

THEME 1: HABITATS

TEACHER'S NOTES

Introduction

This theme is based on a story which traces the journey down river of two children who live on a barge. During their journey they encounter many river creatures whose lives are endangered because of pollution and habitat destruction. The children feel compelled to act on behalf of their new found friends and set about enlightening the townspeople about the harmful consequences of their actions.

Each episode of the story is explored through activities and worksheets which introduce concepts such as food chains, habitat, interdependence and pollution, while highlighting the dangers of irresponsible action towards the environment and motivating the pupils to become more environmentally aware and ecologically concerned.

It is important that frequent, well-planned walks to the local river be organized in conjunction with this theme, so that key issues and concepts can be raised in a meaningful way prior to their exploration in the classroom.



THE RIVER

Activity 1

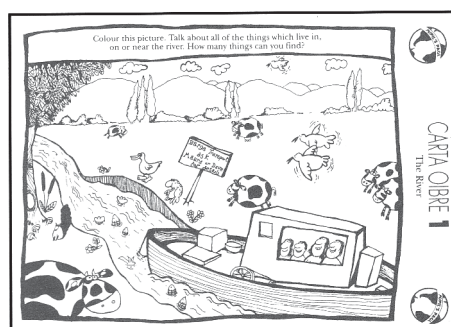
Purpose: To introduce the children to the setting and the main characters of the story. To foster an understanding that all life forms depend on four essential elements: air, water, soil and sun.

Procedure: Mount Poster 1 on the blackboard or wall where it is visible to all the children. The pictures of river creatures on Poster 2 should be cut out and displayed on the barge poster at appropriate stages during the story.

Brainstorm with the children all the words, ideas and images which are suggested to them by the poster. Introduce them to the river-children and their parents. Explain that they are going to join in the adventures of the children who live on the barge.

Read Stage 1 of the story provided on Teacher's Page Activity 1 to the children. Revise the story through questioning, highlighting the importance of the four essential elements, air, water, soil and sun in the life cycle of river plants.

Provide the children with Worksheet 1, and invite them to make the barge look bright and colourful. Revise the reasons why so many plants grow in or near the water. Distribute Worksheet 1(a), in which the children are required to list soil, air, water and sunlight as essential elements in plant growth.



RIVER LIFE

Activity 2

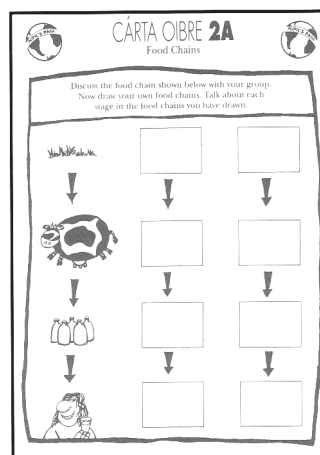
Purpose: To introduce the concept of a food chain. To emphasise the importance of plants as initial links in the food chain.

Procedure: Read Stage 2 of the story provided on Teacher's Page Activity 2. Discuss how creatures such as the otter, swan or fish are especially adapted to river life.

Explore the concept of a food chain. Talk about the food chains of which we are part. Discuss the food chain provided on Worksheet 2, and encourage the children to read and complete the sentences.

Distribute copies of Worksheet 2(a). ask the children to discuss the stages in the food chain provided. Encourage them to draw food chains of

their own in the boxes and to describe each stage of the process.





IN CHARGE OF THE BARGE

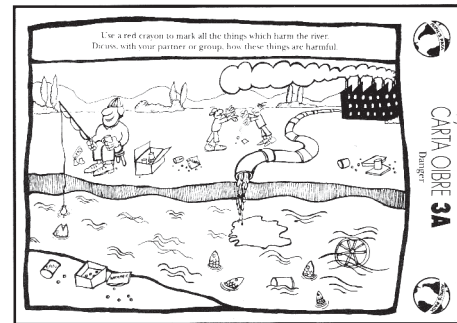
Activity 3

Purpose: To highlight the dangers of pollution to the swan habitat.

Procedure: Read Stage 3 of the story on Teacher's Page Activity 3. Question the children to ensure that they have grasped the key elements of the story.

Invite them to discuss the picture on Worksheet 3. Encourage them to imagine the conversation which occurred between the swans and the children. Small groups of children can role play this scene.

Worksheet 3(a) challenges the children to circle the items in the picture which endanger swans and other creatures. Discuss each of these pollutants and how they affect river life.



AN MADRA UISCE - THE OTTER

Activity 4

Purpose: To illustrate how river pollution endangers the otter habitat.

Procedure: The story on Teacher's Page Activity 4 describes some of the plants which can be found in the river and along the river bank. It also deals with the plight of the otter family in the polluted river. Read this section of the story highlighting the reasons why the otter family is endangered.

Revise the otter's food chain, inviting the children to draw the various links. Discuss what might happen if some links in the chain were broken.

Initiate a discussion on the special features which make the otter well adapted to river life. Encourage the children to draw the otter and to label those features.



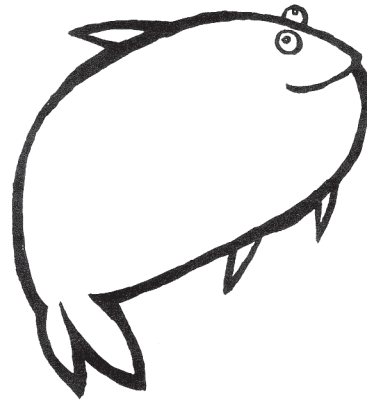


AN BRADAN: A FISHY STORY

Activity 5

Purpose: To introduce the life-cycle of the salmon. To highlight the dangers of habitat destruction to which it is exposed.

Procedure: Read and discuss the story on Teachers' Page Activity 5. Pay special attention to the journey which the salmon makes to the sea, discussing the dangers which it encounters along the way. On the blackboard, make an outline sketch of the salmon as shown in the diagram. In the sketch, write words which relate to the salmon and its lifecycle. Invite individual children to match the words on the blackboard which are the same and to put these words into sentences.



THE SWALLOW TRAIL

Activity 6

Purpose: To highlight some of the dangers which threaten the swallow habitat. To introduce the concept of bird migration.

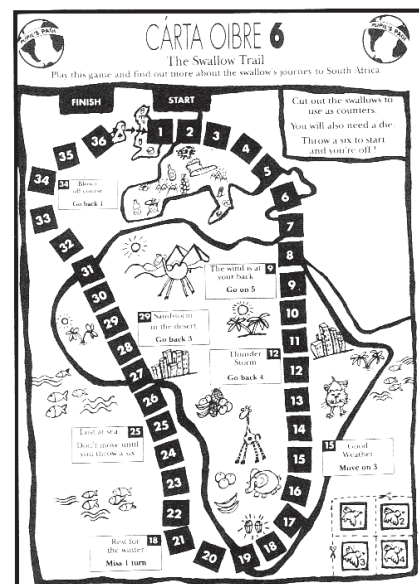
Procedure: Teacher's Page Activity 6 introduces the plight of the swallow family as it is faced with the dangers of pollution and habitat destruction. Read the story and discuss these problems with the children. How might the swallow habitat in their own area be preserved? What can be done to help?

This stage of the story concludes with a question. Encourage the children to predict how the story will end and to represent their predictions in pictorial form.

The Swallow Trail Game on Worksheet 6 can be played in groups of 3-4. This game invites the children to travel on an imaginary journey with the swallow to South Africa encountering different experiences along the way.

Having played the game, encourage individuals to tell the class about what their particular swallow

saw and encountered on its migration path.





FROG LEAP

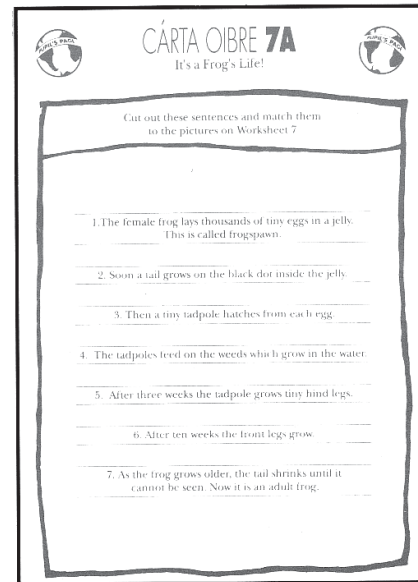
Activity 7

Purpose: To alert the children to the dangers of pollution as it affects the frog family. To outline the significant stages in the life cycle of the frog.

Procedure: Teacher's Page Activity 7 details the plight of the frogs in their polluted habitat. Question the children about why the pond by the river is no longer a safe home for these creatures.

Worksheet 7 outlines the stages in the life cycle of the frog. Ask the children to work in groups, cutting out and sequencing these pictures. The sentences in Worksheet 7(a) can then be cut out and matched to these pictures.

Note: It is important to stress to the children that the frog is one of Ireland's endangered species. Under no circumstance should frogspawn, tadpoles or frogs be removed from their natural habitat.



THE A.G.M. - THE ANIMAL GENERAL MEETING

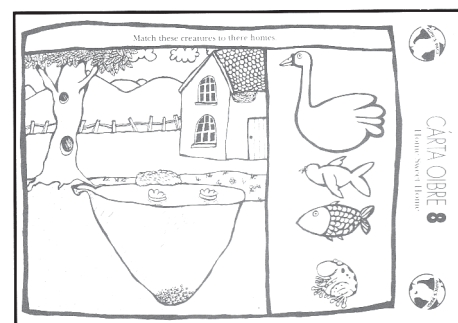
Activity 8

Purpose: To illustrate that our irresponsible treatment of the environment endangers other life forms.

Procedure: In Teacher's Page Activity 8, the creatures discover that the actions of people who live close to the river are causing problems for them. Involve the children in a discussion about how our careless actions can be harmful to life around us. Encourage them to list actions which are environmentally damaging and to suggest safer alternatives.

Divide the class into the various occupational groups in the town which were affected by the retaliatory actions of the creatures (e.g. groups of farmers, school children, shopkeepers, guest house owners etc). Ask them to discuss and then to draw the reactions of these people when they discovered what had happened to Cois na hAbhainne.

Worksheet 8 challenges the children to identify the types of homes in which different river-creatures live.





TURNING THE TIDE

Activity 9

Purpose: To highlight some of the many negative effects of pollution.

Procedure: Revise the children's predictions about how the story might end. Read the next stage of the story on Teacher's Page Activity 9. Question the children on various aspects of the story. Ask them to imagine Maura and Dave's reaction when they returned to find the barge full of creatures.

Involve the children in a role play where they act out the events of this section of the story.

Encourage them to undertake a litter survey of their environment using Gráinne and Gearóid Green Litter Survey on Worksheet 9. When the children have identified the environmental problems, initiate a discussion on the actions which they could take to make changes for the better.

	CLASSROOM	SCHOOL	HOME	LOCALITY
1. List one thing which makes this place look dirty				
2. Do you think this area is	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy
Who?				
3. How might you improve this area? List one way				
4. How safe is this environment?	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe
Who?				

LETS UNITE TO WIN THE FIGHT

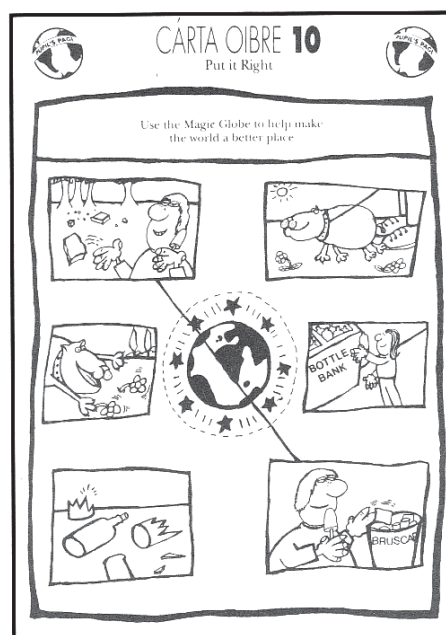
Activity 10

Purpose: To illustrate the benefits of cooperation in overcoming environmental problems. To introduce the concept of recycling.

Procedure: Read Stage 10 of the story and discuss with the children the outcome of the creatures' actions.

Discuss the question "What is Waste?" and challenge the children to think about ways in which they could re-use some of the things which they throw out everyday.

Explain that our actions can have either a positive or negative effect on the environment and that we need to take care to protect and preserve the world for all its inhabitants. Worksheet 10 prompts the children to reflect on everyday actions which are harmful to the planets and invites them to 'put things right'!



THEME 1 : HABITATS

ACTIVITY PAGES



THE RIVER BARGE

THE RIVER

Activity 1

Maura and Dave lived by the river in a small, bright cottage. One day, they decided to buy an old barge from their neighbour. It was in a pretty bad state when they bought it. It took them a full week to clean the rusty old engine, to toil it and get it running smoothly again. Once the engine was running, they spent lots of time painting and decorating the rest of the barge. When they had finished, it looked as good as new and Maura posted a big sign outside their house. The sign read:

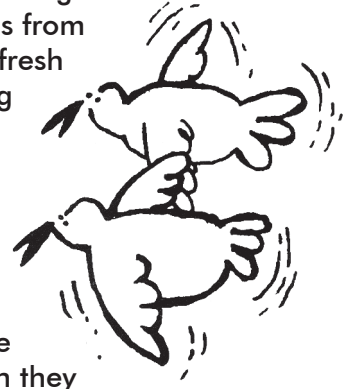
***'For creatures little or large
They'll travel safer on our barge'.***

Pretty soon, there were so many people asking Maura and Dave to bring animals and vegetables to and from the market that Maura and Dave decided to sell their cottage and live on the barge.

Maura and Dave were delighted when their twins Aidan and Aileen were born. By the time they were seven years old they were already a great help. Aidan kept all of the vegetables tidy in the hold of the barge and Aileen fed the chickens and ducks which were to be sold at the market. They loved living on the river, moving from one place to another. Aileen liked to fall asleep at night listening to the sound of the water gently lapping against the side of the boat. Aidan loved to be woken up in the morning by the songs of the

birds who flew around the barge.

The family got many things from the river. They had plenty fresh water for drinking, cooking and washing and there were lots of fish to eat. The children loved to go for a long swim after a day's work on the barge. Sometimes they liked to walk along the bank of the river, picking flowers which they used to brighten up their home.



In the evening, when all of the work was done, the children would ask their parents to tell them stories about life on the river.

"Why do so many plants grow along the riverbank and in the water?" Aidan asked his mother.

"Because the riverbank and the water provide them with all of the things they need to live", answered his mother. "Plants need soil for their roots, and water, air and sunshine to grow properly. But the plants don't just take everything from the water, they also give lots of bubbles of fresh air to the water which the fish and other creatures can breathe",

"Oh! I understand", said Aileen, "The plants need the water and the water needs the plants".

"That's right", said Dave, "Nature has a very good system for looking after itself."

RIVER LIFE

Activity 2

One evening, Aidan and Aileen went for a long walk. When they got back to the barge they spoke very excitedly about what they had seen.

"Mammy and Daddy, we saw a family of swans on the river today", said Aileen.

"And we spotted an otter", Aidan added. "He was fishing but he hurried off the minute he saw us. He moved so fast that we didn't even see where he went!"

"It's not often you get a chance to see an otter",

said Maura, "because they usually stay out of sight until nightfall".

"Where do the animals and plants of the river get their food?", asked Aileen.

"Would you believe", answered Dave "that most living things depends on green plants for food? Green plants use energy from the sun to make food for themselves and they pass this energy on to the fish and other animals which eat them".

"But I didn't see the otter eating any plants this evening", said Aidan, quite puzzled.

"And I saw a salmon and a frog the other day and neither of them were eating plants", added Aileen.



RIVER LIFE (Continued)

"Ah, yes", said their father, "but what you didn't notice were the tiny green plants in the water. If you look at the water carefully you might see some of these plants".

Maura then explained that the smaller fish feed on these tiny plants and bigger fish eat the smaller ones. So the energy from the tiny plants is passed on from the smaller fish to the bigger ones.

"It sounds like the energy is passed along a chain", said Aileen.

"That's right", said her father. "This is called a food chain and it always begins with green plants".

"That still doesn't explain how the otter gets its energy from green plants", said Aidan, still puzzled.

"Yes it does", said Aileen, "because the otter eats the salmon so the energy from the tiny green plants is passed to the salmon and then to the otter".

"That's right", said Maura, "and when the otter dies, the energy in its body returns to the soil or to the river bed and provides a base for new plants to grow".

"That's amazing", said Aidan, "that means that all of the river plants, animals and birds depend on each other for food".

"You've got it!" said Maura with a clap.

The children were fascinated by what they had learned. During the following days, they spent hours of their free time trying to work out the food chains of the river creatures. They discovered that the plants and animals which live by the river were especially suited to river life. The otter's eyes for example, are set high on its head so that it can swim under its prey and take it by surprise. Its nostrils are also high on its face so that it can lie in the water and breathe with only its nose showing. The swans' feet are webbed which means that they can swim easily, while fish have gills which help them breathe under water.

"I think that the plants and animals of the river are as happy in their river home as we are in ours", said Aidan.

"You're right", said Aileen. "It's great to be living in such a beautiful place".

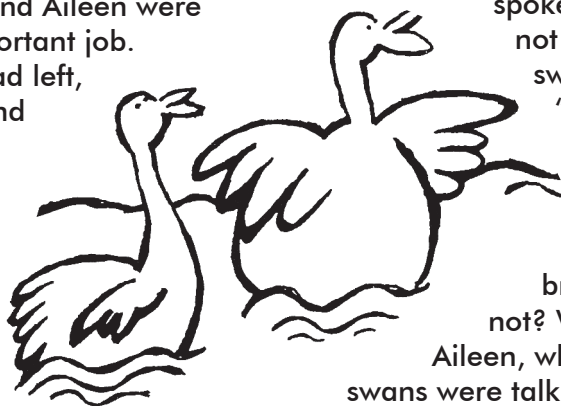
IN CHARGE OF THE BARGE

Activity 3

When Maura and Dave had to go away for a few days, they left the children in charge of the barge while they were gone. Aidan and Aileen were delighted to have such an important job.

Soon after Maura and Dave had left, the children fed the animals and tidied the vegetables. There was very little else to do so they decided to set back and enjoy their trip down river.

While the children were day-dreaming under the warm midday sun, they scarcely noticed two adult swans helping their family of six brown cygnets to get on the barge. Before they knew what was happening, the swans were making themselves comfortable in a cosy corner between some packing cases. Aidan and



Aileen stared at each other in amazement. What was going on? "Hey! Get off!" said the children. "This barge is not your home!" The swans stopped working and to the children's astonishment, they

spoke! "We know that this barge is not our home", said the female swan, who is also called a pen, "but the river is. Our families have lived on this river for hundreds of years and there has never been a problem.

But now we can no longer bring up our young here". "Why not? What is the matter?" asked

Aileen, who still couldn't believe that the swans were talking to her.

"Well", began the male swan, who is also called a cob, "until now we always got everything we needed from the river. There has always been lots of green plants to eat, and plenty of safe places along the river to build our nests. Some of our cousins even come all the way from Iceland and



IN CHARGE OF THE BARGE (Continued)

Siberia to live here for a few months of the year. But I don't think that they will ever come again". "But I don't understand what is making you so upset", said Aidan.

"You see", began the pen, "people have become very careless. Almost every day more and more rubbish is dumped in the river. Yesterday morning, we had to rescue one of our cygnets which was trapped in a plastic six-pack holder". The youngest of the cygnets came forward to show the broken feathers where the plastic ring had trapped him. "Not only that", added the pen, "but gangs of children have been destroying our nests on the riverbank. Some of the people who fish in the river have been dropping lead weights into the river

which poison the water and make us sick. At the moment, two of our cygnets are very sick from lead poisoning. But worst of all is the way people dump used oil into the river. It ruins our feathers and makes it difficult for us to fly".

"No place is safe except this barge", cried the cygnets. "Please can we stay here on your barge?" "Alright", said the children, who felt sorry for the swans. "You are welcome to stay on our barge. We will look after you and keep you safe". The swan family cheered loudly. Soon Aileen began working on the damaged wing of the youngest cygnet, while Aidan brought clean supplies of water for the rest of the family to drink. In no time at all the swans had settled into their new home.

AN MADRA UISCE: THE OTTER

Activity 4

The barge continued to float downriver, while Aidan and Aileen looked after the swans. All of a sudden, the barge got trapped in some bulrushes, reedmace and duck weed. Aileen used a long pole to ease the barge gently away from the riverbank. When she pulled the pole back in, Aidan noticed a lot of green slime at the end of it. "That must be the stuff that contains all of the tiny plants and animals that are so important at the start of so many food chains", he said.

Just as the children were beginning to enjoy the trip again, they noticed a family of otters swimming towards the barge. "That's funny", said Aidan, "I thought that otters only came out at night to feed".

"You're right", added Aileen, "I have never seen otters in the daylight before".

The children moved over to the side of the barge so that they could get a closer look. To their surprise, the otters did not swim away when they saw the children. Instead they swam right up to them! Then, right before their eyes, the children saw the otters climbing up the small wooden ladder that hung over the side of the barge. The stronger ones got onto the barge first, and then helped the

weaker ones to get on. The otters were startled when they heard the children shout:

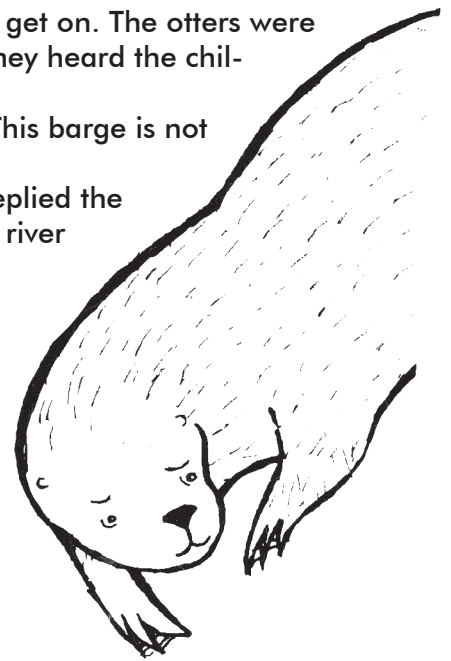
"Hey! Get off! This barge is not your home!"

"That's true", replied the otters, "but this river is. Our families have lived happily on this river for hundreds of years and we have never had any problems until now".

"What's the matter?" asked Aileen. "Why are you so upset?"

The biggest otter spoke first. "For the last few months, life on this river has been miserable for us", he said. "The river has become so polluted that we are afraid to swim in it any longer. As you can see, most of my cubs are sick because people are dumping rubbish into the water and making it unsafe for us to drink".

The eldest otter moved up to the front of the





AN MADRA UISCE: THE OTTER (Continued)

group where she could be seen better, "We don't mind people fishing in the river, because up to now there has always been enough fish for all of us", she said, "but what we don't like is when old fishing tackle is dumped on the riverbank. My youngest son got trapped in an old fishing line the other day and he damaged his tail badly and now he can no longer swim quickly through the water". Aidan and Aileen could see that the young otter's tail would need to be treated.

"We have special waterproof hair", said the youngest otter, "but the oil that is being dumped into the river is ruining our hair".

"Not only that", said another voice, "but there are big pipes of dirty water flowing into the river near our holt and this water is full of dangerous chemicals which are poisoning the fish. The fish we like to eat are dying so we often find ourselves without fish to eat". The otters looked unwell and felt sorry for themselves. "Please can we stay on your

barge?", they asked. "It's the only safe place left". "I'm not sure", said Aileen, "The Irish name for an otter is madra uisce, and I would be afraid that you might bite us just like a madra".

"No, no", said the male otter, "we are friendly creatures, and we never harm people. Please let us stay".

The children felt sorry for the otter family, but now they had so many sick creatures that they didn't know what to do. "I've got it", said Aidan. "We'll set up a Creature Care Centre where we can nurse the sick swans and otters back to good health".

"That's a great idea", replied Aileen. "We'll have them all in top form again before long".

The swans and the otters cheered with delight, and Aidan and Aileen began to prepare a place on the barge where they could nurse the sick creatures properly.

AN BRADAN: THE SALMON

Activity 5

Aileen and Aidan checked that the swans had enough clean water to drink, and that the bandage was staying on the young swan's wing. Aileen filled the bathtub with cold water, and all the otters had a dip. When they were nice and clean, Aidan bandaged the youngest otter's tail. He smiled and thanked Aileen and then he joined the rest of the family splashing around in the bathtub.

Things were just beginning to get organized when Aidan noticed a family of salmon was making its way over to the barge. As they got close to the barge, the salmon began to leap into the air.

"What are they doing?" asked Aileen.

"I think they are trying to get onto the barge", replied Aidan.

"Hey! Get off" You can't live here", said the children. "This barge is not your home".



"That's true", said the salmon, "but this river is. Our families have lived here for hundreds of years and we have never had any problems until now".

"So, what is the matter?" inquired the children.

The hen-salmon explained what was wrong:

"Our babies are born way up the river where the water is shallow.

They stay in this part of the river for about three years before they make their way down river to the sea. The young salmon travel all the way to

Greenland, without eating anything

on the way. When they reach Greenland

they eat a lot and grow very quickly. This food gives them lots of energy to swim all the way to the place where they were born.

Then the hen-salmon lays her eggs on a bed of gravel at the bottom of the river and the story begins again. The problem is that the river water is so dirty now that we cannot find enough food to eat. If we don't have enough to eat, we will not be strong enough to make the journey to faraway places".



AN BRADAN: THE SALMON (Continued)

The children were now beginning to understand why the salmon were so upset and why some of them were feeling sick.

"Please can we stay on your barge?" asked all of the salmon in one big chorus. "It's the only safe place left". The otters were happy when the children agreed to let the salmon come on board and looked forward to lots of meals of juicy salmon. Aileen warned the otters that they would have to behave themselves if they wanted to stay in the

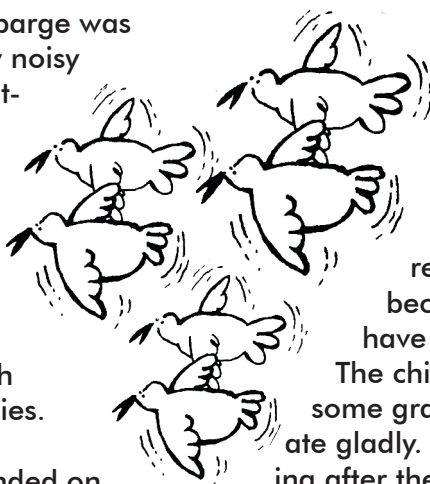
Creature Care Centre and made them promise not to attack the salmon. Aidan and Aileen found an old aquarium in the hold of the barge. They cleaned it out and put some washed gravel and plants at the bottom of it. When it had been filled up with water, the children used their fishing nets to bring the salmon on board. The salmon were delighted to find themselves in clean water full of fresh oxygen. They splashed about and played games until they got tired.

THE SWALLOW TRAIL

Activity 6

With all its new passengers, the barge was becoming very crowded and very noisy indeed. The swans were the quietest creatures on the barge but sometimes they would give the odd snort or hiss, especially if the otters came too close to their nest. The otters were a noisy bunch, especially when they barked at each other. In the evenings, the salmon leaped high above the water trying to catch flies.

Soon, a flock of swallows had landed on top of the barge, "Hey! Get off! This barge is not your home", said the children.



"That's true", said the swallows, "but this river is. Our families have lived near this river for hundreds of years and we have never had a problem. But now many of us have become sick because the air is full of smoke from cars and the chimneys of houses and factories. Please can we stay on your barge? It's the only safe place left". "You may", replied the children, "but the barge is becoming very crowded so you may not have much room".

The children found some crusts of bread and some grain in the kitchen, which the swallows ate gladly. Aidan and Aileen were now busy looking after the creatures that they hadn't a spare minute. What were their parents going to say when they returned?

FROG LEAP

Activity 7

As the barge continued along the river the swans, otters, salmon and swallows began to feel better. They felt safer than they had felt in a long time because they knew these children were their friends. As the barge moved slowly down the river, the children saw a large pipe on the riverbank. Filthy waste was pouring from it into the water. "Look at that horrible waste!" said Aileen, "It's helping to pollute the river and to make the river creatures sick".

Soon a family of frogs tried to get on board the

barge. "Hey! Get off!" said the children. "This barge is not your home".

"That's true", said the frogs, "But this river is our home. Frogs have been living here for hundreds of years and there had never been a problem until now. But now people are carelessly dumping waste on the river bank. It isn't safe to bring up our tadpoles here any longer".

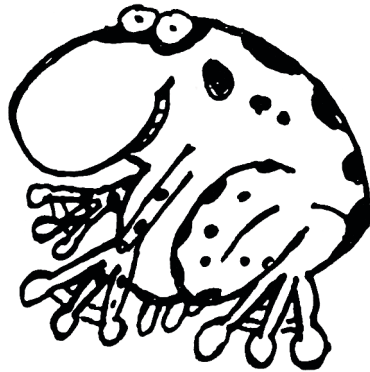
"Look at the pipe over there", said one of the frogs pointing to the pipe that Aidan and Aileen had already seen. "The filthy waste coming from the factories and farms near the town is ruining the water. It is so polluted that we are feeling sick". "This river has always given us everything we



Frog Leap (Continued)

need", said another frog. "It is our home and we don't want to leave it. Our young need clean water. Frog-eggs are laid in a kind of jelly called frog-spawn. This spawn floats on top of the water where it is kept warm by the heat of the sun. When the baby frogs or tadpoles appear, they can breathe under water. But the water is so polluted now that there is not enough fresh oxygen in it and many of our babies are dying".

Aidan and Aileen felt sorry for the frogs. "Please



let us stay on your barge?" said the frogs together. "It's the only safe place left for us". Aidan and Aileen knew they were running out of space on the barge but they could not turn the sick frogs away. The children got some basins of water from the kitchen. The frogs jumped in with delight. They found a few water snails and put these into the basins to help keep the water clean. The barge was as busy as a hospital now, and the children spent their time going from one sick family to the next.

THE A.G.M. - THE ANIMAL GENERAL MEETING

Activity 8

As the boat made its way slowly downriver, Aidan and Aileen became more busy than ever. Dressings had to be changed, animals needed to be fed and clean water had to be supplied to all of the creatures a few times every hour.

Many other river creatures wanted to get onto the barge. But the barge was not big enough to keep them and anyway, the river was their proper home, not the barge. Aidan and Aileen knew that they would have to do something to make the river a safer home for all of the creatures. The animals knew that the children were right. They couldn't just let people continue on dumping waste in the river and ruining their home. They decided to investigate what was causing the pollution and to call a meeting of all of the river animals, fish, birds and insects. The A.G.M. was arranged for that evening. The swan family volunteered to take charge of the meeting.

The swans called on the salmon to give their report first. "We have followed the pipes that

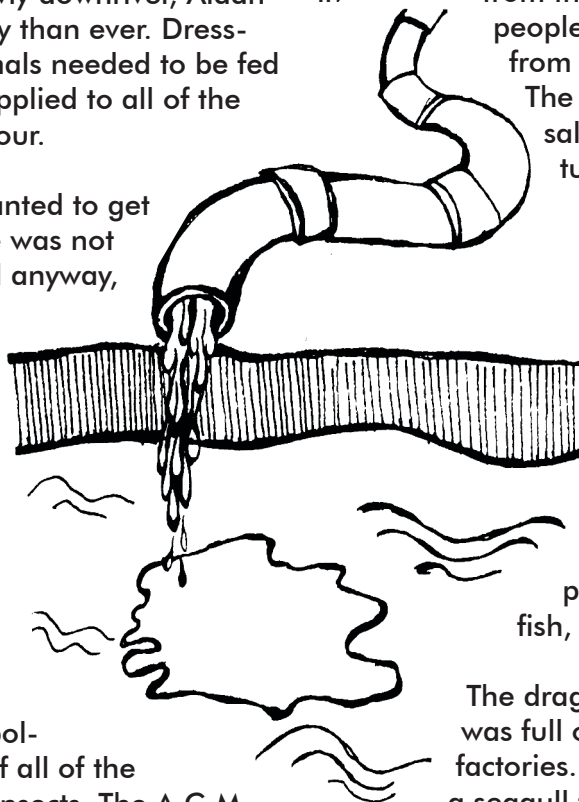
are bringing filthy waste into our river", said the salmon. "We discovered that these pipes are coming from the town, from factories and people's houses. Waste also comes from the farms around the town".

The swans made a note of the salmon's report. Then it was the turn of the swallows.

"We followed groups of children on their way home from school this afternoon", said the swallows. "We saw them throwing sweet papers and ice-cream papers on the riverbank and into the river. They didn't even bother to use the litter bins". They added that they also found that some of the farms were pouring silage waste which kills fish, into the river.

The dragonflies reported that the water was full of chemicals from the nearby factories. One of the swallows said that a seagull told him that her wings were aged by oil which leaked from a ship way out at sea.

When the creatures had reported, it was clear to all that humans were causing the river to be an





THE A.G.M. - THE ANIMAL GENERAL MEETING (Continued)

unsafe home for them. They agreed that something had to be done, but what?

"How would the people like it if we were polluting their homes?" asked one of the cygnets.

"That's it!" said the female swan.

"What's it?" asked the puzzled creatures together.

"We should give them a taste of their own medicine", said the pen excitedly. "If we can make the people see what it is like to live in a polluted place, they might decide to be more careful about where they dump their waste". The creatures nodded their heads in agreement.

The creatures decided to put their plan into action immediately. The swallows gathered up the waste which was scattered around the riverbank and dropped it into people's gardens. The ot-

ters used branches of trees to block up pipes that were pouring filthy water into the river, while the swans dropped sticks and rubbish into the factory chimneys which were polluting the air. Some of the salmon swam out to sea and brought back bags full of black oil to the swallows who carried them to the reservoir which supplied the town with drinking water. The otters worked very hard digging tunnels which made waste from the farmyards flow back into the farmers' vegetable patches.

Meanwhile, back at the barge, the Creature Care Centre was becoming more and more crowded. The creatures who were involved in the operation returned to the barge and waited to see what would happen.

TURNING THE TIDE

Activity 9

Little by little Cois na hAbhainne, the town by the river, became a very unpleasant place in which to live. As usual the people dumped their rubbish in and around the river which flowed outside the town. But next morning all the rubbish was back, piled high in their gardens. The people were really puzzled. Not only that, but the factory waste which was dumped into the river was coming back up through the pipes and flooding the factory. The factories were losing money and the owners were furious. Some of the factory owners got complaints that their factories were full of cloudy black smoke which choked the workers. It wasn't until people began to feel sick from drinking the water that they realized that something was seriously wrong. What could be happening to the beautiful town of Cois na hAbhainne? Once it was clean, but now there was litter everywhere. Anybody who drank the water or ate the vegetables became ill and the town was covered with rubbish and black smoke. It was terrible. The people decided to call a meeting in the town hall.

The hall was packed to the door on the evening of the meeting. Speaker after speaker got up to com-

plain that the town had become too dirty to live in. Soon a big row developed and everyone began to blame everyone else for the terrible mess.

The farmers blamed the factory workers. The factory workers blamed the farmers, the adults blamed the children and the children blamed the adults. The noise became louder and louder.

"Quiet! Quiet!" said a voice from the audience "fighting with one another will not solve anything. We have all created this mess and we all must solve it". It was Gráinne and Gearóid Green, the wildlife scientists from Gleann Glas. The shouting died down to a whisper as everybody was anxious to hear what they had to say.

"We have carried out our own survey of this town and of the surrounding countryside, to try and find out what is making the place so unhealthy", they began. "We have discovered a barge on the river a few miles from here which might be the answer to our problem".

"How could a barge on the river help us?" asked one of the angry factory workers.

"Two children live on the barge", continued Gráinne. "They have been looking for many sick river creatures. It seems that the creatures became sick from the polluted water of the river".

"That's not our problem", shouted a member of



TURNING THE TIDE (Continued)

the audience impatiently.

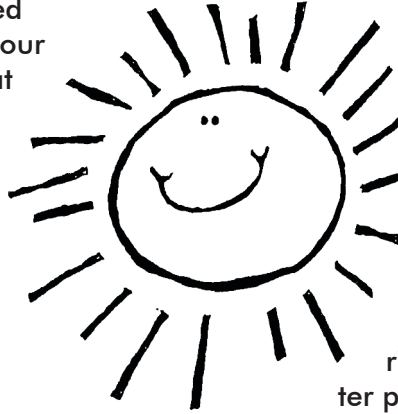
"That's where you're wrong", replied Gearóid in a serious voice. "This is our problem. The creatures decided that it was not fair that their river-home should be spoilt by waste which belongs to us and they decided to give us back our waste. The rubbish, smoke and poisonous wastes, have been making our town an unhealthy place are the same waste that we have been dumping into the river".

"We don't deserve to be treated like this", protested another speaker.

"Don't we?" replied Gearóid. "Come with us and see if you change your mind". Gráinne and Gearóid Green led the group to the river-barge.

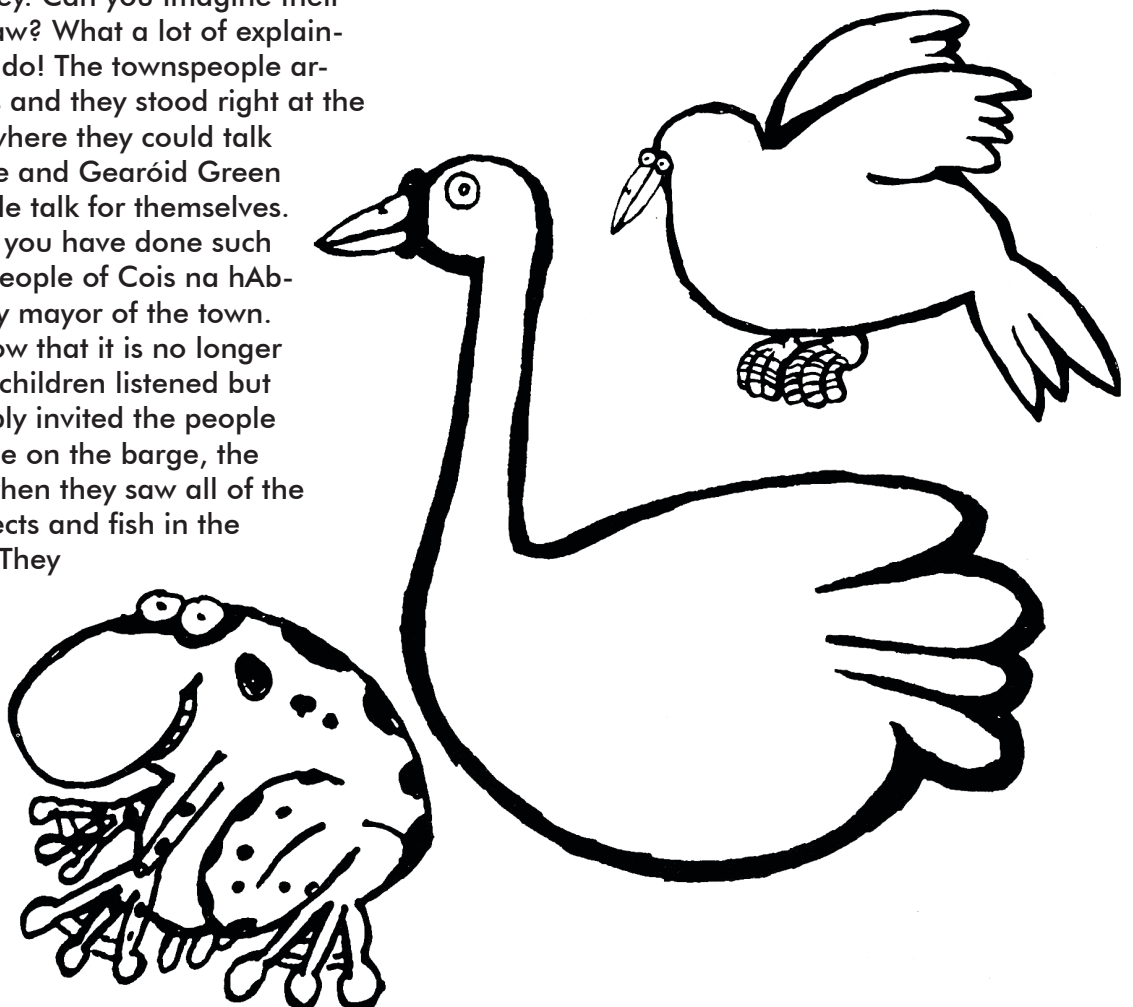
Back at the barge, Maura and Dave had just returned from their journey. Can you imagine their surprise at what they saw? What a lot of explaining the children had to do! The townspeople arrived shortly afterwards and they stood right at the edge of the riverbank where they could talk to the children. Gráinne and Gearóid Green decided to let the people talk for themselves. "We want to know why you have done such a terrible thing to the people of Cois na hAbhainne?" said the angry mayor of the town. "Our town is so dirty now that it is no longer safe to live there". The children listened but said nothing. They simply invited the people to come on board. Once on the barge, the people were amazed when they saw all of the sick animals, birds, insects and fish in the Creature Care Centre. They listened to each creature explaining how it became sick. The townspeople quickly realized that they were responsible and felt ashamed.

When they had seen and heard everything, the mayor spoke for



all of the people. "We have been very, very foolish. We have acted as though we own the river. But instead of taking care of it we have spoiled it for ourselves and all the creatures who live there. But you have shown us that the river belongs to all living things, not just humans". "We are all to blame", continued the mayor in a low voice, "but if you will forgive us, we will all work together to make the river and Cois na hAbhainne a better place for everybody. Now who is going to volunteer to help?" "We'll be there", said Gráinne and Gearóid Green. Soon all hands were raised and the people began to make plans for the big clean-up the following day.

The creatures cheered loudly. Their plan had worked!





POLLUTION: WE'RE THE SOLUTION

Activity 10

The next morning, bright and early, the clean-up began. Aidan and Aileen led the creatures from the barge to the center of the town where an army of people was ready to begin work. One group was put in charge of collecting all of the waste paper, another group collected the cans while a third group collected every glass bottle and jar that they could find. The swallows and the swans picked up pieces of paper in their beaks and put them into large sacks. They were able to gather up the papers that had blown high up into the trees. The otters managed to make little piles of cans by rolling them along the footpath with their noses. The children put all of the cans into the big green sacks which the mayor had bought. The people were glad to have the river creatures to help them,

The clean-up of the town took a long time but when at last it was finished, the people wondered what they would do with the huge amount of waste in the town. "I think we should try to recycle some of the waste we have collected", suggested a farmer. One of the swans nudged an otter with his wing and asked, "What does recycling mean?" The otter wasn't sure she asked the children. Aidan explained that recycling means using things again and again, "What a great idea!" thought the swans.

The farmers decided to build special tanks to hold all of the waste from their silage pits, so that it would not leak into the rivers. Some more people at the meeting decided to build a plant to treat the sewerage that was flowing into the river. The people who fished in the river promised not to dump their old fishing tackle in the river or use

lead weights any longer and the children said they would become environmental wardens, to make sure that the people took care of their town. When everybody had eaten lunch it was time to begin the clean-up of the river. As people walked out into the sunshine, it was like walking into a new town which was beautiful and clean. The people were very proud.



The clean-up along the river took less time because the water creatures were able to help out. The otters and the frogs were especially good because they were able to work in the water and on the river bank. The people walked along the river bank and put the rubbish into the sacks. They were careful to put it into separate sacks for recycling. In no time at all the river was sparkling brighter than ever.

Now several months have passed since the big clean-up took place. Many more animals, birds, insects and fish have come to live by the river. When families visit the river to have picnics, they are always careful not to throw litter on the grass or into the river. The river creature are wonderfully healthy now and the children no longer need to use the Creature Care Centre as a hospital for sick creatures. Instead they have decided to use the centre as a place where children can come to play with and learn about the marvelous creatures who live by the river.

People who come from other towns to visit Cois na hAbhainne are delighted with the beauty and cleanliness of the river and the town. They wonder why they haven't done the same in their home places. Some have since tried to organize a clean-up in their neighbourhood. Why don't you?

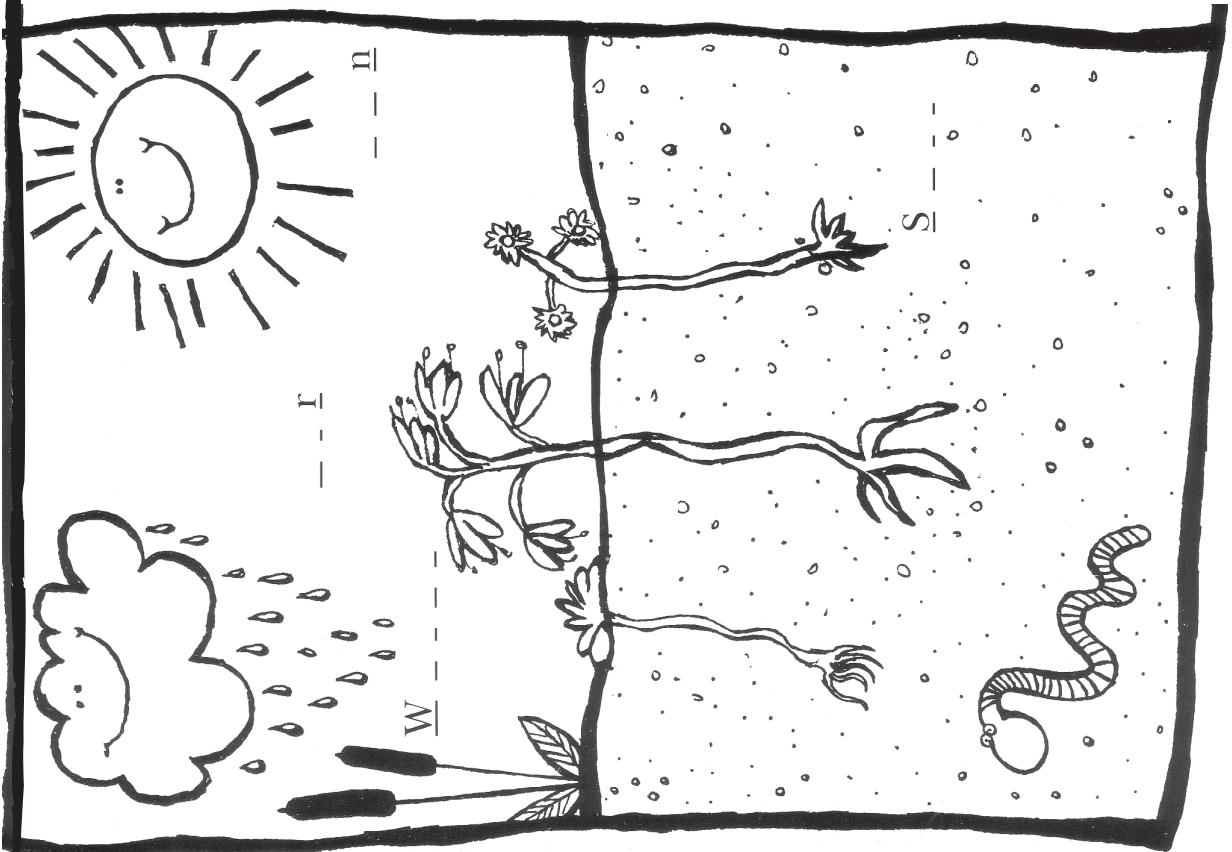


Colour this picture. Talk about all of the things which live in, on or near the river. How many things can you find?





Look at this picture.
What do the plants need to grow?



Fill in the blanks.

Plants need _____ to grow.

Plants need _____ to grow.

Plants need _____ to grow.

Plants need _____ to grow.

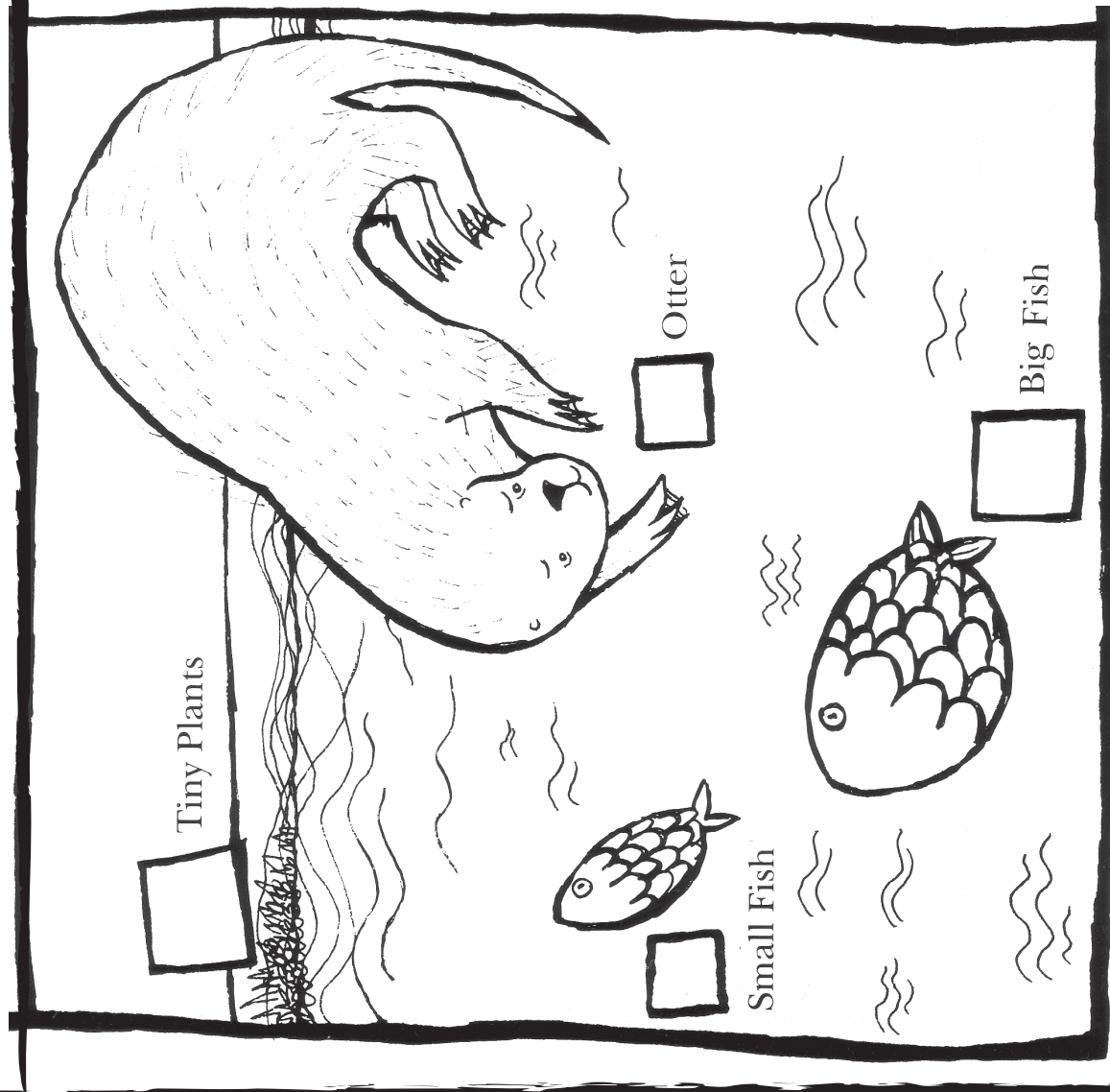
Sun Water
Soil Air



Read the story.

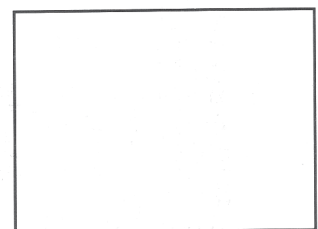
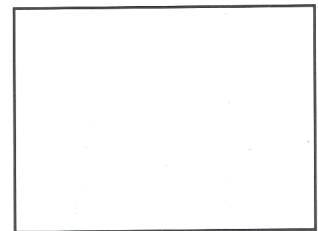
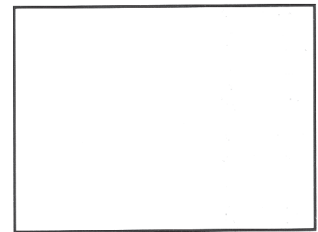
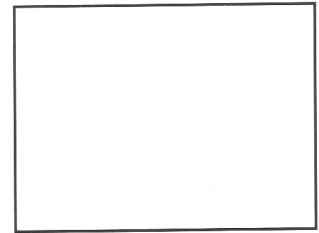
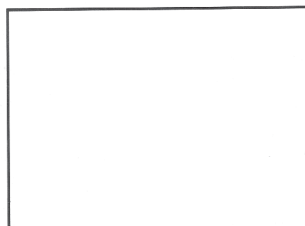
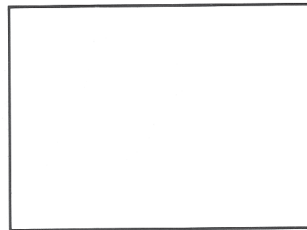
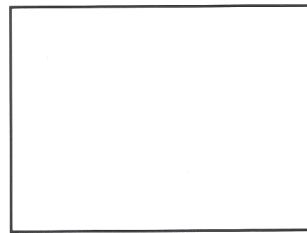
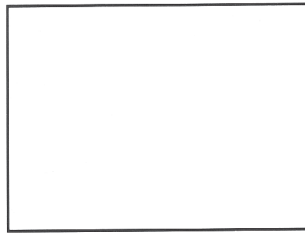
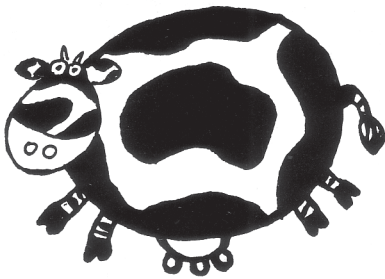
Tiny green plants grow in the water.
They use air, water, sun and soil to make food.
The small fish eat the tiny plants.
The big fish eat the small fish.
The otter eats the big fish.
Energy is passed from the t _ p _ _ to the s _ _ f _ _ to the b _ f _ _ to the o _ _ .
This is called a food chain.

Talk about what is happening in this picture.
Number each stage of the food chain.





Discuss the food chain shown below with your group.
Now draw your own food chains. Talk about each
stage in the food chains you have drawn.



CÁRTA OIBRE 3

The Swans

Pupil's Page

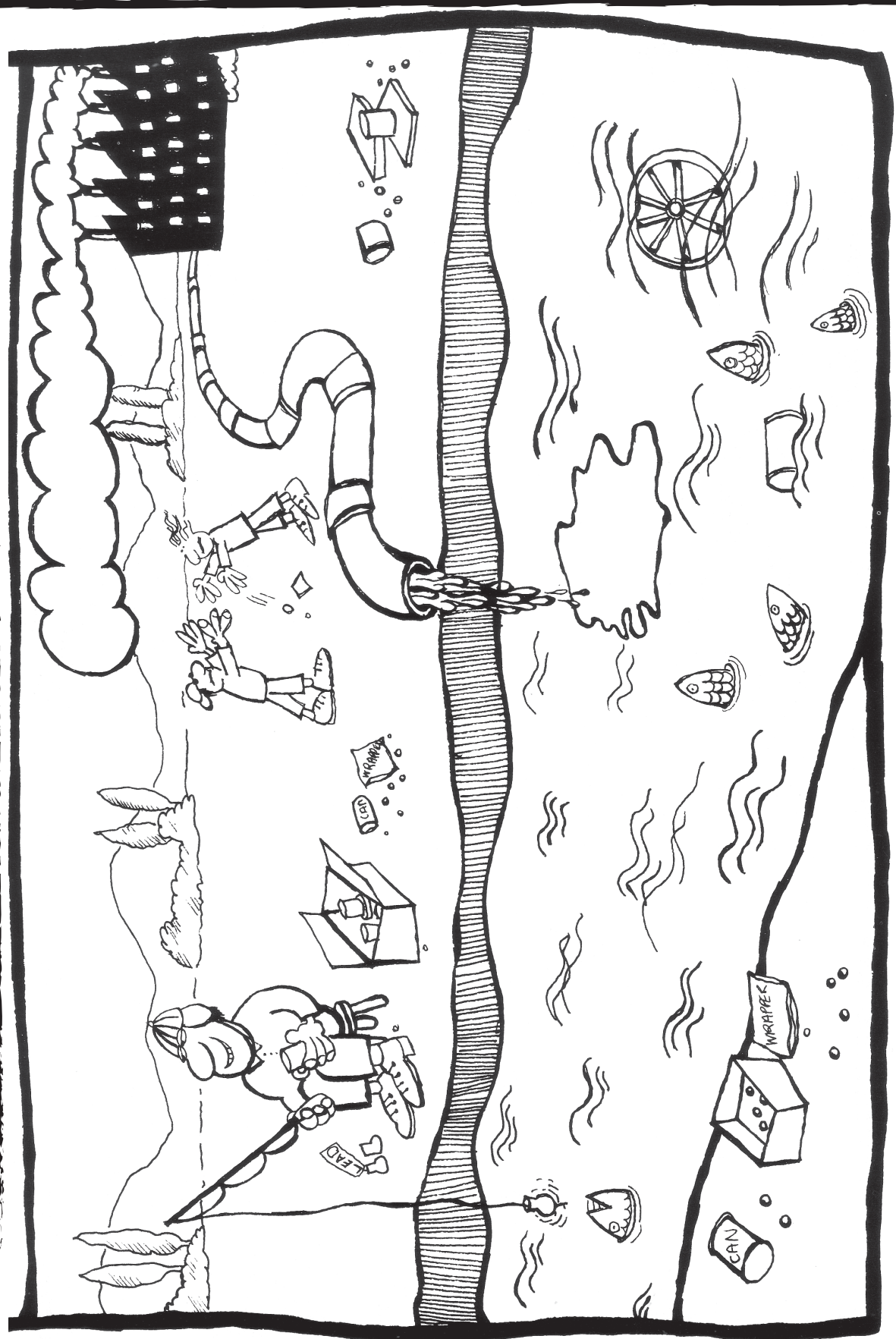


Colour in the picture. What are they saying?
Fill in the speech bubbles.





Use a red crayon to mark all the things which harm the river.
Discuss, with your partner or group, how these things are harmful.



The Swallow Trail

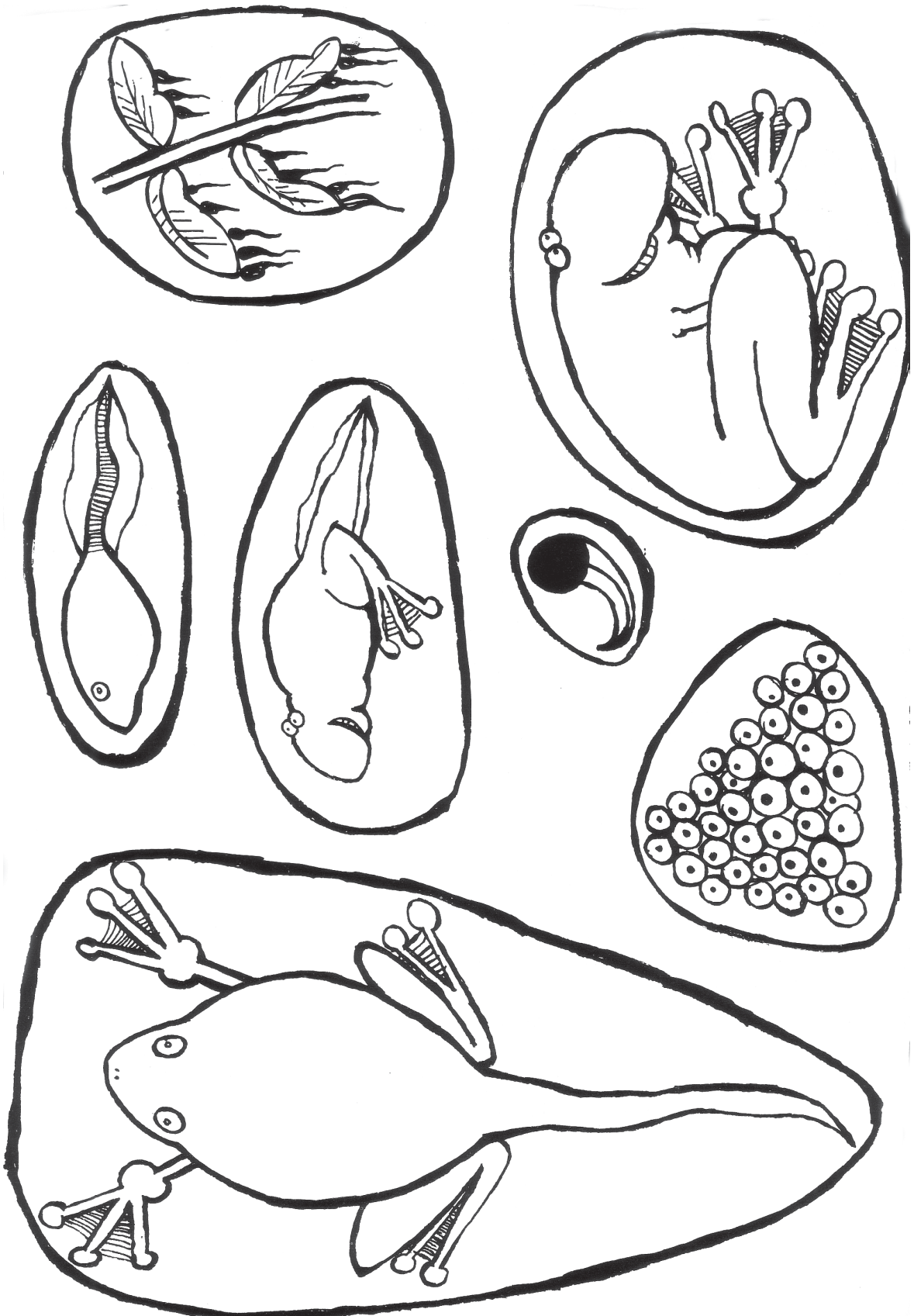


Throw a six to start
and you're off !





Cut out these pictures and arrange them in the correct order to tell the life story of the frog. Work with a partner.





Cut out these sentences and match them
to the pictures on Worksheet 7

1. The female frog lays thousands of tiny eggs in a jelly.
This is called frogspawn.

2. Soon a tail grows on the black dot inside the jelly.

3. Then a tiny tadpole hatches from each egg.

4. The tadpoles feed on the weeds which
grow in the water.

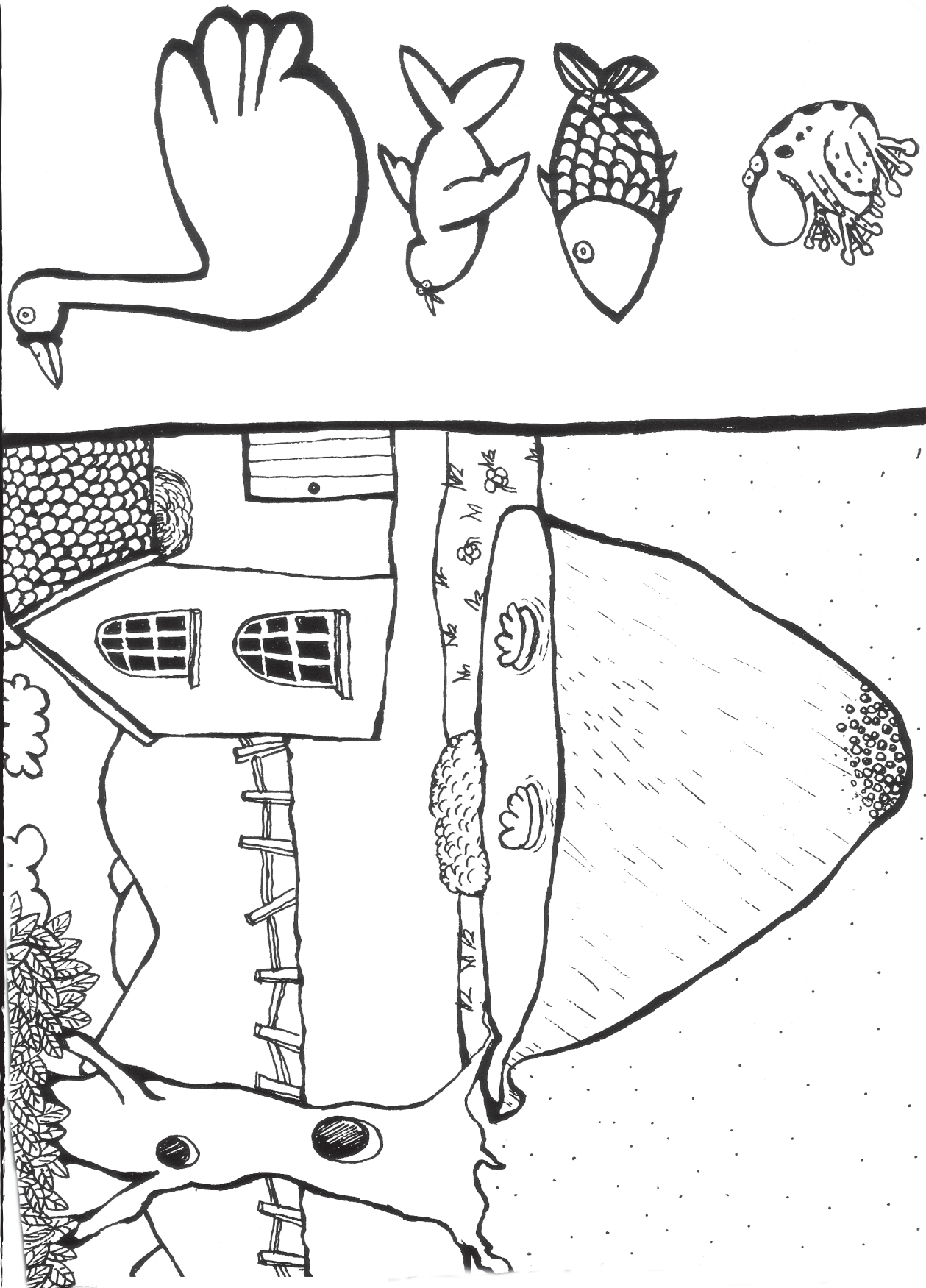
5. After three weeks the tadpole grows tiny hind legs.

6. After ten weeks the front legs grow.

7. As the frog grows older, the tail shrinks until it
cannot be seen. Now it is an adult frog.



Match these creatures to their homes.





Gráinne and Gearóid Green's Litter Survey.

	CLASSROOM	SCHOOL	HOME	LOCALITY
1. List one thing which makes this place look nice	_____ _____ _____	_____ _____ _____	_____ _____ _____	_____ _____ _____
2. Do you think this area is	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy	<input type="checkbox"/> Very Tidy <input type="checkbox"/> Tidy <input type="checkbox"/> Very Untidy
Why?	_____ _____	_____ _____	_____ _____	_____ _____
3. How might you improve this area?	_____ _____ _____	_____ _____ _____	_____ _____ _____	_____ _____ _____
List one way.				
4. How safe is the environment?	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe	<input type="checkbox"/> Very Safe <input type="checkbox"/> Safe <input type="checkbox"/> Very Unsafe
Why?	_____ _____	_____ _____	_____ _____	_____ _____

This is Gráinne and Gearóid Green's litter survey.
 Try it out in your classroom, school, home and locality.
 With your group, think of ways you can improve your environment



Use the Magic Globe to help make the world a better place.

