.

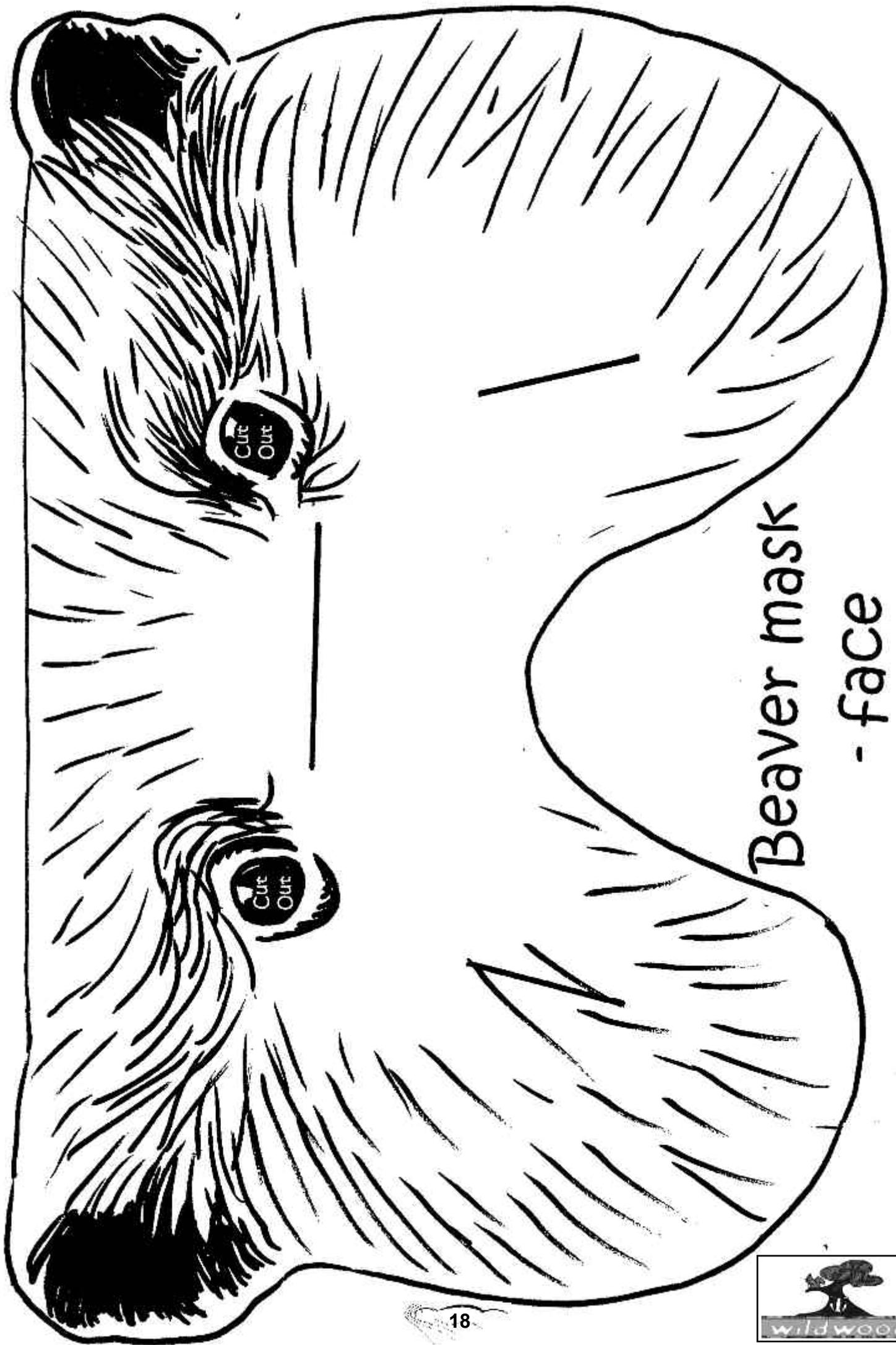
3. Cut the 3 slits in the face and push the tabs through them. Fasten with sellotape or glue.

4. Measure the correct length of elastic to fit around your head.

5. Make two small holes in either side of the mask. Thread the elastic through and tie a knot.

6. Your mask is now ready to wear!

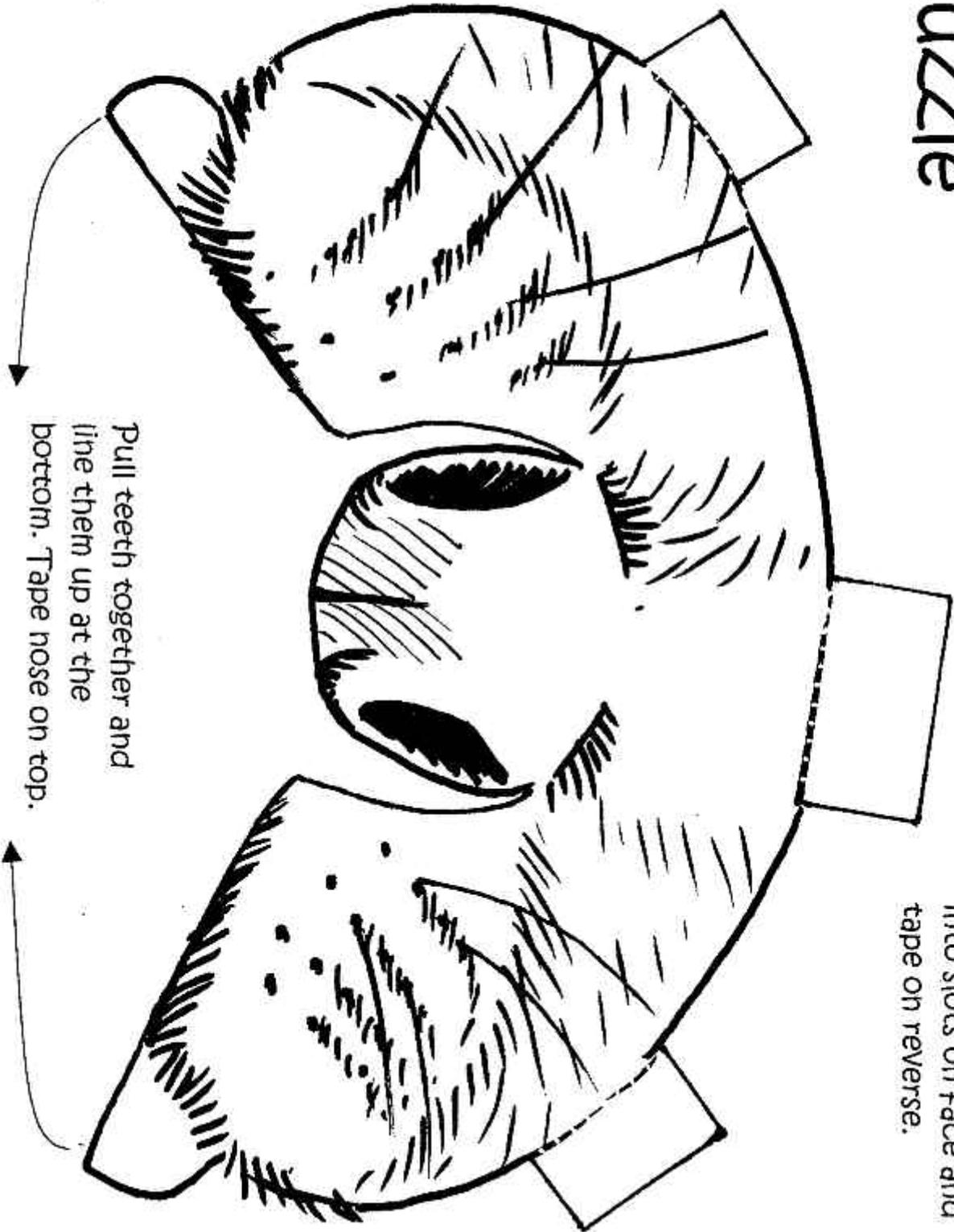




Beaver mask
- face

Beaver mask

- muzzle



Pull teeth together and
line them up at the
bottom. Tape nose on top.

Cut round tabs. Insert
into slots on face and
tape on reverse.



Word List

- **carnivore** - an animal which eats meat.
- **consumer** - an animal which eats plants or other animals. Consumers are sometimes called carnivores or omnivores.
- **extinct** - no longer exists.
- **fenland** - wetland habitat with lots of tall grasses growing in shallow water.
- **guard hairs** - the tough wiry hairs that form the outer layer of an animal's fur.
- **habitat** - a place where an animal lives.
- **herbivore** - an animal which eats plants.
- **incisor** - rectangular-shaped teeth at the front of the mouth usually used for cutting.
- **keystone species** - species which change their habitat and make it suitable for lots of other species of plants and animals. If they become extinct the habitat becomes unsuitable for the other species and they may become extinct as well.
- **molar** - big square-shaped teeth at the back of the mouth used for chewing and grinding.
- **nocturnal** - animals which are active at night and sleep during the day.
- **omnivore** - an animal which eats both meat and plants.
- **opposable** - able to bend in the opposite direction to the other fingers for gripping things.
- **predator** - an animal which hunts and eats other animals.
- **prey** - an animal which gets hunted and eaten by other animals.
- **producer** - a green plant which can take energy from the sun and make food using the process of photosynthesis.
- **quarantine** - keeping an animal away from other animals for several months to make sure it doesn't pass on any diseases.
- **reintroduce** - to bring back an animal which used to be here.
- **underfur** - a layer of fur underneath the guard hairs, often soft and fluffy so that it keeps the animal warm.

