

THEME 1

NATURE: THE GREAT RECYCLER

TEACHER'S NOTES

Introduction

This theme aims to promote an understanding of the delicate cycles of nature wherein energy and materials are continually exchanged and recycled. Through a range of group activities, role plays, stories, games and worksheets, the theme helps to foster an understanding of the word 'environment'; introduce the concept of 'food chains'; illustrate how energy is passed from one link in the chain to the next; promote an understanding of the interdependence between people and nature; and alert pupils to the "domino effect" which results when links in the food chains become polluted.

This theme forms an ideal springboard for the exploration of the concepts and issues which are addressed in the succeeding theme 'Wasting Away'



ESSENTIAL CHOICES

Activity 1

Objective: To help the pupils to distinguish between things which are essential to life and things which are not.

Procedure: Ask the pupils to imagine that they are going to live on a planet which is devoid of plant, animal and human life. Explain that on their journey, they are allowed to bring some people, animals, and things which will help them to survive on this planet.

(i) Distribute a copy of Worksheet 1 to each pupil. Invite the pupils to colour in pictures of people, animals and things which they think would be necessary for life on this distant planet.

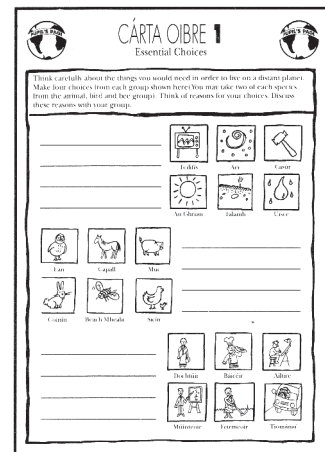
(ii) Working in groups of 4-5, encourage the pupils to discuss their choices and to give reasons for their decisions.

(iii) Distribute one fresh copy of Worksheet 1 to each group. Encourage the pupils to discuss each picture in turn and to agree collectively on what they should bring. The new copy of Worksheet 1 is filled in accordingly.

(iv) Give each group an opportunity to present their decisions to the entire class. Initiate a class discussion on the choices that have been made. Explore what each would have to offer, e.g.: 'The cow would provide milk and calves. Dung from the cow could be used as fertilizer'.

(v) Elicit from the pupils that air, water, sun and soil are essential to life. Did anybody leave these elements out when making their choices?

(vi) Explore the difference between needs and wants.



MY ENVIRONMENT

Activity 2

Objective: To provide an opportunity for discussion on the meaning of the word 'environment'.

Procedure: Using Worksheet 2 explore the meaning of the word 'environment'. Point out that the environment can be defined narrowly, e.g. the environment of the classroom, or very broadly, e.g. the global environment. Complete the word puzzle and pursue with the pupils the many other things which make up the environment.





SURROUNDED

Activity 3

Objective: To draw attention to some of the many ways in which our actions impact on the environment.

Procedure: Divide the children into groups of 6. Give each group a large sheet of paper. Ask the pupils to draw six large circles on their sheet.

(i) Explain that each circle will be used to represent one of six different types of environment. The environments which can be drawn might include:

- (a) the countryside, (d) the town,
- (b) the beach, (e) the playground,
- (g) the garden, (f) the home.

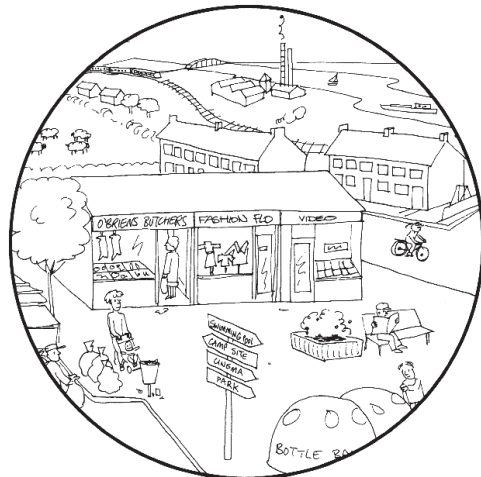
Encourage the pupils to use the circles to draw everything which they feel should be included in each of the six environments.

(ii) Ask the groups to identify the elements which they and other people get from each environment. Underline these items in green.

(iii) Invite the groups to identify what they and other people affect in each environment. Underline these elements in blue.

(iv) Ask the pupils what (if anything) they do not affect in each environment. These items are underlined in red.

Having completed this activity, the pupils are encouraged to compare and contrast the findings of the various groups with each other. Identify those elements that are common to all six environments listed above. Recall that living things cannot live anywhere unless they have four elements: earth, air, sun and water.



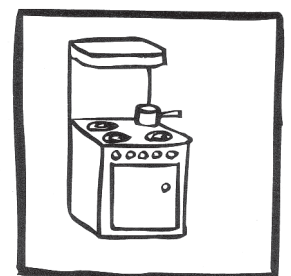
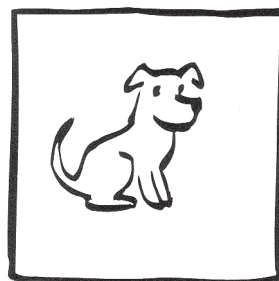
WHAT IS ENERGY?

Activity 4

Objective: To introduce the concept of energy.

Procedure: Divide the pupils into groups and ask them to discuss and then write what they understand by the word 'energy'. Discuss these definitions with the whole class.

Distribute one copy of Worksheet 4 to each pupil in the class. In the spaces provided, ask them to write the source from which each of the items shown derives its energy.





ENERGY FOR LIVING

Activity 5

Objective: To illustrate that all activity requires energy.

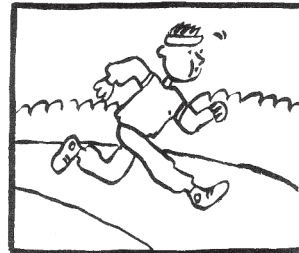
Procedure: Explore with the pupils the variety of activities we can carry out because we have energy. Using Worksheet 5, ask the pupils to rank the activities listed, starting with the activity that uses up most energy and numbering it 1, and ending with the activity which uses least energy, numbering it 9.

Discuss the findings of the individual groups with the class as a whole and compare them with the suggested answers which are given below. Invite the pupils to suggest reasons why some of the activities take more energy than others.

A possible ranking is as follows:

- No. 1 jogging
- No. 2 playing basketball
- No. 3 dancing

- No. 4 walking quickly
- No. 5 playing table tennis
- No. 6 walking slowly
- No. 7 playing music
- No. 8 sitting
- No. 9 sleeping



ENERGY FOODS

Activity 6

Objective: To illustrate that food supplies us with energy.

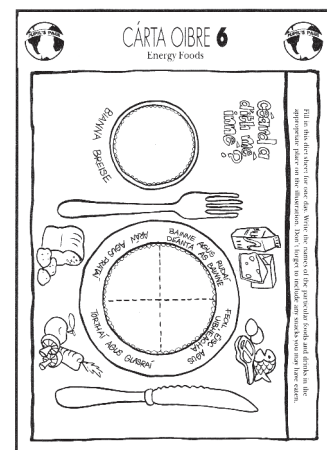
Procedure: Using Worksheet 6, ask the pupils to record the types of food which they ate in the course of the previous day.

Explain that food from plants and animals provides us with energy. Some foods are high in energy and others are low. Food energy is measured in kilocalories or kilojoules (1 kilocalorie = 4.18 kilojoules). We can find out how much energy certain foods supply by examining their wrappers or packets.

Ask the pupils to collect various food wrappers and packages.

Encourage them to note the amount of kilocalories or kilojoules per 100 grams provided by different foodstuffs.

Starting with those that are highest in calories, these foods can now be ranked according to their energy value.





SOURCES OF ENERGY

Activity 7

Objective: To trace the sources of our energy.

Procedure: In this activity the pupils trace food chains of which they are part. (Please see also the 'Habitats' theme [Section 2. Theme 1], which provides a useful introduction to the concept of Food Chains.)

(i) Distribute copies of Worksheet 7A. Ask the pupils to draw a representation of themselves in the outer band of the circle.

(ii) In the animal/bird band ask the pupils to draw an animal or bird from which they get food. The pupils link this drawing to themselves with an arrow, (arrows indicate the direction of energy flow and should point from the sun to the outer circle).

(iii) In the plant band, ask the pupils to draw a plant which is eaten by the animal or bird which they have chosen. Some may have chosen an animal which does not eat plants directly but eats other animals or birds who in turn eat plants. If so, include the predator and its prey (in the animal/bird band) before drawing the plant (in the plant band). Link with an arrow.

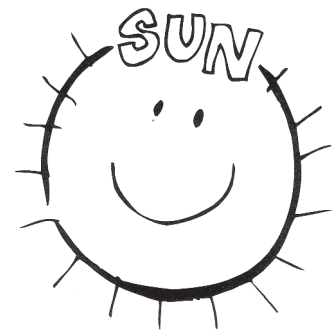
(iv) Explain that green plants are the only links in the chain which make their own food. In order

to do so, they need air, water, and soil. Ask the pupils to link these essential elements to the plant with arrows to show the energy flow.

(v) Emphasise that the sun is the main source of energy without which plants cannot make their food. Ask the pupils to link the sun directly to the plants with an arrow. In linking the sun to the green plants, the arrow will pass through the air, soil and water band. This emphasises the importance of these essential elements in the transference of energy through the food chain.

Encourage the pupils to look at the line which has been formed from the sun, in the inner circle, to themselves in the outer band. This line indicates the flow of energy and is called a **Food Chain**.

Using the information which they have supplied on Worksheet 7A, ask the pupils to complete the food chains on Worksheet 7B.



PASS IT ON

Activity 8

Objective: To demonstrate how energy is passed along a food chain.

Stage 1: Food Chains

Procedure: This activity enables the pupils to dramatise the links involved in the transference of energy through food chains.

(i) Divide the class into four groups, one for each of the following food chains: lettuce, milk, chips and chicken.

(ii) Cut up the prompt cards on Teacher's Resource Sheet (**Activity 8**). Give one set to each group. The food chain provided here can be replaced, or extended, by food chains devised by the pupils if desired.

(iii) As far as possible, each pupil receives one prompt card and pretends to be the character mentioned in the prompt card, e.g., the soil.

(iv) Allow each group a certain amount of time to discuss the order of the stages in their food chain.

(v) The children now form themselves into a food



PASS IT ON (Continued)

chain taking care to ensure that each food chain starts with the sun.

(vi) Each group now presents its food chain to the rest of the class. The child who represents the sun starts by reading out his/her prompt card. The rest follow in the correct sequence.

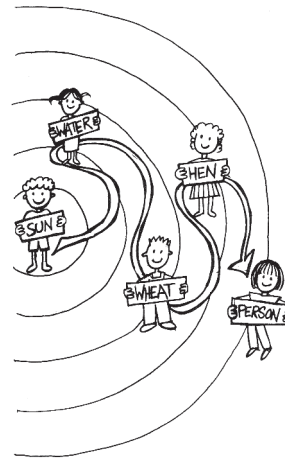
Stage 2: Energy Circles

Procedure: When each of the groups has presented its food chain, ask all of the children with sun prompt cards to come into the centre of the class to form a circle to represent the sun.

Ask the children with soil, air, and water prompt cards to form a circular band around the 'sun'.

The children with plants cards form the next circle and they are surrounded by the children with

animal prompt cards. The final circle is formed by the children who represent living things which eat plants and animals. Cut up lengths of coloured thread to symbolise energy. The energy can now be passed through the food chain from the sun to the children who form the outer band of the large circle.



AR STAILC!

Activity 9

Objective: To foster an understanding of the interdependence between people and nature.

Procedure: Help the pupils to imagine the chain reactions that would occur if nature stopped working: e.g., "What would happen if the trees went on strike...?"

Distribute one copy of Worksheet 9 to each group. Allow the pupils to complete the chain reactions in groups of four or five and to discuss their conclusions with the whole class. During the feedback session, draw attention to the links between the natural environment and the human environment, and to the interdependent relationship which exists between animals, plants and people.

Read and discuss the story on Teacher's Resource Sheet (**Activity 9**) which tells what happened when nature went on strike.

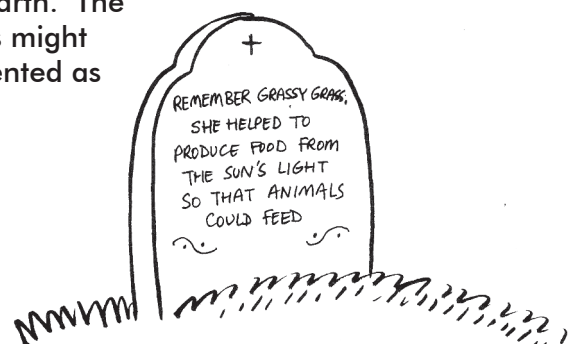
Exploration of the Story:

6

(i) Ask the pupils to write a paragraph in which they predict what happened the following day.

(ii) As a result of the strike, a meeting was held between the villagers and the plants and animals. As this meeting, the villagers agreed to change their ways. Invite the pupils to dramatise the proceedings of the meeting.

(iii) Invite the pupils to write epitaphs for their chosen animal, bird or plant and to present them on colourful drawings of headstones or tombstones. These should highlight the important contribution which the deceased made to life on Planet Earth. The epitaphs might be presented as shown:





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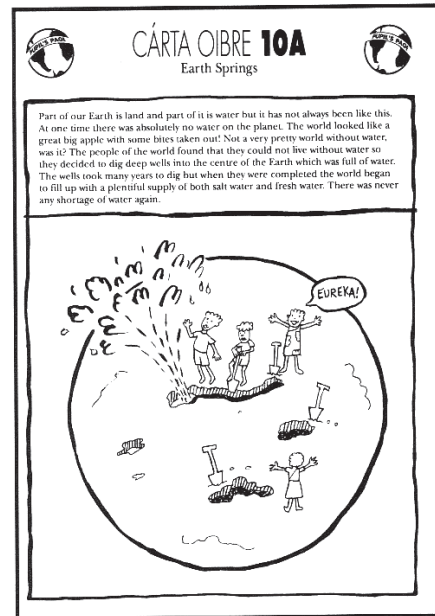
Activity 10

Objective: To introduce the pupils to the natural processes whereby air, water, and soil particles are continually recycled.

Procedure: Allow the pupils to work in groups reading the stories on Worksheet 10A, 10B and 10C. These stories invite the pupils to consider such issues as where the world’s water comes from and why it has never run out.

The worksheets contain three different accounts of the water cycle, only one of which is true. When the pupils have discussed each story in turn ask them to identify what they consider to be the correct account and to list reasons for their choice. The correct account, of course, is that of Maji the Water Particle! (Maji is the Swahili word for water.)

Read and discuss the story on Teacher’s Resource Sheet (Activity 10).



THE V.I.P.s - VERY IMPORTANT PARTICLES - TELL THEIR STORIES

Activity 11

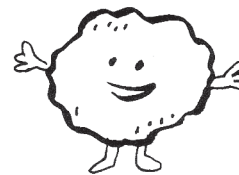
Objective: To promote an awareness that a finite number of air, water, and soil particles is being exchanged continually to form new life and matter.

Procedure: Divide the pupils into groups of four or five. Distribute one copy of either Worksheet 11A, 11B or 11C to each group. Ask the pupils to read and discuss the story contained in the worksheet which they have received.

Using a chart or large sheet of paper, invite the pupils to draw a flow chart to show the adventure sequence of their particle.

Using the pictorial aids which they have devised, invite each group in turn to present the story of their particle to the rest of the class. Their presentations may be varied and embellished through the use of drama or mime.

Encourage each group to make up a story about the future adventures of their particle and record these on separate cards. Allow time for each group to share its stories with the rest of the class.





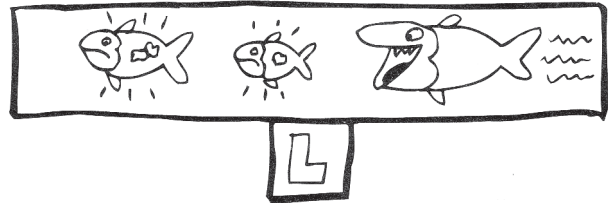
PARTICLES IN PERIL

Activity 12

Objective: To introduce the pupils to the concept of pollution.

Procedure: Recall the adventures of the air, water and soil particles which were explored in Activity 10. Encourage the pupils to re-tell some of the stories. Distribute Worksheet 12 which invites the pupils to sequence the effects of introducing a polluted particle into the food chain. Discuss the effects of such an occurrence. Point out that once poisoned particles enter the food chain they are very difficult to remove.

Invite the pupils to review the particle stories from Activity 11 to show how the introduction of poison particles at the beginning of each story would affect the outcome.



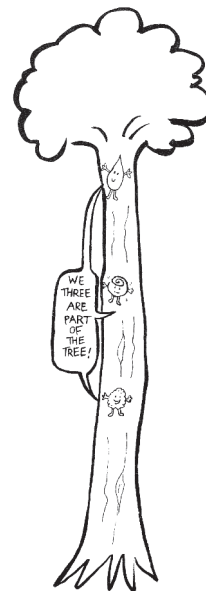
PARTICLE FRIEZE

Activity 13

Objective: To design a graphic representation of the cycles of nature.

Procedure: Involve the pupils in designing a wall frieze depicting the particle cycle, based on what the pupils have learned about the cycles of nature. This frieze could include trees and other green plants; people and animals; and, of course, the particles of air, water and soil. Encourage the pupils to indicate areas in the cycles where pollution could occur and where it might be prevented, for example:

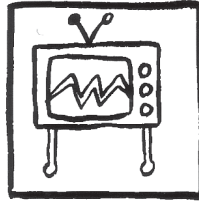
How might the soil particles become polluted?
What parts of the Food Chain might this affect?
How could it have been prevented?



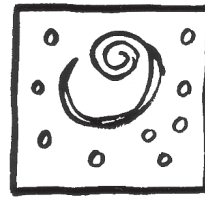
THEME 1
NATURE: THE GREAT RECYCLER
RESOURCE SHEETS



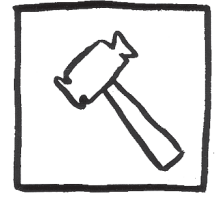
Think carefully about the things you would need in order to live on a distant planet. Make four choices from each group shown here (You may take two of each species from the animal, bird and bee group). Think of reasons for your choices. Discuss these reasons with your group.



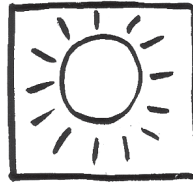
Teilifís



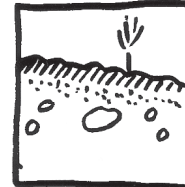
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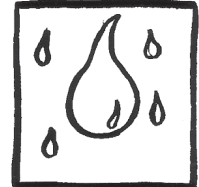
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An Ghrian



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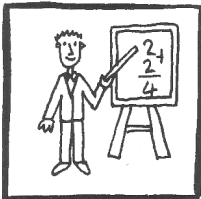
Dochtúir



Báicéir



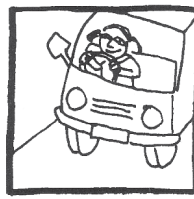
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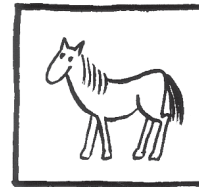
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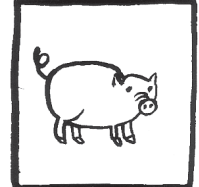
Tiománaí



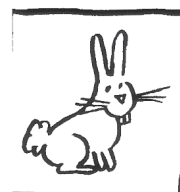
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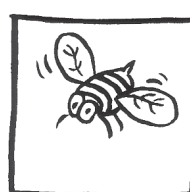
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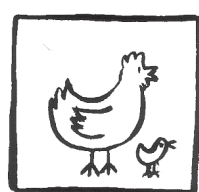
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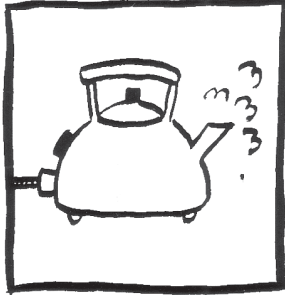
Beach Mheala

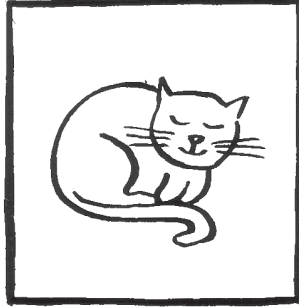


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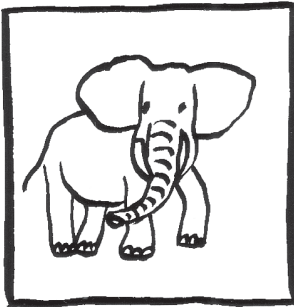


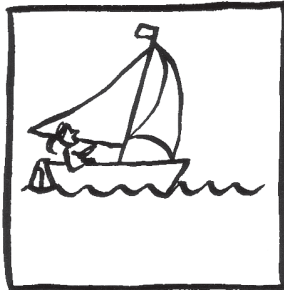
We need energy to work, to move and to play. What supplies the following with their energy? Write your answers in the spaces provided.



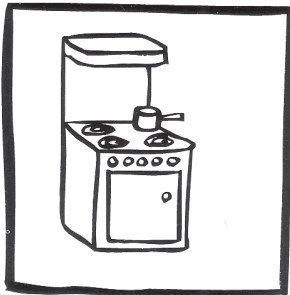


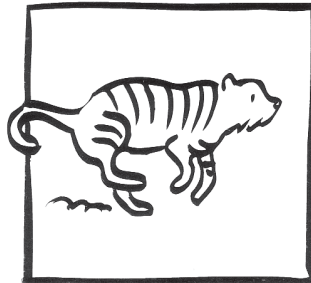


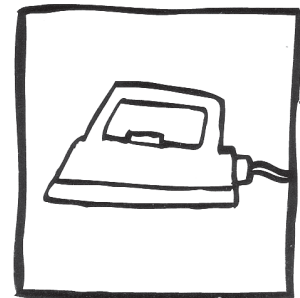












Make a list of the energy sources which you have found.



Our food comes from the plants and animals in our environment. This food supplies us with the energy we need to be active. All of the activities below burn up a certain amount of energy.

Work with a partner. Talk about how much energy might be required for each of these activities. Rank them from 1 to 9.

Start with the activity which you think uses most energy. Number it 1. End with the activity which you think takes least energy. Number it 9.



Sitting



Jogging



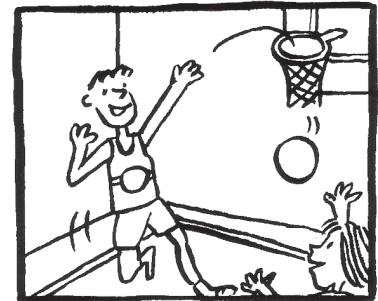
Walking quickly



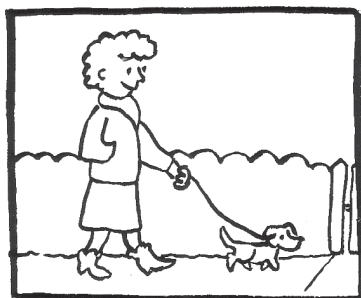
Dancing



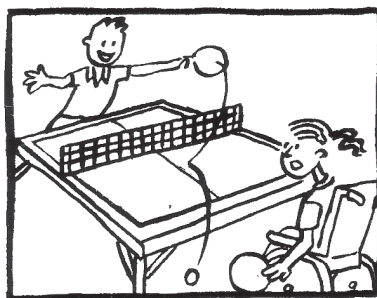
Sleeping soundly



Playing basketball



Walking slowly



Playing table tennis

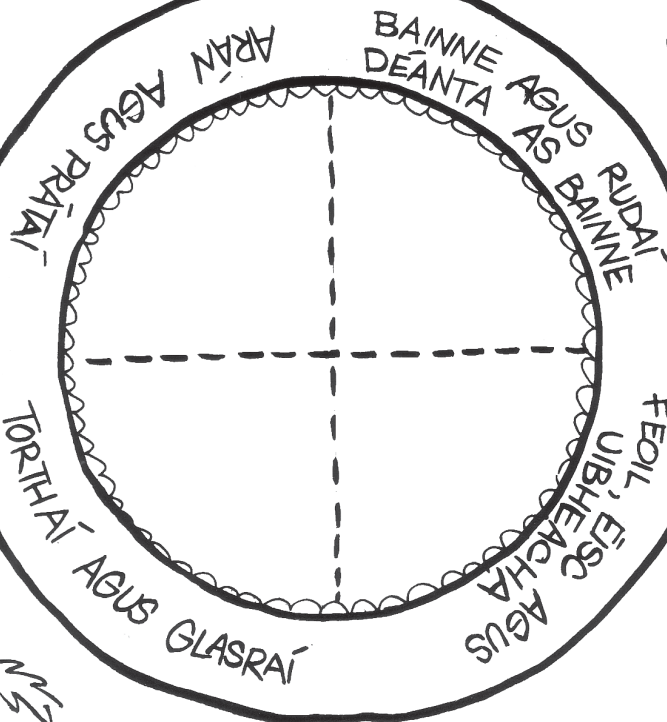
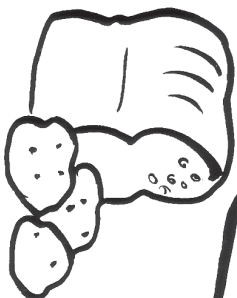
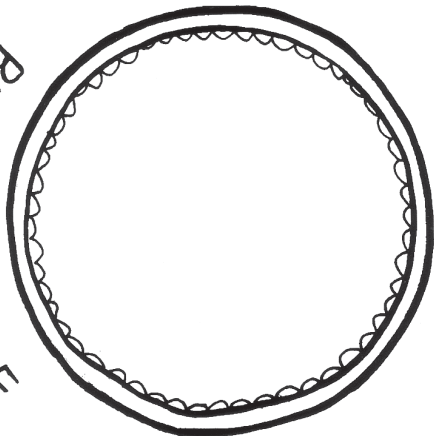


Playing music

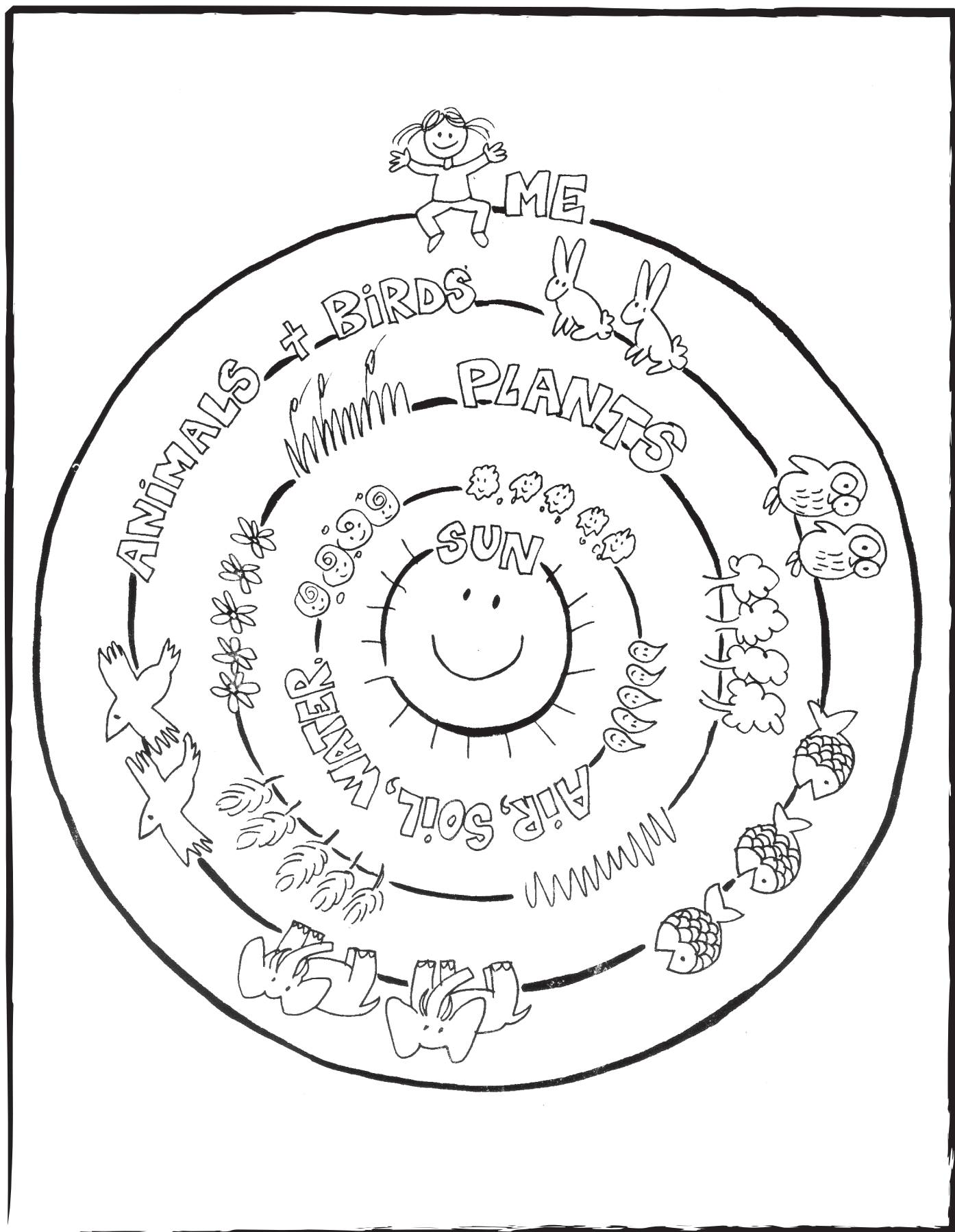


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inné?

BIANNA
BREISE

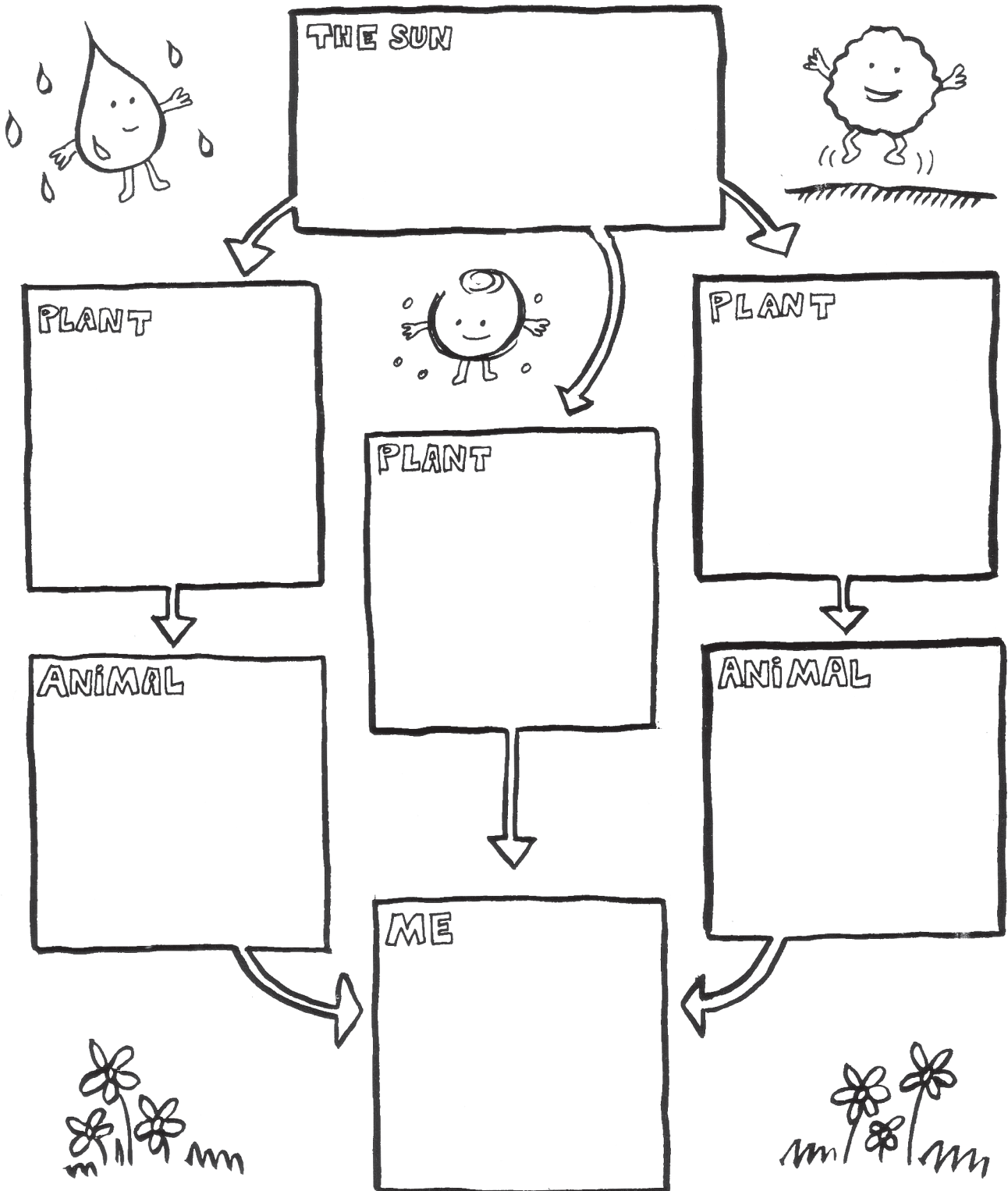


Fill in this diet sheet for one day. Write the names of the particular foods and drinks in the appropriate place on the illustration. Don't forget to include any snacks you may have eaten.







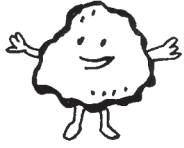
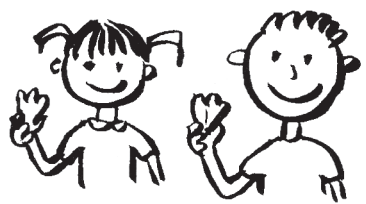


Use the information you have compiled in Worksheet 7A, to help you draw your own food chains in the boxes below.



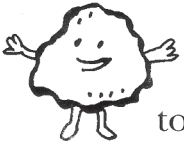








GNÍOMHAÍOCHT 8

Pass It On.

<p>The Lettuce Chain.</p>	
 <p>I am the sun. I give energy to the lettuce.</p>	 <p>I am the lettuce. I get energy from the sun. I give it to the people who eat me for lunch or dinner.</p>
<p>I am a soil particle. I give the lettuce food and a place to grow.</p> 	<p>My name is _____. I get energy from the lettuce when I eat it. I can use my energy to _____.</p> 
 <p>I am a water particle. I give the lettuce the moisture it needs to grow.</p>	
<p>I am an air particle. I give the lettuce the air it needs to grow.</p> 	

<p>The Milk Chain.</p>	
<p>I am the sun. I give energy to the grass.</p> 	 <p>I am the grass. I get energy from the sun. I give it to the cow who uses it to make milk.</p>
 <p>I am a soil particle. I give the grass food and a place to grow.</p>	<p>I am the cow. I get energy from the grass. I pass it on to the people who drink my milk.</p> 
<p>I am a water particle. I give the grass the moisture it needs to grow.</p> 	<p>My name is _____. I get energy from the milk I drink. I can use this energy to _____.</p> 
 <p>I am an air particle. I give the grass the air it needs to grow.</p>	



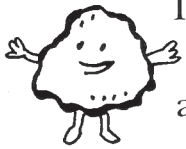
GNÍOMHAÍOCHT 8

The Chip Chain.

I am the sun. I give energy to the potato plant.



I am the potato plant. I get energy from the sun and I pass it on to the potatoes in the soil.



I am a soil particle. I give the potato plant food and a place to grow.

I am the potato. I get energy from the leaves of the plant and I pass it on to the people who eat me.



I am a water particle. I give the potato plant the moisture it needs to grow.



My name is _____. I got energy from the chips I ate for dinner. I can use this energy to _____.



I am an air particle. I give the potato plant the air it needs to make its own food.



The Chicken Chain.

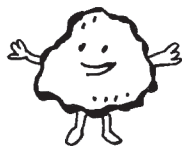


I am the sun. I give energy to the barley plant.

I am a barley plant. I get energy from the sun and I pass it on to the chicken who eats my grain.



I am a soil particle. I give the barley plant food and a place to grow.



I am the chicken. I get energy from the barley grain and I pass it on to the people who eat my meat.



I am a water particle. I give the barley plant the moisture it needs to grow.

My name is _____. I got energy from the chicken sandwich I ate for lunch. I can use this energy to _____.



I am an air particle. I give the barley plant the air it needs to make its own food.





Work with a partner. Write some sentences about what would happen if each of the following went on strike. Then think what might happen next. Write it in your copy.

If the birds went on strike ... _____

If the animals went on strike ... _____

If the trees went on strike ... _____

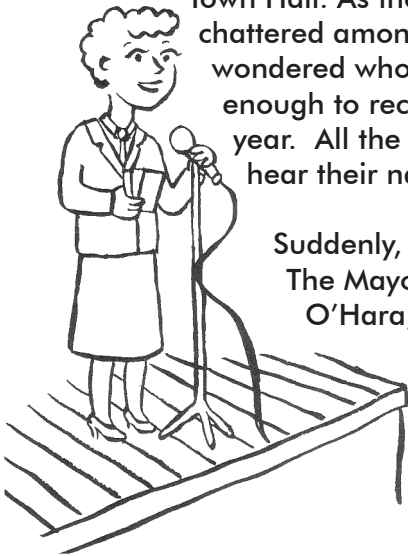




GNÍOMHAÍOCHT 9

On Strike.

It was the night of the "People of the Year" Awards. All the villagers had gathered in the Town Hall. As they bustled in, they chattered among themselves and wondered who would be lucky enough to receive trophies this year. All the villagers hoped to hear their names called out.



Suddenly, there was a hush. The Mayor of the town, Ms. O'Hara, had taken up her position at the centre of the stage just beside the microphone. In her hand were several white envelopes

each containing the name of someone who had been chosen to receive an award. Ms. O'Hara cleared her throat:

'Good evening to you all', she said; 'you are very welcome on this special occasion.'

People held their breath with excitement as she opened the first envelope. She continued...

'Our first award of the evening is for the best crop of the year. This goes to Ann Stewart for her outstanding crop of wheat.'

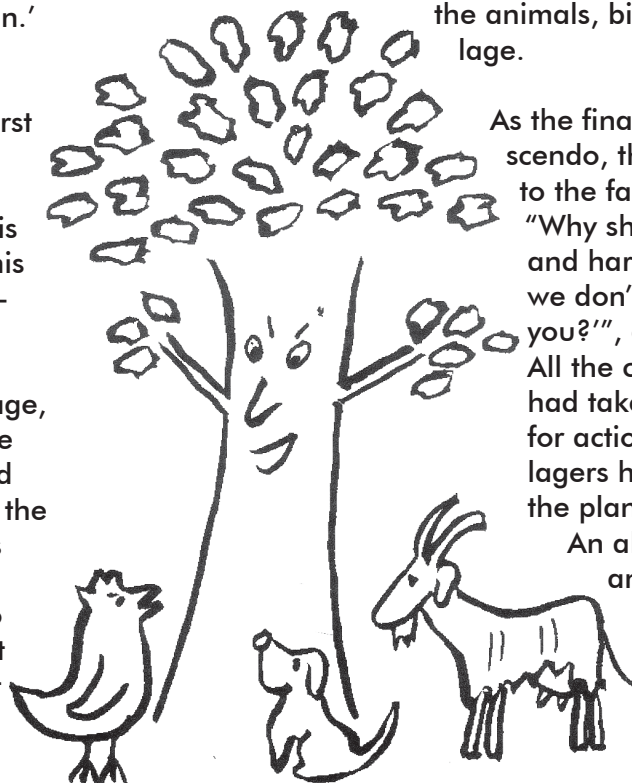
As Ann made her way to the stage, the clapping and cheering of the villagers filled the hall and could even be heard at the far end of the village. The animals and plants wondered what all the hullaballoo was about. They decided to find out. Roger the dog, Harriet the hen and Geraldine the goat hurried down to the Town Hall and arrived just in time to hear another burst of cheering. This

time it was for the most efficient service in town. It went to Donald from the Post Office who always managed to deliver the letters by ten o'clock each morning, whatever the weather.

'That's all very well,' complained Oliver the oak tree, whose branches leaned across the window of the Town Hall. 'What about all the trees it takes to make the paper that people write their letters on?'

'Shhh,' urged Harriet Hen, 'they're announcing the winner of the best student of the year award.' Now it was her turn to be annoyed. 'Best student of the year indeed,' she snorted. 'There wouldn't be a best student of the year if it wasn't for all the nourishment and energy the students get from my eggs each morning. I wonder why I don't get an award for my contribution?'

The awards ceremony continued with awards for the people who produced the biggest cabbage, for the tastiest cakes, for the farm with the creamiest milk, for the best kept garden... But nobody even mentioned the important contributions made by the animals, birds and plants of the village.

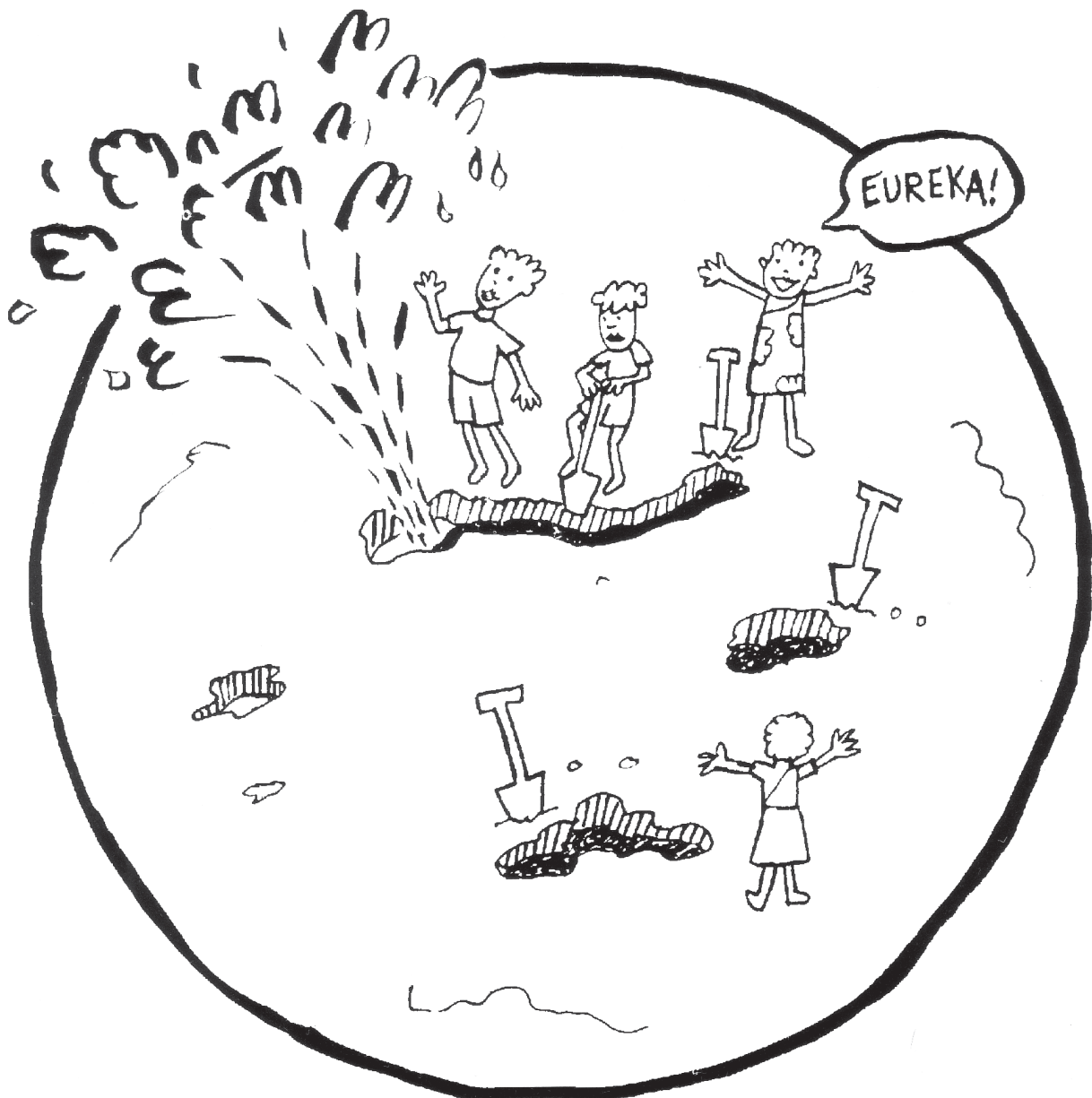


As the final clap reached a crescendo, the creatures hurried back to the farm and called a meeting. "Why should we labour so long and hard for those people when we don't even get a 'Thank you?'" asked Asal the donkey. All the creatures agreed. They had taken enough. It was time for action. By the time the villagers had reached their homes the plan had been hatched.

An all-out strike by the plants and animals and birds would take effect from the following day...



Part of our Earth is land and part of it is water but it has not always been like this. At one time there was absolutely no water on the planet. The world looked like a great big apple with some bites taken out! Not a very pretty world without water, was it? The people of the world found that they could not live without water so they decided to dig deep wells into the centre of the Earth which was full of water. The wells took many years to dig but when they were completed the world began to fill up with a plentiful supply of both salt water and fresh water. There was never any shortage of water again.

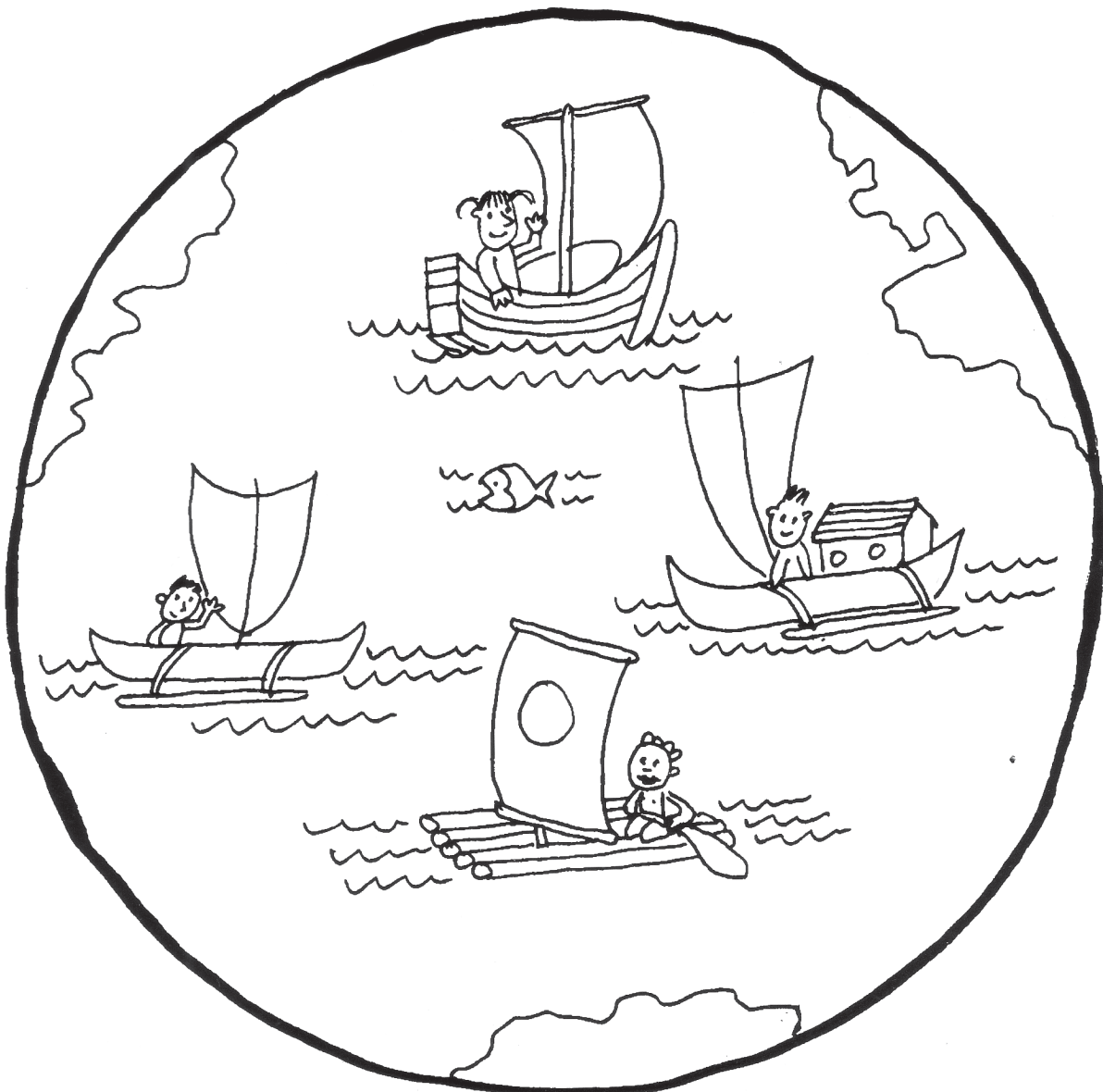




Part of the Earth is land and part of it is water but this was not always the case.

At one time, the entire surface of the Earth was covered with water. People lived on house boats which floated on the surface of the Earth. One fine Summer the weather was so hot that the people drank lots and lots of the world's water.

After some time, they noticed that the water level was getting lower. Soon land appeared. Many of the people who had lived on house boats all their lives decided that, for a change, they would try living on land. Soon people abandoned living on the water and most people settled on land.





Hi! My name is Maji the water particle. I've been around for millions of years, and I'm hoping to be around for a few million more! Would you believe me if I told you that I was once in a bowl of water that Finn Mc-Cool left out for his cat to drink! A long time after that I found myself in a fluffy white cloud made up of billions of other water particles floating over a country called Kenya. Then, all of a sudden, it got cold. We formed little drops of rain and tumbled to the ground. You should have seen how happy the people were when they saw that it was raining. It hadn't rained for weeks and the ground was hard and dry. On falling to the ground, I was immediately sucked up by the roots of a tea plant and eventually I became part of the leaves of the plant. After some time, the leaves were picked, dried, packaged and shipped overseas. During the drying process most of the other water particles had to leave but I managed to stay. Before I knew it, I was here on a shop shelf in Northern Ireland. I wonder where my adventures will take me next.





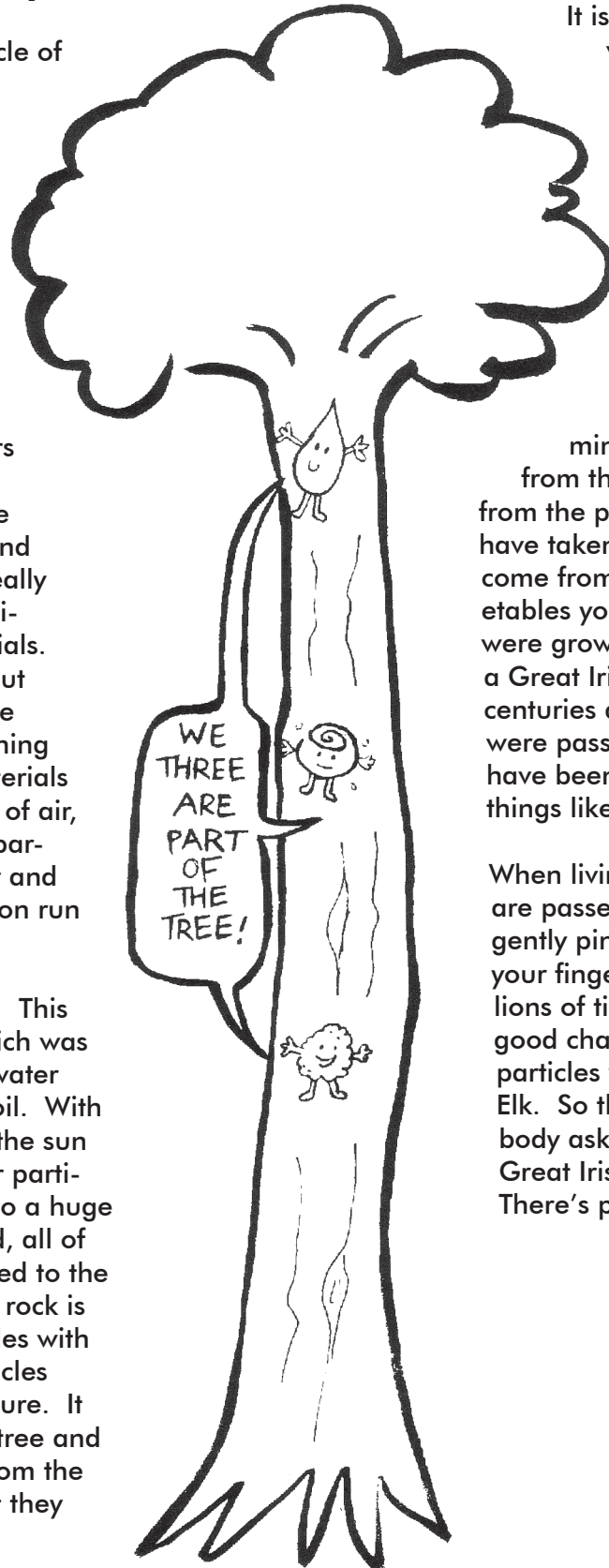
GNÍOMHAÍOCHT 10

Nature: The Great Recycler.

Imagine drinking a particle of water that Finn McCool drank, or breathing in a particle of air that Cú Chullain breathed. How about pinching a particle of a Great Irish Elk?

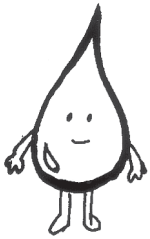
Air, water and soil particles have been around for many millions of years because they are part of a great cycle in which the particles are used over and over again. There are really only two things in the universe, energy and materials. We have heard a lot about energy so far, but now we are going to hear something about materials. All materials are made up of particles of air, water and soil. If these particles were not used over and over again, we would soon run out of materials.

Take a tree, for example. This was once a tiny seed which was made up of particles of water and minerals from the soil. With the help of energy from the sun and of air, soil and water particles, it began to grow into a huge tree. When the tree died, all of the particles were returned to the cycle and used again. A rock is a collection of soil particles with a few air and water particles thrown in for good measure. It is hard to believe that a tree and a rock are constructed from the same basic materials but they are!



It is even harder to believe that we humans are all made up of air, soil, and water particles – mostly water. In fact our bodies are made up of over 60% water. We must have air to breathe or else we would not survive, but even though it is difficult to believe it, there are soil particles in our bodies too. Nobody, of course, eats earth but we do need the minerals and nutrients that come from the soil. We get soil particles from the plants we eat as food, which have taken minerals and nutrients that come from the soil. Maybe the vegetables you ate at dinner-time yesterday were grown on a patch of ground where a Great Irish Elk grazed and died many centuries ago. The particles in its body were passed into the soil and could have been passed on to other living things like you and me!

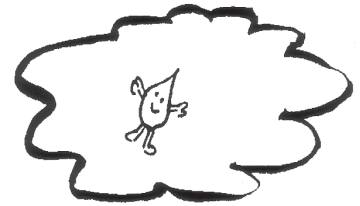
When living things die, the particles are passed on and used again. If you gently pinch a piece of skin between your fingers you will be holding millions of tiny particles. There is a fairly good chance that at least a few of those particles were once part of a Great Irish Elk. So the next time you hear somebody asking what happened to the Great Irish Elk, you might shout, "Look! There's part of on right here."



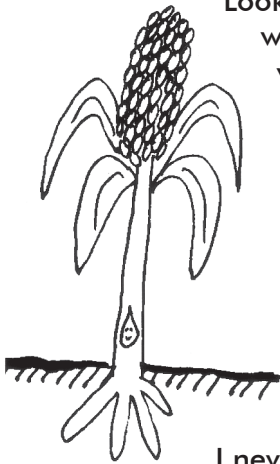
"Hi! It's me again, Maji the water particle. Maji is the Swahili word for water. You will soon learn why I came to have a Kenyan name. I met you earlier but some of you did not believe my story. Well now you know that I was telling the truth all the time. If you read on carefully you will find out some more interesting information.

Water particles are great adventurers which travel all over the world. Many exciting things happen to us and we never know from one moment to the next where we'll be.

My life began a long a long time ago when I was floating around in the sky with lots of air particles. When it got a bit colder we, the water particles, formed into a soft fluffy cloud.

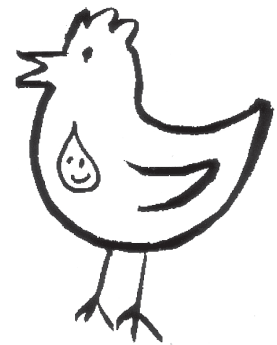


Looking down far below us I could see how dry the soil was. The rivers had completely dried up and there was very little greenery. The people often looked up at the sky. It was the dry season and they were hoping the rains would come soon. When it got even colder still, I dropped to the ground as rain and I was sucked up through the roots of a maize plant. Very soon I became part of the maize cob.



One day the farmer and her family arrived with their sharp pangas or hatchets and they began to chop off the cobs. I was part of a seed which was knocked to the ground. I was looking forward to becoming part of a new plant in the Spring.

I never made it far enough to become a new plant because I was eaten by a plump brown hen. I was then one of billions of particles making up the hen. I liked that because I made lots of friends there.

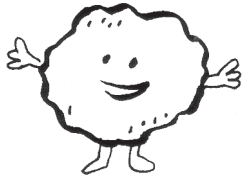


My time in the hen was very short became a visitor arrived from Nairobi to stay with the family and one of the children was sent to catch the hen as dinner for the guest. Suddenly I was one of billions of particles making up a person. I was part of the person for a very long time, until he died. After he was buried I passed into the soil again.



I thought that my adventures were over but I was wrong. I floated down through the soil until I came to a stream. It was great being in the stream because I met so many other water particles there.

On a very hot day I felt myself floating up into the sky where I became part of a cloud again. The cloud was blown far away from Kenya by strong winds. I know that I will keep moving in a great big cycle but I wonder what adventures await me next?"



"Hi! My name is Sandy and I'm glad I have been asked to tell you about my life story. Some people think that air and water particles are much more important than soil particles, but we've got a very important job too. Let's go!

For millions of years, I was part of a solid rock. As a result of the rain and the wind beating down on the rock, I eventually broke off and fell to the ground. I stayed as part of the soil for a long time along with small particles of dead plants and animals.



Then, one day, I found myself being sucked up into a plant. It was like being in a very long, dark, thin straw. I soon found that I was part of a banana plant in Bangladesh.

The plant needed minerals to grow and that's where I came in, as a mineral.



I became part of the banana skin. When the fruit was ripe, the banana was sold in the market with hundreds of other bananas. After the fruit was eaten, the skin was thrown on the ground and I was eaten by an insect. I had the feeling that this wouldn't last long.

I was right! The insect was eaten by a hungry bird. She enjoyed eating the insect very much but little did she know that along with stored

sunlight energy and particles of air and water, she got lots of soil particles – including me!



I thought that I would travel with the bird for a long time

and get to see other parts of Bangladesh and maybe even India. But, unfortunately, I was only passing through. I was returned to the soil along with other waste material very soon after becoming part of the bird.

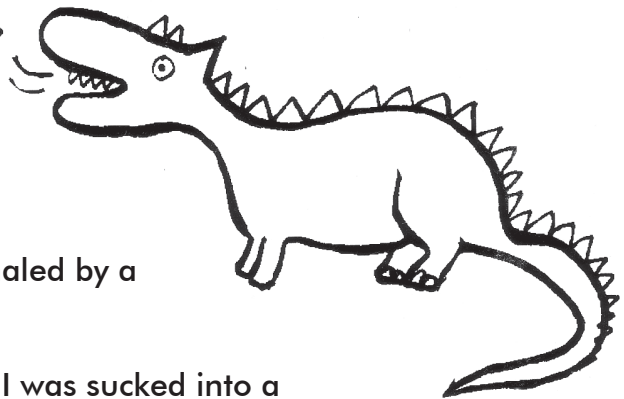


So here I am, part of the soil once again. Some of my journeys are long and I travel through many interesting things. Some of my journeys are short and I am returned to the soil more quickly. I wonder what adventure awaits me next?"



"Hello there! My name is Aero and I'd like to tell you about my adventures through the air cycle. I am another one of the V.I.P.s (Very Important Particles). I am very important because, without me, there could be no plant or animal life on Earth. Would you believe that every time you breathe

you inhale about one billion particles of air!



I've been around for millions of years which makes me one of the oldest things on Earth. At one time, I was inhaled by a dinosaur! Can you imagine that?

My favourite adventure began one day when I was sucked into a woodland plant. Now you all know that water gets into plants through the roots, but I got in through a tiny little hole in the leaf. The plant used me together with sunlight, water and soil particles to make food.



When the plant was finished with me I was released from the leaf and a squirrel inhaled me. Animals cannot make their own food but they use air particles to get energy out of the food they eat.

When the plant was finished with me I was released from the leaf and a squirrel inhaled me. Animals cannot make their own food but they use air particles to get energy out of the food they eat.



The squirrel soon exhaled me back into the air. I was blown about by the wind for some time. Next I was breathed in by a houseplant. The plant used air particles together with sunlight, water and soil particles to make food.

Soon I was released from the houseplant and breathed in by a person. People, like the squirrel, cannot make their own food but they need air particles to help them release energy from the food they have eaten.

Now I am back in the air again ready for my next adventure. As you can see, I'm part of a great never-ending circle travelling throughout the world and seeing many wonderful things. I wonder what awaits me next.





Cut out the pictures below. Arrange them in such a way to show the path taken by the polluted particles on their journey through the food chain. What word is formed?

