

THEME 1: TREES

TEACHER'S NOTES

Introduction

This theme highlights the importance of trees in the environment and encourages pupils to adopt attitudes and behaviours which promote tree conservation and management. Through a range of activities in which they observe and investigate trees in the locality of the school, pupils gain a deeper insight into the properties and physical characteristics of familiar trees. The links between people's attitudes to the environment and their treatment of it are explored through the use of cartoons and quotations.

Issues relating to the global distribution of trees, the unique characteristics of the rainforest ecosystem, and the problems associated with rainforest destruction are addressed using stories, role play, games and range of suggestions on how pupils might undertake action for the preservation and protection of trees.



BEGINNING AT THE ROOTS

Gníomhaíocht 1

Aidhm: to provide the pupils with an opportunity to experience trees first hand. To help them to develop an awareness of the importance of trees in the environment.

Cur Chuige: (i) Divide pupils, as far as possible, into group of 4.

(ii) Explain that the class is going to undertake a tree survey. Choose a garden, street or park where there are different types of trees, including broad-leaved and coniferous. Each group will undertake a range of activities to study one particular tree in the locality.

(iii) Groups commence work by drawing a rough map of the area to be surveyed, including landmarks such as roads, rivers, and buildings.

(iv) Give each group one copy of cartai Oibre 1A, 1B, 1C, and 1D. Discuss each sheet and proceed, answering specific queries which they may have. Explain that each task should be undertaken co-operatively by the members of the group.

Follow-up work:

(v) Encourage the members of each group make a 'tree chart' to record the main aspects of the tree that they have studied. Transfer the survey-results onto the chart using diagrams and illustrations.

Attach the bark rubbing, fruit, leaves and twigs to the chart.

(vi) Invite each group to present their chart to the rest of the class. Display the charts in the class-room.

(vii) Compare the results of each group survey:
Which tree is tallest/smallest?
Which has the thickest/thinnest trunk?
Which had the largest/smallest leaves?
Which tree has the greatest number of creepy-crawlies living on it?



Group the trees into two sets, broad-leaf and coniferous. Now compare the results. What observations can be made? Repeat this survey during different seasons. Build up seasonal profiles of each tree surveyed discuss the changes which occur in the tree at different times of the year.

TREE ENCOUNTERS OF A CLOSE KIND

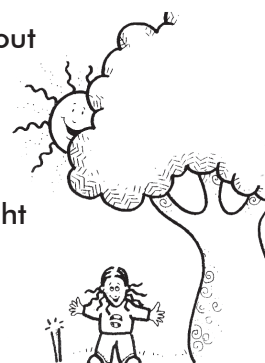
Gníomhaíocht 2

Aidhm: To provide the pupils with an opportunity to develop empathy with trees in the locality.

Cur chuige: (i) Compile a list of the *touch*, *smell*, *sight* and *sound* and words which the pupils associate with their tree survey. Examples of *touch* words might be 'prickly', 'soft', 'rough', etc. Describe parts of the tree using as many appropriate adjectives as possible.

(ii) Ask the pupils to write an imaginative paragraph about their tree survey from the perspective of the tree which they surveyed.

D'fheadfadh na paisti an sliocht seo a scríobh as gaeilge





THE SCHOOL LOG

Gníomhaíocht 3

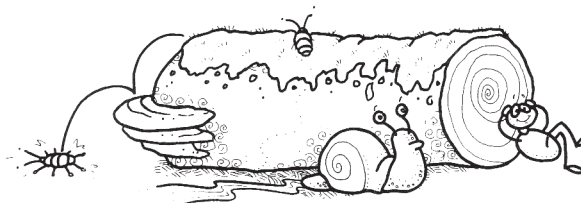
Aidhm: To encourage the children to set up a dead-wood habitat to illustrate how dead timber provides a home for a host of different living things.

Cur Chuige: (i) Set up a dead-wood habitat in the school grounds. A dead-wood habitat attracts all kinds of minibeasts and provides a rich environment for first-hand study throughout the year.

(ii) The pupils can be encouraged to make a log habitat with one large log, but several logs from different trees will attract a greater variety of living things

(iii) It is best to place the log on grass, near a pond or on a pile of soil in the corner of the playground, within view of the classroom so that pupils can observe them without disturbing visiting birds

(iv) Divide the class into groups encourage each group to label and observe one particular log for a period of weeks. Ask them to record their observations in a special copy which they can call their 'log book'. Compare and contrast the observation of the different groups. What are the similarities between the logs from different species? What are the differences?



AN TIMPEALLACHT: TUAIRIMI DAOINE EILE

Gníomhaíocht 4

Aidhm: To illustrate that people at different times and in different parts of the world have had different attitudes of the environment

Cur Chuige: (i) Explain that people in different parts of the world hold different views about the importance of the environment and our relationship with it. The way in which people think and feel about the environment influences how people act towards it

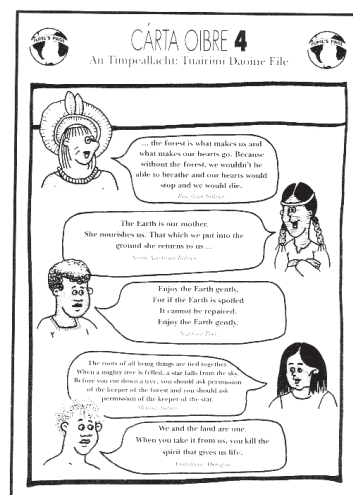
(ii) Divide the class into pairs. Distribute one copy of Carta Oibre 4 to each pair. Encourage the pupils to read and discuss each statement in turn.

(iii) Ask them:

- To identify the two statements with which they agree most. Why?
- Identify the two statements with which they agree least. Why?

- To indicate what each statement says about the beliefs of the people who made them.
- To say how these beliefs would affect the actions of the people who hold them.

(iv) Encourage each group of pupils to reflect on their feelings towards the environment and to devise a concise statement to encapsulate these sentiments.





GOING WILD IN THE FOREST

Gníomhaíocht 5

Aidhm: To alert pupils to activities which have a harmful effect on the forest.

Cur Chuige: (i) Divide the pupils into pairs.

(ii) Distribute one copy of carta 5A to each pair. Ask them to study the illustration in detail and to make a list of the different activities that people are engaged in. Ask them to classify their lists by splitting them into groups:

Noisy / quiet

Dangerous / safe

Harmful / not harmful

(iii) Get pupils to isolate the actions which have a harmful effect on the forest, and to list such short-term and longer-term effects as they are likely to have. Their observation and comments can be recorded on a sheet of paper divided into columns as below:

Action	Effects
Motorcycling	Frightens wildlife Tramples forest plants Creates noise Dangerous to people
Lighting camp fires
Picking forest flowers

(iv) Having compiled the above list, ask each pair to identify what they consider to be the ten most harmful activities highlighted in the illustration. Why are these activities so harmful? Rank them in order of seriousness, starting with the most objectionable activity.

(v) Record their suggestions on the blackboard. Which activities were chosen by most groups?

(vi) Distribute copies of Carta Oibre 5B to each pair. Ask the pupils to make a list of the different

people who visit the forest. Describe what each visitor or group of visitors, is doing. Explain that this illustration depicts an extreme approach to forest protection. Ask each group to list the advantages and disadvantages of the approach shown in the illustration.

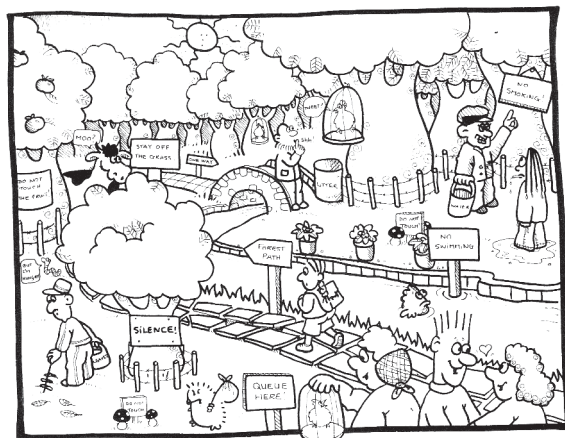
(vii) Ask the pupils to suggest more effective ways of preventing people from engaging in activities which damage the forest. Encourage them to debate the likely effectiveness of each of these strategies.

(viii) Organise a simple role play between two different visitors to the forest in which they talk about how things used to be and compare the situation with the way things are now.

(ix) Help the pupils to devise a 'Code of Conduct' for the forest trips. Help them to identify the most pertinent issues which should be included. The code of conduct might provide guidelines on issues such as the following:

- Litter
- Plant and wildlife protection
- Control of pets
- Noise control
- Forest fires

(x) Involve the pupils in the design of an attractive poster to highlight the code of conduct which they have devised. Display this on the classroom wall.





A HAPPY ENDING

Gníomhaíocht 6

Aidhm: To involve the children in a prediction exercise which challenges them to seek solutions to the problem of forest abuse.

Cur Chuige: (i) Divide the class into small groups.

(ii) Distribute one copy of Carta Oibre 6 to each group. Encourage the pupils to read, discuss and write an ending for the story.

(iii) Representatives from each group share their endings with the rest of the class. Discuss each turn.



THE TREE OF LIFE

Gníomhaíocht 7

Aidhm: To show how trees contribute to life on Planet Earth.

Cur Chuige: (i) Invite the pupils to engage in a brainstorming exercise on the importance of trees to life on Planet Earth

(ii) Compile a blackboard list of their suggestions. Discuss.

(iii) Divide the class into groups of four or five. Distribute one copy of Carta Oibre 7, and a scissors, to each group. Explain that this worksheet summarises, and possibly expands on, their blackboard list outlining some benefits of trees. Ask each group to cut out the seven statements provided

(iv) Encourage the groups to read and discuss each of the seven statements in turn. Having discussed each statement, invite the pupils to choose the three statements which they feel contain the most compelling arguments in favour of trees.

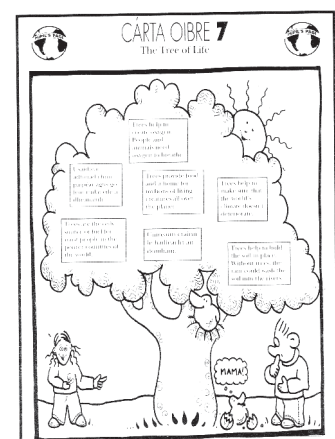
(v) Invite each group to nominate a spokesperson

to report on the choices of the group and to report on the discussion which took place. Summarise reports of each group on the backboard in the following way:

	Most Important statements
Group 1	D A E
Group 2	A C E
Group 3	A E D
Group 4etc.

(vi) Discuss the results; for example; What were the most popular statements? Why? What were the least popular statements? Why?

Invite the pupils to list other benefits which we derive from trees.





AG DÉANAMH GRINN

Gníomhaíocht 8

Aidhm: To highlight that cartoons make powerful statements about issues related to our treatment of the environment. To involve the pupils in the development of their own environmental cartoons.

Cur Chuige: (i) Divide the class into pairs. Distribute one copy of Carta Oibre 8 to each pair.

(ii) Invite the pupils to choose their favourite cartoon and to list reasons for their choice. Discuss.

(iii) Encourage each pair to devise one positive and one negative caption for their chosen cartoon

(iv) Ask the pupils to cut out their favourite cartoon, and also the one they like least. Have them mount their selected cartoons on two sheets of blank paper, and surround each cartoon with as

many questions as they can generate about it.

Note: It is not necessary for the teacher to answer these questions: the objective is to involve the pupils in the exercise of interrogating the cartoons.

(v) Encourage the pupils to create their own cartoons on tree-related issues which concern them



LOCATING THE FORESTS

Gníomhaíocht 9

Aidhm: To help the pupils to understand the global distribution of rainforests, mixed forests and coniferous forests. To provide some statistical information on levels of afforestation in selected countries.

Nóta: the map of the world used in Team Planet is the Peters Projection. This projection gives an accurate representation of the relative size of land masses, but in doing so gives a false impression shapes and distances. It is preferred choice because it does not distort the relative sizes of countries and continents.

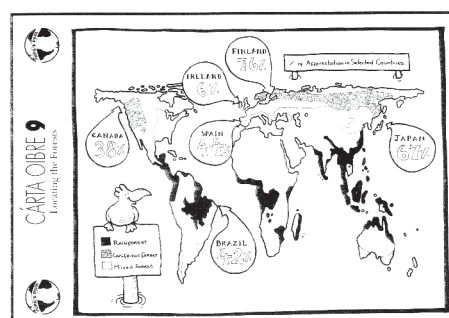
Cur Chuige: (i) Use Carta Oibre 9 to illustrate that certain areas of the globe are more suited to growing particular types of trees.

(ii) Discuss with the pupils the parts of the world in which rainforests, mixed forests, and coniferous forests are found. Invite the pupils to suggest rea-

sons for concentration of particular types of trees in particular parts of the world.

(iii) Refer to the statistics given indicating the percentage of certain countries under forests. Discuss. How does Ireland rate internationally?

(iv) Ask the pupils to identify the countries containing the highest and lowest percentage of trees. Invite them to find out more about the policies of these countries with regard to establishment and maintenance of forests.





THE RAINFOREST

Gníomhaíocht 10

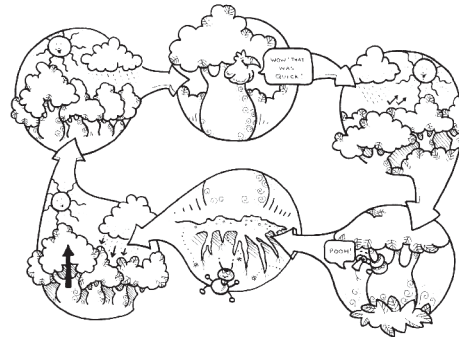
Aidhm: To introduce the pupils to the abundance of life which is found in the tropical rainforest. To highlight the delicate balance of interdependent life which exists there.

Cur Chuige: (i) Ask the pupils to speak about the the images which come to mind when they hear the word 'rainforest'. Elicit words such as 'wet', 'dark', 'forested', 'hot', 'green', etc., and ask the pupils to speak about the noise they might expect to hear in the rainforest. Allow them a few minutes to draw a sketch of their rainforest image.

(ii) Group the pupils in the pairs. Distribute one copy of Carta Oibre 10 to each pair. Encourage them to discuss the web of interrelated life that is the rainforest, and how everything is connected to everything else-the soil, plants, animals, trees, the climate. Discuss how the diagram might be

affected if particular parts of the web were damaged. For example, 'What would happen if the sun stopped shining? ...if the trees were cut down? ...if the leaves didn't decay? ... if the rain stopped?...'

(iii) invite each pair to draw a flow chart to illustrate the long-term consequences of the above.



MAKE YOUR OWN RAINFOREST

Gníomhaíocht 11

Aidhm: To involve the pupils in a practical activity which will help them to understand how the rainforest sustains itself.

Beidh gá le: Large glass jar with a tightly fitting lid; Some small pebbles; Some damp compost (not peat); A spoon with a long handle (you can tie on a stick to make it longer); two or three small slow growing house plants, e.g., begonia, small ferns, spider plant.

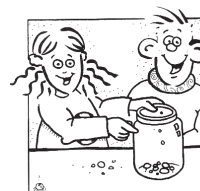
Cur Chuige: (i) Clean and dry the jar and cover the bottom with a layer of small stones.

(ii) Put a layer of damp compost over the pebbles. The extended spoon will help you to flatten it out.

(iii) Scoop out holes in the compost and put your plants in place with the spoon. Pat the soil firm around the roots.

(iv) Put the lid on the jar and put it near a window with plenty of light.

(v) Observe your mini-rainforest each day. You will notice that a mist will form inside the glass. This is water given off by the leaves of the plants. It will keep on circulating inside the jar, from the soil to plants and back into air. You should only need to water the planets once a month!





RAINFOREST DISTRIBUTION THROUGHOUT THE WORLD

Gníomhaíocht 12

Aidhm: To challenge the pupils' images about the location and size of the world's tropical rainforest.

Cur Chuige:

(i) Ask the pupils to imagine that all the tropical rainforest in the world are represented by 100 trees. Therefore, each tree represents 1% of the total amount of rainforest in the world.

(ii) Divide the class into pairs. Distribute one copy of the blank map of the world provided in Carta Oibre 12 to each pair. Encourage the pupils to mark in the Equator, and the tropics of Cancer and Capricorn. Elicit that the tropical rainforest are found in the tropical belt between the tropics of cancer and Capricorn.

(iii) Working in pairs, invite the pupils to distribute the 100 trees throughout the world estimating relative size of the rainforest. Emphasise that the total number of trees must add up to 100.

(iv) Invite comment from the pupils on their estimates for each continent.

(v) reveal the actual distribution given below. Discuss with the pupils.

- Brazil 33%
- Rest of Latin America 25%
- Indonesia 10%
- Rest of South East Asia 13%
- Democratic Republic of Congo 10%
- Rest of Africa 9%

(vi) Get the pupils to make a larger poster of the world containing 100 cut-out trees distributed according to the above statistics



RAINFOREST DISTRIBUTION THROUGHOUT THE WORLD

Gníomhaíocht 13

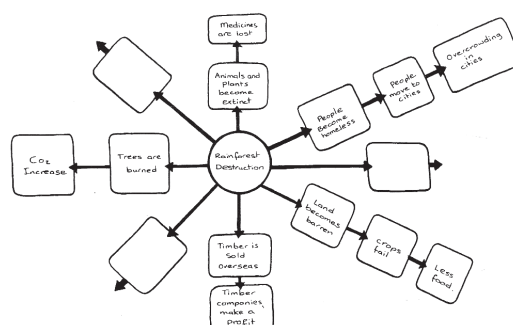
Aidhm: To highlight the wide variety of products which we get from trees.

Cur Chuige:

(i) Divide the class into pairs. Distribute one copy of Carta Oibre 13 to each group. This worksheet illustrates some of the many benefits which we have derived from the forest.

(ii) Working in pairs, encourage the pupils to discuss each item in turn and to identify what they consider to be the most important benefits of the trees. Have them indicate the items in the illustration which surprised them most/least. They should mention any items they may have used today which came originally from the rainforest.

(iii) Encourage the pupils to make a 'future wheel' to predict the short-term and the long-term consequences of the rainforest destruction. Start by writing the word 'rainforest destruction' in a circle at the centre of a page. Invite the pupils to suggest the immediate consequences of the rainforest destruction and write them in small circles directly surrounding it. Work on the outer circle to build up a futures wheel as shown:





THE CYCLE OF DESTRUCTION

Gníomhaíocht 14

Aidhm: To involve pupils in a co-operative exercise which helps them to understand the cause and the consequences of rainforest destruction.

Cur Chuige:

(i) Elicit what the pupils know about the reasons for and about the course of rainforest destruction record on blackboard.

(ii) Divide the pupils into small groups distribute one copy of Carta Oibre 14 to each group. Explain that this worksheet highlights the main elements of rainforest destruction however, the order of the text is mixed up. The task is to sequence the sections in correct order.

(iii) Once they have agreed on a sequence, invite each group to study each section in turn to discover the negative effects of the rainforest destruction. On their copybooks, have them list these effects in a table such as shown below:

Rainforest Destruction

	What/Who is harmed?	How?
Picture 1		
Picture 2		
Picture 3		
Picture 4		



THE VANISHING RAINFOREST: FIGURE IT OUT

Gníomhaíocht 15

Aidhm: To involve pupils in mathematical problem-solving based on statistics relating to the rate of global deforestation

Cur Chuige: Distribute one copy of Carta Oibre 15 to each pupil. This worksheet presents some statistical information on the rates of rainforest depletion and of timber consumption and invites the pupils to solve some mathematical problems based on this information.

CÁRTA OIBRE 15

The Vanishing Forest: Figure it Out

- 1 It is estimated that 14 hectares of rainforest are being cleared each minute. At that rate, how many hectares of rainforest are cleared?

(a) each hour _____

(b) each day _____

(c) each week _____

(d) each month _____
- 2 Ireland is approximately 7 million hectares in size. How long would it take for an area of rainforest the size of Ireland to be cleared?
- 3 Trees take between 20 and 300 years to grow. On average, people in the wealthier countries of the world use 2 trees each per year.

(a) The population of Ireland is approximately 4 million. At the above rate of usage, how many trees would the population of Ireland use in 1 year?

(b) Assuming that you are the 'average person', how many trees are you likely to have used so far in your life?

(c) How many trees are you likely to use by the time you are 45?
- 4 List ways in which you could cut down on your use of trees and tree products.
- 5 Today only 66% of the world's rainforests remain. The world is losing its rainforests at a rate of 7% per year. If we continue clearing the rainforests at this rate, how many years will it take for the rainforests to disappear completely?



LIFE IN THE RAINFOREST

Gníomhaíocht 16

Aidhm: To provide an insight into the lives of people who live in the Brazilian Rainforest, and to highlight some of the adverse effects of deforestation on the lives of these people.

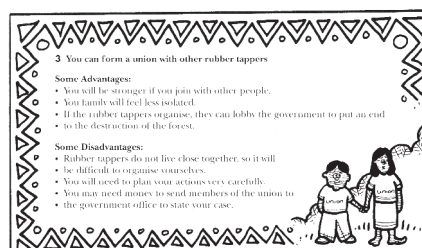
Cur Chuige: (i) Read the story of Lucu (on Teacher's Resources Sheet, Gníomhaíocht 16) to the pupils. Discuss the story, asking pupils to list what they liked / disliked about Lucu's lifestyle.

(ii) Ask them to suggest some possible endings to the story. What could the family do to protect their home?

(iii) Divide the class into five groups and distribute one copy each of Carta Oibre 16A and 16B to each group. Allow the pupils to discuss the op-

tions that are open to the rainforest people and to decide on what they consider to be the best course of action.

(iv) Allow time for each group to present and justify its decision to the class. Emphasise that there are no right or wrong answers but that long-term effects of any decision must be considered.



WHY CUT DOWN TREES?

Gníomhaíocht 17

Aidhm: To bring the pupils to an awareness of the main reasons for the rainforest destruction.

Cur chuige: (i) Ask the pupils to list the uses which we made of timber and to suggest reasons for felling trees.

(ii) Distribute copies of Carta Oibre 17 which explores the main reasons for rainforest destruction.

(iii) Encourage the pupils, working in groups, to identify the person whom they consider to be most justified in clearing the forest.

(iv) Ask them to list the positive and negative effects of the action of each person interviewed in the worksheet.





THE FRIENDS OF THE TREE

Gníomhaíocht 18

Aidhm: To provide the pupils with an imaginative insight into the importance of maintaining a proper ecological balance.

Cur Chuige: (i) Read the story *The Friends of the Tree* with the pupils.

(ii) Working in groups, ask the pupils to discuss and write their responses to the questions on *Cárta Oibre 18*. Discuss the pupils' responses.

(iii) Invite groups of pupils to dramatise the story while other pupils narrate the story.

(iv) Discuss how Ratu might have replied to the animals and spirits of the forest. How might indi-

vidual pupils have replied? Give them opportunities to explain why.



THE PLANNING GAME

Gníomhaíocht 19

Aidhm: to provide the pupils with an opportunity to make choices and decisions on the environmental matters.

Cur Chuige: (i) trees are often cut down to make way for buildings and roads. Discuss the local area with pupils and encourage them to think about the following questions:

When were trees last planted in your locality?

Where? How many?

Do all of the trees which were planted still exist?

If not, why not?

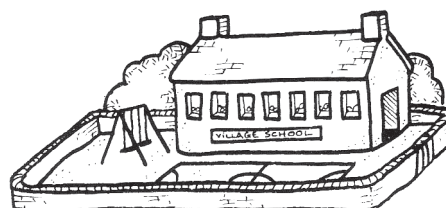
How can we protect trees in public places

(ii) Ask the pupils to think about the life of an architect or town planner. Discuss some buildings in the locality which are attractive / not attractive. What environmental decisions might town planners have to make on a regular basis?

(iii) Divide the class into pairs distribute one copy of *Cárta Oibre 19A & 19B* to each pair. *Cárta Oibre 19A* contains a range of buildings which can

be cut out and laid on the village site in *Cárta Oibre 19B*. Invite the pupils to plan an attractive and practical village while interfering as little as possible with the natural landscape. In particular, the pupils should try not to disturb the areas of marshland and woodland. They should try to preserve as many free-standing trees as possible. Access roads to the village and within the village can be drawn by the pupils. They should be no more than 2cm in width.

(iv) Encourage the pupils to discuss and debate the advantages and disadvantages of a range of different plans before deciding on the one which they feel is best. Once completed, the pupils present their plans to the rest of the class.





THINGS TO DO

Gníomhaíocht 20

Aidhm: To provide the pupils with a range of activities in which they can become involved

Cur Chuige: (i) Encourage the pupils to write to the following organisations for further information about tress:

An Taisce,
The Tailors' Hall, Brick Lane, Dublin 8.

Crann,
32 Upper Baggot Street, Dublin 4.

The Environmental Conservation Organisation,
11 Cope Street, Dublin 2.

The Tree Council of Ireland,
33 Botanic Road, Dublin 9.

Trees of Ireland,
c/o 22 Cabinteely
Green, Longmeadow,
Cabinteely,
Dublin 18.

ENFO

17 St.Andrew's Street, Dublin 2.

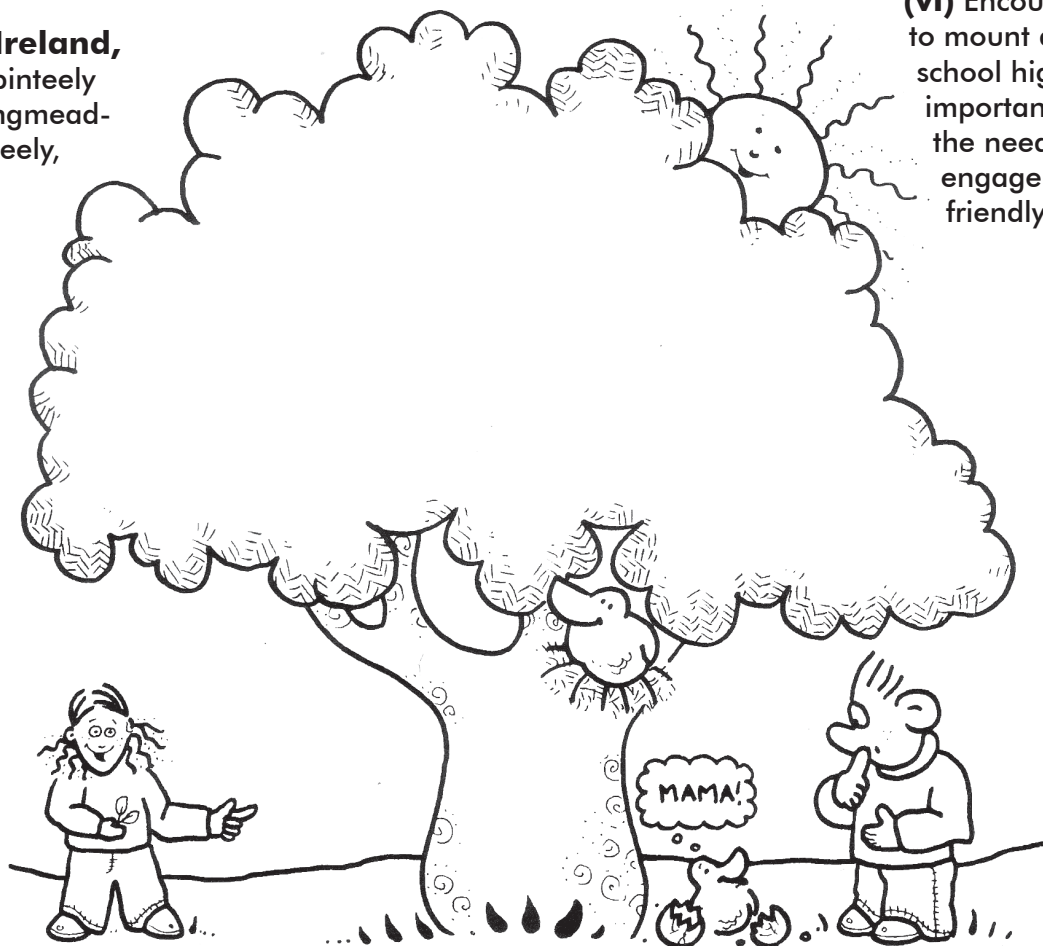
(ii) Encourage the pupils to devise a persuasive leaflet highlighting the importance of trees and how deforestation affects us.

(iii) Run a survey of shoppers. Do they know where their goods came from? The effects of over packaging? The effects of deforestation?

(iv) Involve the pupils in the tree-planting exercises at home and in the environs of the school.

(v) Invite the pupils to investigate their own paper use. Encourage them to compile a chart listing the most paper-consuming activities in which they engage. Invite them to think of creative ways to reduce their paper consumption levels.

(vi) Encourage the pupils to mount a display in the school highlighting the importance of trees and the need for people to engage in more tree-friendly activities.



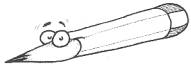
THEME 1: TREES RESOURCE SHEETS



CÁRTA OIBRE 1A

How Tall is Your Tree?

Beidh gá le:



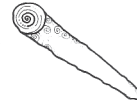
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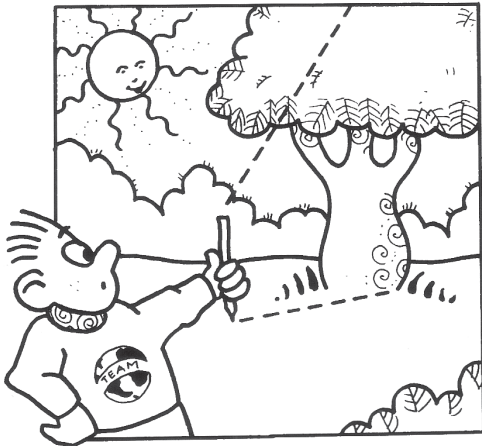
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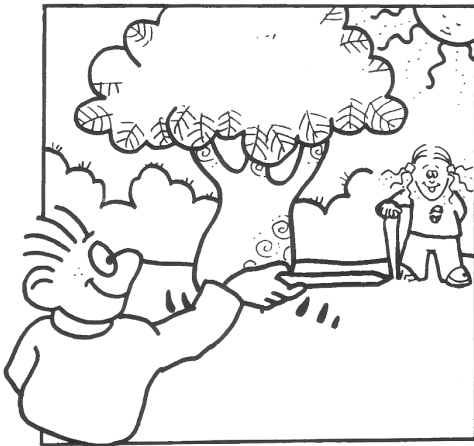
cara



1 Stand in a place where you have a good view of you tree.

2 Hold your pencil vertically and at arms length.

3 walk backwards until the pencil seems to be the same height as the tree. Keep one eye closed while you do this.

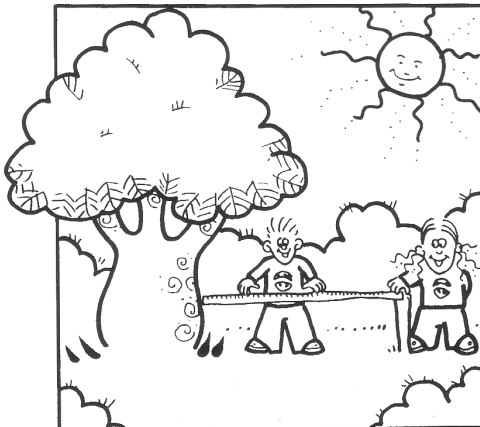


4 Turn your pencil sideways, positioning one end of it against one side of the tree.

5 Ask your friend to walk to that side of the tree carrying the stick which you have bought.

6 Shout stop when your friend reaches the end of the pencil.

7 Mark the spot with the stick.



8 Measure the distance from the tree to the stick. This is the approximate height of the tree.

9 Repeat this exercise to make sure that you did it correctly.

10 Scriobh do thorthai thios:
The height of our tree is _____

CÁRTA OIBRE 1B

The Bark that doesn't Bite

Pupil's Page



Try the following activities on your tree.



Beidh ga le:

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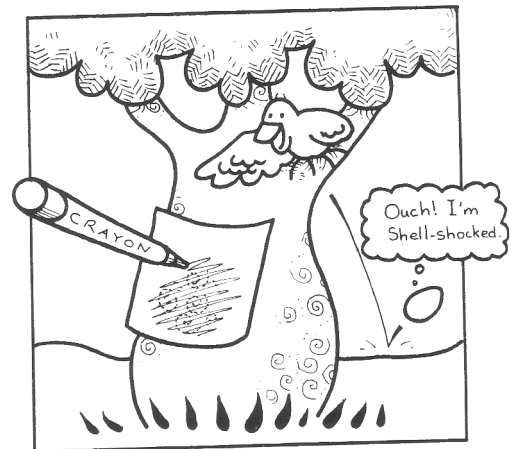


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Bark Rubbings

1 Tie the grease proof paper securely around the trunk

2 Use a wax crayon and rub firmly over the whole sheet. Notice how the bark pattern begin to emerge. Do not try to fill in the blank spaces as the contribute to the pattern. Display your bark rubbing when you return to the classroom.



Calculating the age of your tree:

1 measure the girth of your tree by placing a tape around the trunk and measuring the girth in centimetres

Tree found in Open Spaces:

If the tree is found in an open space, then its girth will have increased by about 10cm every four years. That is, if the girth is 30cm, then your tree is 12 years old.

Trees found in Wooded Areas:

If your tree is growing in a wooded area, then its girth will have increased by about 10cm in 8 years. That is, if the girth of your tree is 30cm, then your tree is 24 years old

2 Record Your Finding Here:

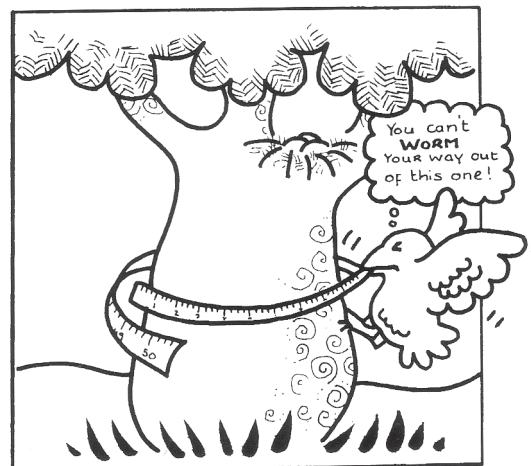
Our tree grows in an open space _____ (Yes/No)

Our tree grows in a wooded area _____ (Yes/No)

The girth of our tree is _____ cm.

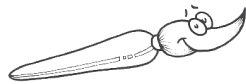
Our tree is _____ years old.

Try to find an old tree and a young tree of the same species. List the differences in the bark of the two in your copy.





**Small creatures like some types of trees better than other.
Find out if they like to live on your tree.**

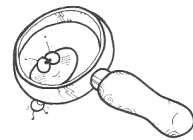


**Beidh ga le:
daithe**

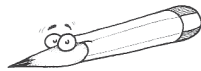
scuab phéinteála



próca Suibhe



gloine formhéal-



Pionsail



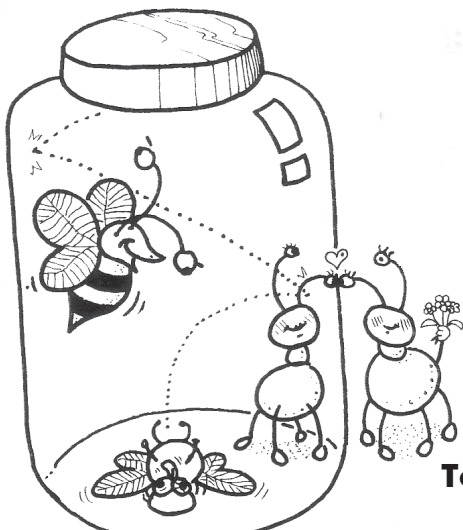
scáth báistí



bata fada

The Special Branch Division

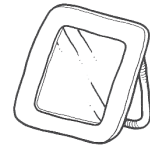
- 1 Get an umbrella or a large piece of cloth.
- 2 Some members of your group can hold the umbrella, upside down, under your tree.
- 3 Use a long stick to shake the branches of the tree overhead. Be careful to treat the tree gentle and with respect.
- 4 Count the number of creatures that fall onto the umbrella.
- 5 Study them through the magnifying glass. Draw the different kinds in your copy.



The Barkers

- 6 Explore the bark of your tree for small creatures look into the cracks in the bark.
- 7 Use a fine paintbrush to put the small creatures you find into the jar.
- 8 Study them through the magnifying glass. Draw the different kinds in your copy.

Tóg na hainmhithe go léir ar ais go dtí an crann.



Beidh ga le:

batáí adhmaid

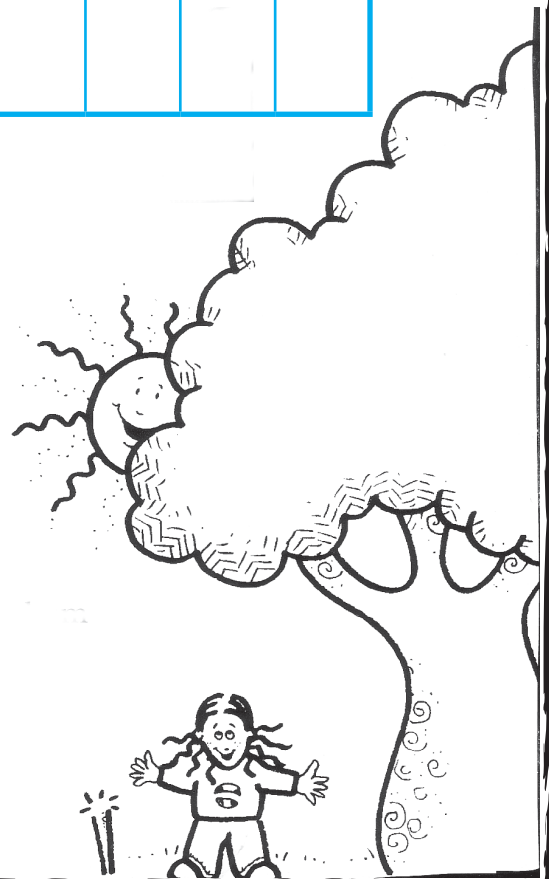
scáthán

- 1 Stand under your tree.
- 2 Look at the branches overhead. Be careful not to look at the sun.
- 3 Use timber stakes to mark the ground directly underneath the extremities of the branches.
- 4 Pace the distance from the branch markers to the trunk of your tree.
- 5 Use a tape to measure the length of one your paces. How far out from the trunk do the branches spread? Record your answers below:

Branch No.	1	2	3	4	5	6	7	8	9	10
Distance from trunk of tree										

6 Hold your mirror so that in it you can see the branches overhead from a different perspective. Place your other hand on your friend's shoulder. Ask your friend to lead you around the tree under the branches. Look into your mirror. What do you see? Swap places and do it again.

7 Can you find plants growing under your tree? Draw them in your notebook.





People in different parts of the world different views about the environment. Read and discuss these statements. Which do u agree with?



Brazilian Indian

...the forest is what makes us and what makes our hearts go. Because without the forest, we wouldn't be able to breathe and our hearts would stop and we would die.

The Earth is our mother. She nourishes us. That which we put into the ground she returns to us ...



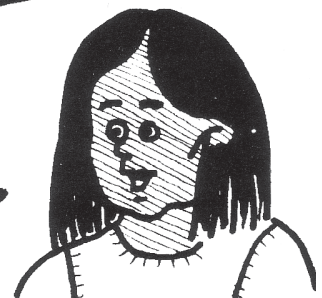
North American Indian



Nigerian Poet

Enjoy the Earth gently, For if the Earth is spoiled It cannot be repaired. Enjoy the Earth gently.

The roots of all living things are tied together. When a mighty tree is felled, a star falls from the sky. Before you cut down a tree, you should ask permission of the keeper of the forest and you should ask permission of the keeper of the star.



Mexican Indian



Australian Aborigine

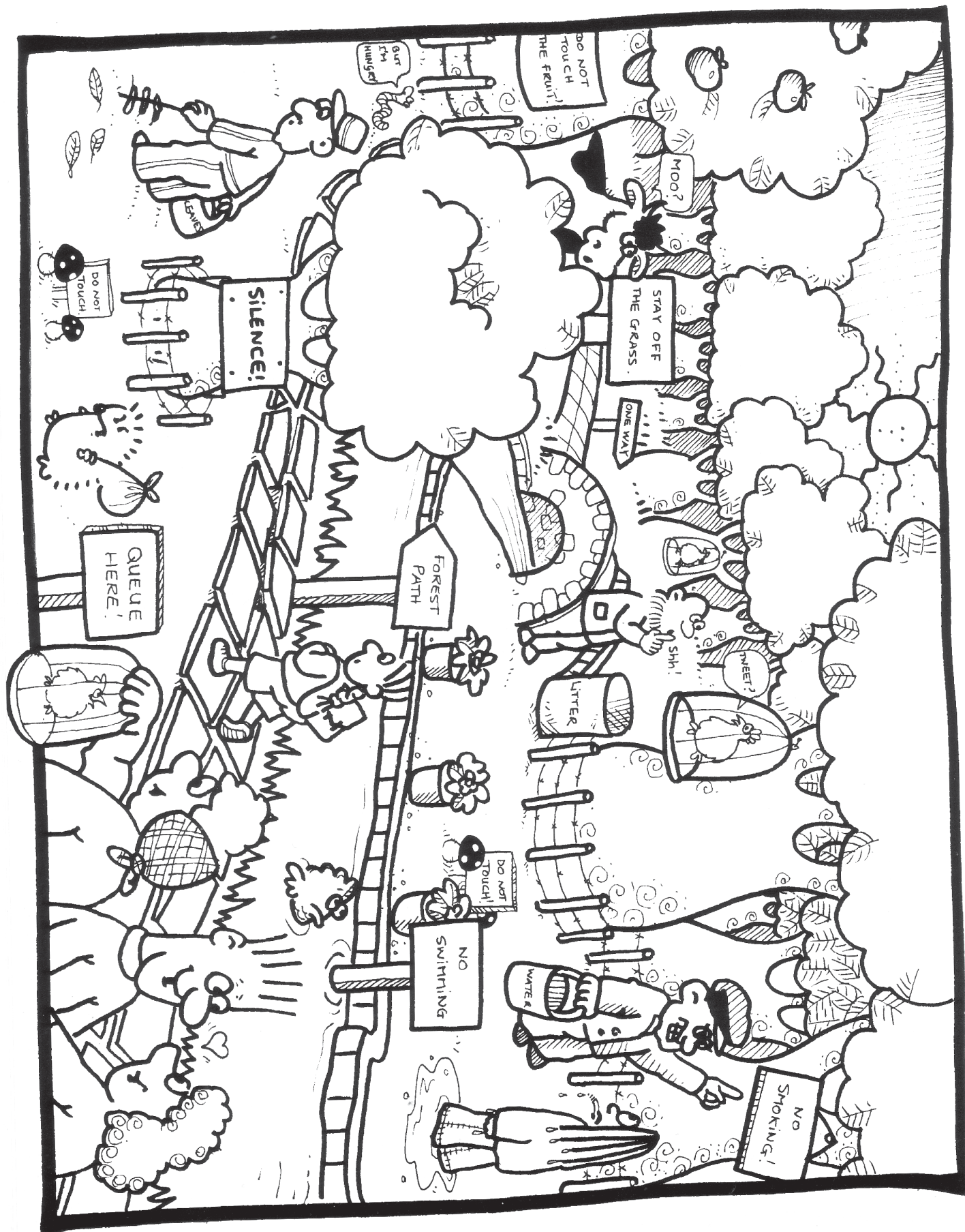
We and the land are one. When you take it from us, you kill the spirit that gives us life.





CÁRTA OIBRE 5B

Going Wild in the Forest





Eoin and Niamh went for a walk in the forest one afternoon. At the entrance to the forest, the children noticed a sign. The sign read: 'Bike or motorbike riding strictly forbidden'. 'That's just as well,' said Eoin, 'as motorcyclists generally travel very fast, make a lot of noise and frighten the wildlife.' 'Cyclists often go off the main paths and trample wild flowers,' added Niamh.

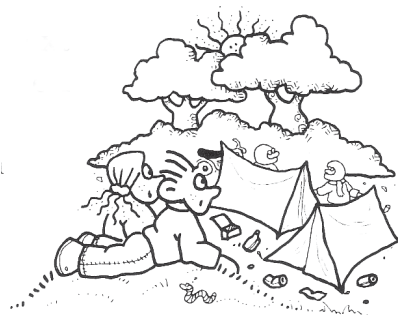
It was Autumn and the children were walking through the forest listening to the sounds of birds singing and the gentle rustle of falling leaves. Soon they found a pigeon tangled in a plastic bag. Eoin held the bird and Niamh used her pocket knife to cut the plastic. 'I can't understand why some people dump their rubbish wherever they please,' said Niamh. 'Plastic litter remains in the soil for hundreds of years and can cause terrible damage to birds animals. 'Shsss,' said Eoin, 'I think I hear motorbikes coming. Let's hide!' the children hid in a safe spot where they could watch the motorcyclists. The noise grew louder as the motorbikes approached. Above the noise of the engines, the children could hear the sound of laughter and shouting, and when the riders came into view, the chil-



dren could see them throwing sticks at the nest in the trees and then throwing empty cans at each other. Within a few minutes they passed out of earshot. 'We can't just go home and pretend that we didn't see that,' said Niamh, 'I think we should follow them.' 'Maybe if we come upon them we can take their registration numbers and report them to the Forestry Officers,' said Eoin



As it happened, the children caught up with the gang just over the next hill, where they were camped. Not wanting to be seen, they lay down on the grass and peered cautiously over the ridge. They could scarcely believe what they saw. Plastic bags, food packs and assorted rubbish lay all around the small tents which bikers had put up in the middle of the clearing. 'What a mess!' exclaimed Eoin. 'They come up here because they like the place, and then they mess it up. It doesn't make sense.' The children were puzzled and angry. This place was special to them. They wanted to do something....

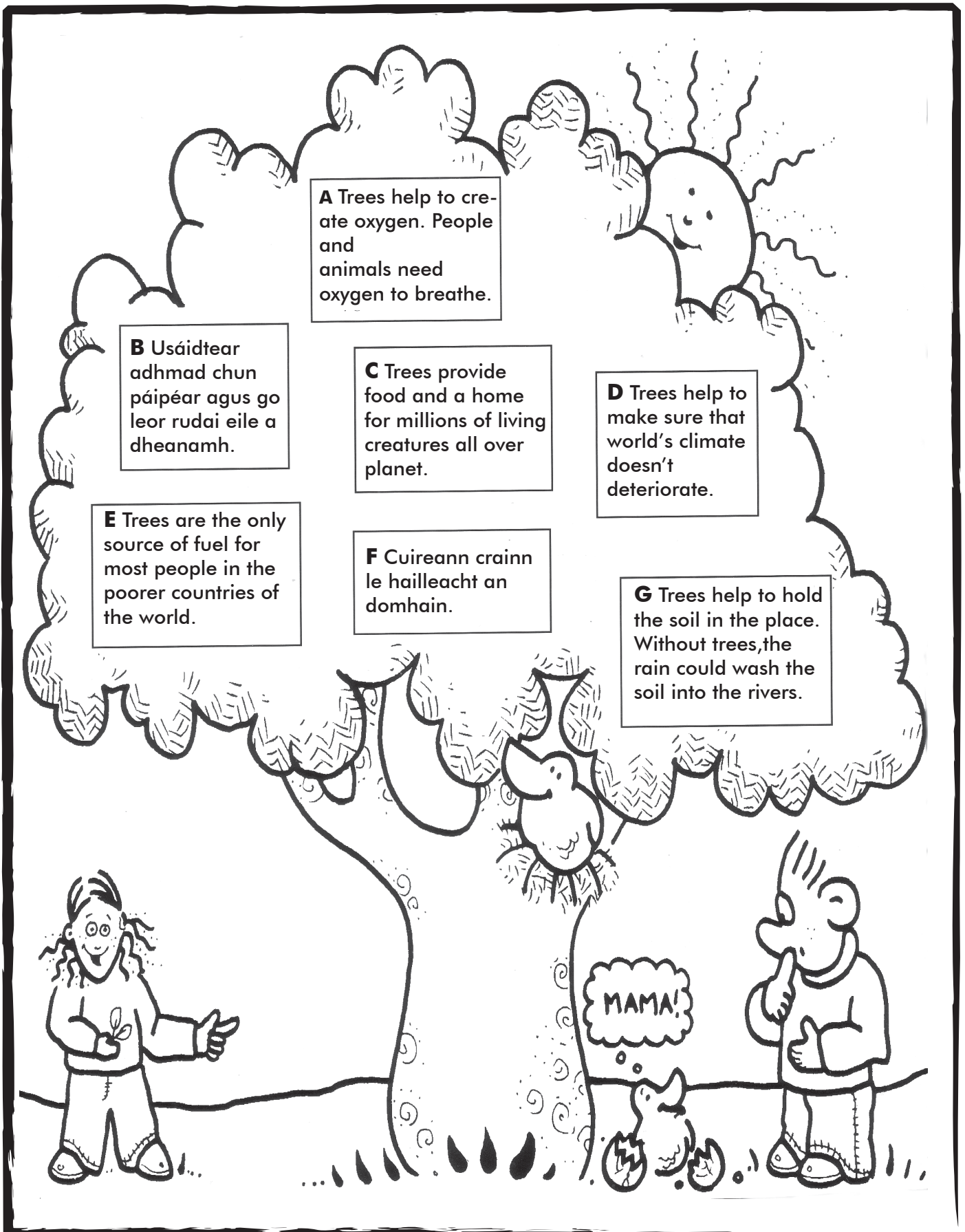


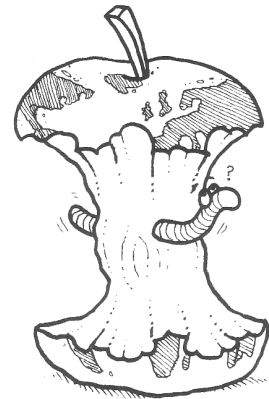
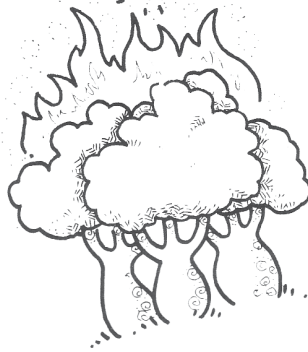
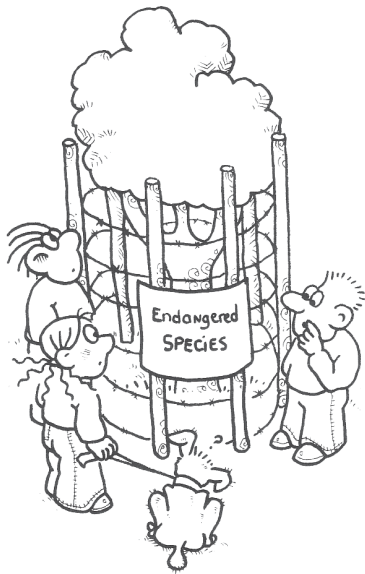
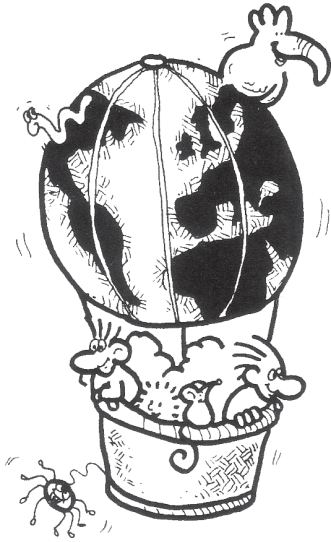
Cad a dheaneann tu?

1 Think about how Eoin and Niamh felt when they saw how the forest was being vandalised. Have you ever been in a similar situation? what did you do? How did you feel? Talk about it with your group.

2 What could the children do? Discuss the possible ending to this story and write the one which you think is most suitable.

3 Give the story a title

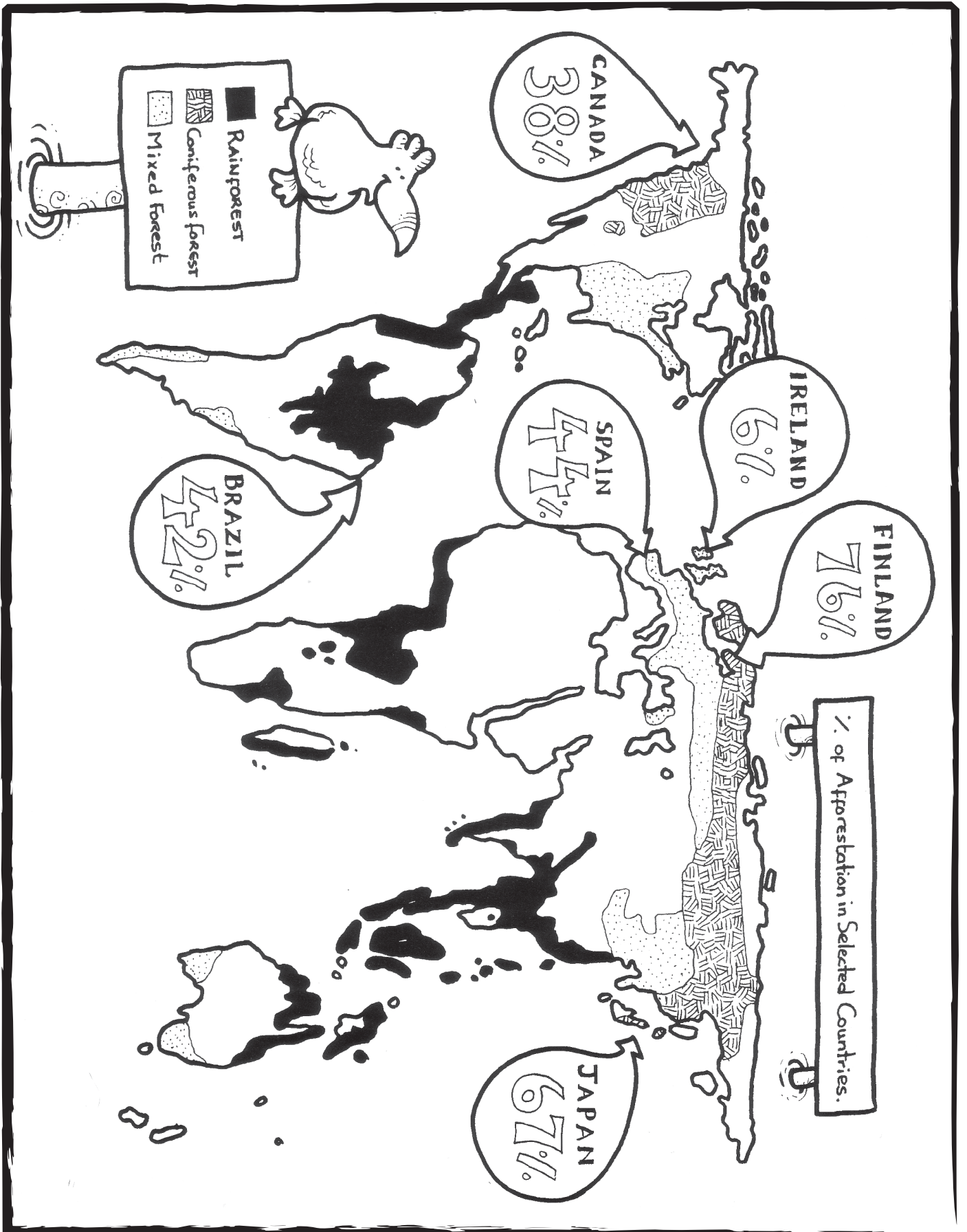






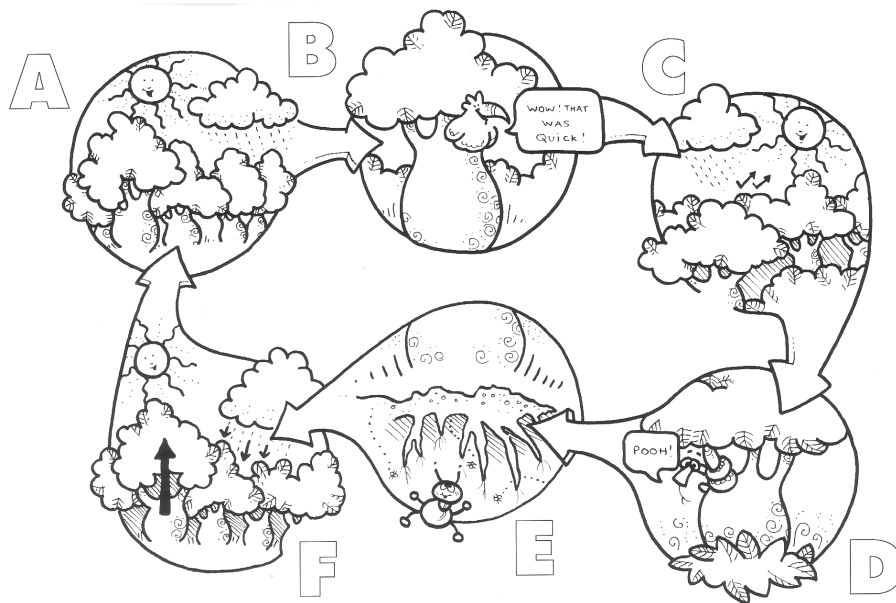
CÁRTA OIBRE 9

Locating the Forests





This diagram shows how the rainforest works. Study it with a partner. Discuss how the parts are linked together.



Now read the text. Match each sentence or paragraph to its illustration. The first one is done for you.

_____ So the rain forest trees and plants grow very quickly.

A _____ The sun warms the rainforest and a lot of rain falls each day.

_____ When the leaves fall, they decay quickly on the damp, hot forest floor. In this way they return nutrients to the soil and provide food for the forest trees and plants.

_____ The sun causes water to evaporate from the leaves high in the tree. The tree draws water from the soil up through their roots. This water is released through the leaves. Imagine that just one forest tree can return up to 227litre of water to the atmosphere each day.

_____ The many roots from the trees and plants help to form a mat which holds the soil together. This helps to prevent rain from washing the soil away.

_____ The trees grow very close together and their leaves form a kind of umbrella over the forest. This umbrella is called a 'canopy'. A lot of the rain evaporates from the canopy before it falls to the ground. So the canopy helps to protect the rainforest soil from being washed away by the heavy rains.

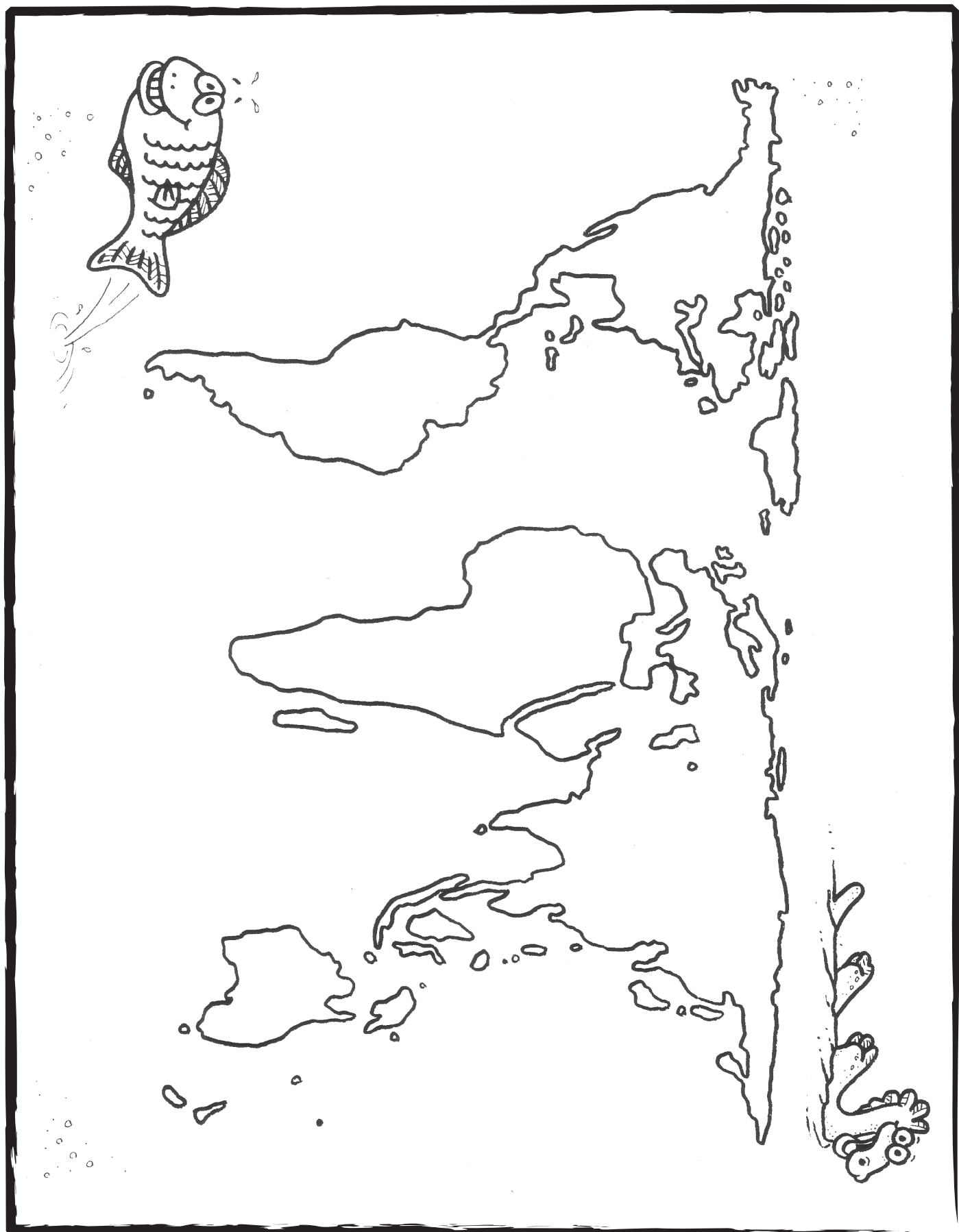
Now, imagine what would happen if

1 the sun stopped shining... **2** the rain didn't fall... **3** the trees didn't form a canopy...

4 the leaves didn't decay... **5** the water didn't evaporate from the leaves ...

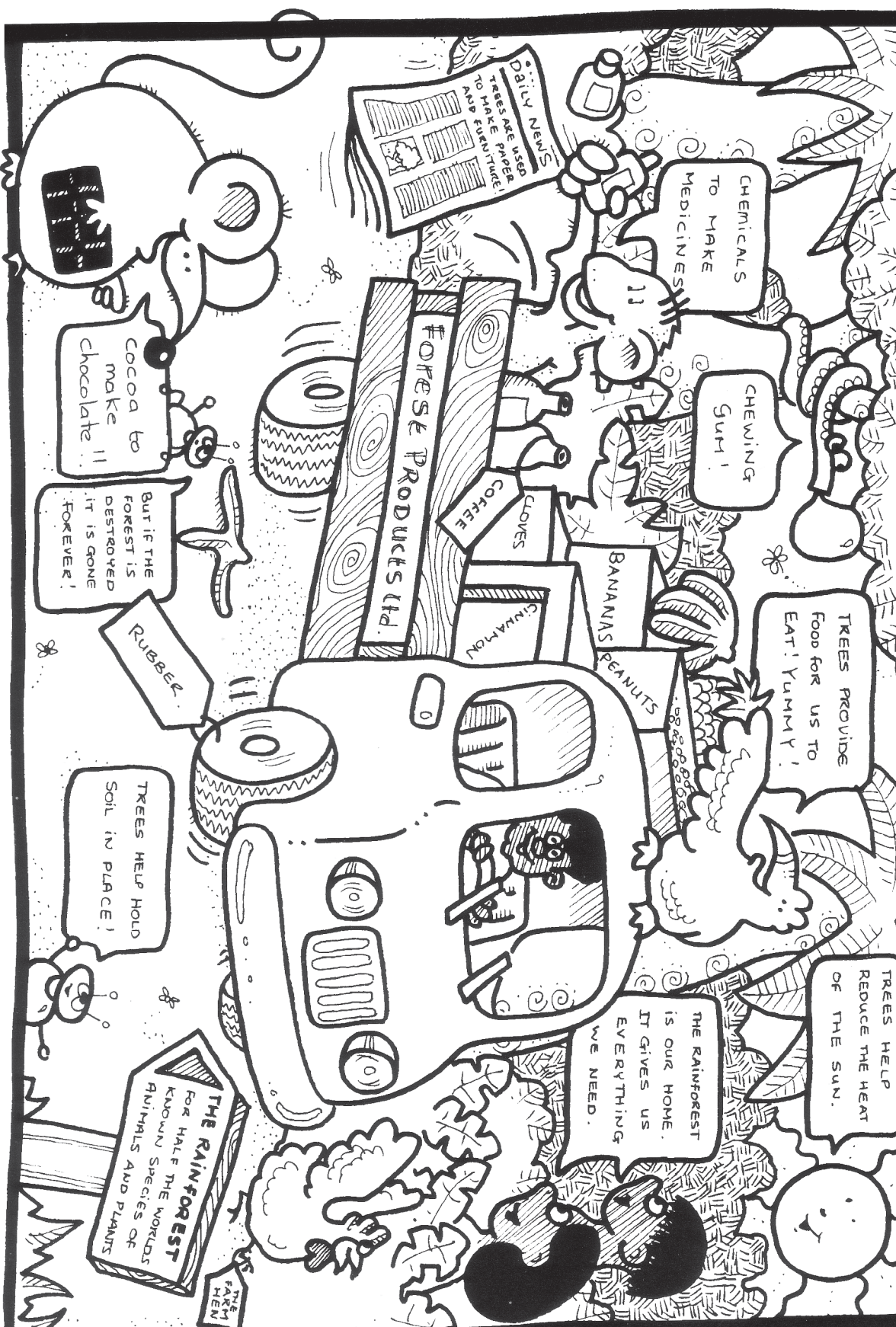
6 the trees were cut down...

Write about each of these in your copy.





With a partner, study the illustration below which shows some of the many benefits of trees.



1 What surprised you most in the drawing? What surprised you least?

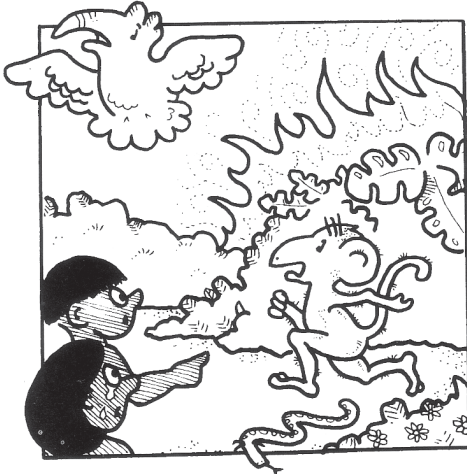
2 Have you use any items today which originally came from the rainforest? List them on a page.

3 Make a 'future wheel' to show what would happen if the rainforests were destroyed. Your teacher will show how to get started.

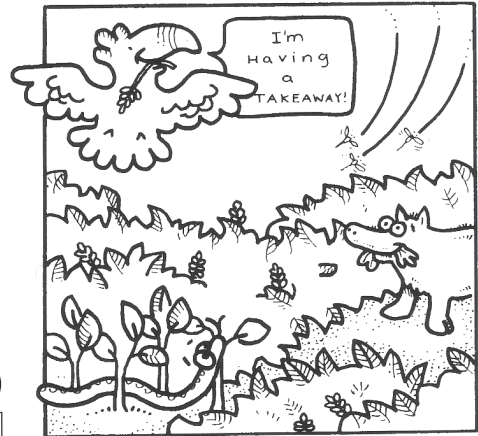


Match the paragraphs to the pictures. The pictures are in the correct order. The text is mixed up.

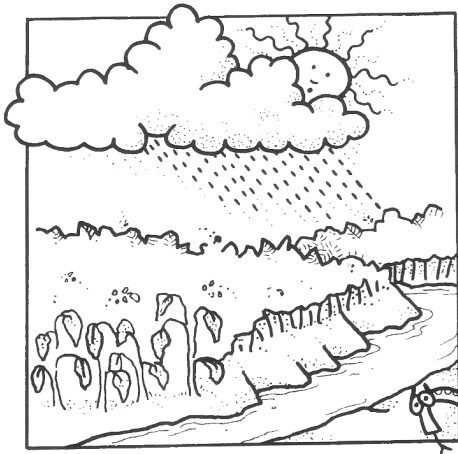
1



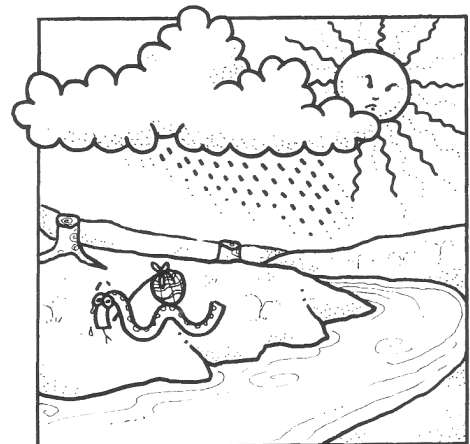
2



3



4



Crops Fail

Without the cover of the trees, the soil becomes poorer and poorer. The heavy rains directly on to the land and wash the soil away. The crops have no nutrients and begin to die.

The Forest is Burned

Rainforests are almost always cleared by fire. Thousands of living creatures die in the fire. People living in the forest lose their homes and are forced to move. Forest fires put huge amounts of harmful carbon dioxide into the atmosphere.

The Land Becomes Barren

Without the cover of crops or trees, the sun bakes the soil and makes it hard. The rain falls and cannot soak into the hard soil. There are no trees to absorb the rain and to return it to the atmosphere so the water runs into the river swell and causes flooding in towns and cities downstream.

Crops are Planted

Crops are planted on the cleared land. They do well for a while but soon animals, birds and insects attack the new crops.



The Vanishing Forest: Figure it Out

1 It is estimated that 14 hectares of rainforest are being cleared each minute. At that rate, how many hectares of rainforest are cleared

- (a) each hour? _____
- (b) each day? _____
- (c) Each week? _____
- (d) Each month? _____

2 Ireland is approximately 7 million hectares in size. How long would it take for an area of rainforest the size of Ireland to be cleared?

3 Trees take between 20 and 200 years to grow. On average, people in the wealthier countries of the world use 2 trees each per year.

(a) The population of Ireland is approximately 4 million. At the above rate of usage, how many trees would the population of Ireland use in 1 year?

(b) Assuming that you are the 'average person', how many trees are you likely to have used so far in your life?

(c) How many trees are you likely to use by the time you are 45?

4 List ways in which you could cut down on your use of trees and tree products.

5 Today only 60% of the world's rainforest remain. The world is losing its rainforest at a rate 7% per year. If we continue clearing the rainforest at this rate, how many years will it take for the rainforest to disappear completely?

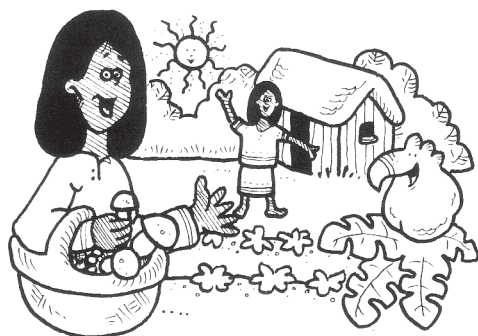




LIFE IN THE RAINFOREST

Gníomhaíocht 16

Since Lucu was a child, she and her family have lived in the heart of the great rainforest of Brazil.



The nearest town is three days' walk away but the forest and the clearing around the house provide the family with everything

they. On the clearing beside their house, the family grows maize, peanuts, rice, and pineapples. In the forest, Lucu gathers mushrooms, bamboo shoots, berries and nuts

Two years ago, Lucu, her brother Ricardo, and their parents moved to this part of the forest. It was hard work at first, cutting down the tall trees to clear a small patch of land where they could build their house and grow some crops. But Lucu and her family are not strangers to this type of work because they move to a different part of the forest every three years. Besides, Lucu is now ten, and is much bigger and stronger than she was the last time moved.

When Lucu asked why they were always moving to different parts of the forest, her mother explained that the soil in the forest is so thin that it can only be used for three years it is best to move on to a new patch and give the clearing back to the forest. Lucu's family cut down only enough trees to make room to grow crops for themselves, never any more. They respect and

care for the forest because they know that their lives depend on it.

Lucu's father is a rubber tapper. Every morning at sunrise he sets out with her into the forest to collect rubber. When they come to a tall rubber tree, he cuts a scar in the bark of the tree to allow the sticky latex to pour into the small cup which he places under the scar. He empties the cup placed under yesterday's scar into a bucket. When they return, they make rubber from latex and they sell it in the local town.

One evening a good friend, Chico Mendes, comes to visit. Chico Mendes has bad news. He warns the family that they are



in danger. The forest people are being forced to leave their homes by powerful landowners who want to sell the land to cattle ranchers. The cattle ranchers will burn the forest trees to make grazing lands for the cattle. 'If the forest people refuse to leave,' he says, 'then hired gunmen will be sent to force them off the land'

When Lucu's mother and father hear this they are very worried. Their families have lived in the forest for hundreds of years. Their life depends on the forest. What can they do now that the forest is under threat?





Imagine that you belong to Lucu's family. Your way of life depends on the forest. Without it you cannot survive. You are very worried by the news that Chic Mendes brings because it means that your future in the forest is threatened. You must do something to protect yourself and your family. Here are the choices that are open to you:

1 You can move to the city to try to find work

Some Advantages

- In the city there is a lot of work.
- If you got work then your family might be able to survive
- In the city you would be safe from the gunmen

Some Disadvantages

- You have never been in a city before. You may not like it there. Work in the city is very hard to find because many people live there who also need to work.
- Its costs a lot to travel to the city. So when you arrive you won't have much money for rent.
- You may have to move to a shantytown if your money runs out or if you don't get a job. Life in a shantytown is very difficult



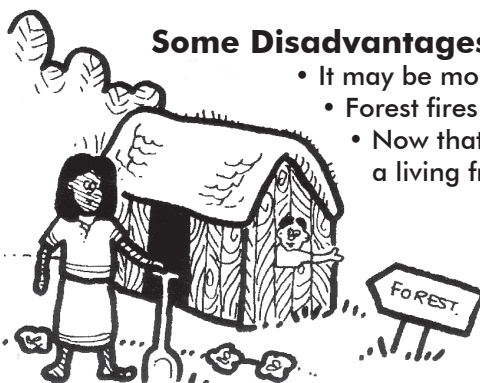
2 You can stay where you are.

Some Advantages:

- You will stay in the forest which you love.
- You will not risk the cost of moving to another place.
- Life in the rainforest is the only life that you know. Moving to another place could be frightening and dangerous.

Some Disadvantages:

- It may be more dangerous to stay in the forest now than to leave.
- Forest fires may damage your house and crops.
- Now that the trees are being cut down, it will be impossible to earn a living from rubber tapping .





3 You can form a union with other tappers

Some Advantages:

- You will be stronger if you join other people.
- Your family will feel less isolated.
- If the rubber tappers organise, they can lobby the government to put an end to the destruction of the forest.

Some Disadvantages:

- Rubber tappers do not live close together, so it will be difficult to organise yourselves.
- You will need to plan your actions very carefully.
- You may need money to send members of the union to the government office to state your case.



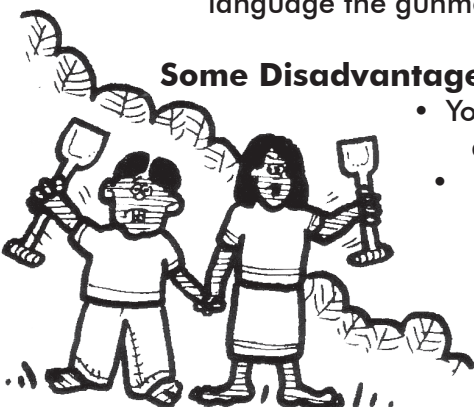
4 You can stay where you are and fight back.

Some Advantages:

- You would show the gunmen that you could fight too.
- You would be speaking the gunmen's language, and fighting is the only language the gunmen know

Some Disadvantages:

- Your family has always lived in peace. Fighting would go against everything you believe in.
- There are more gunmen than you. You are outnumbered



Discuss each choice card with the other members of your group. Choose what you consider to be the best course of action for Lucu and her family. List the reason for your choice on a sheet of paper.

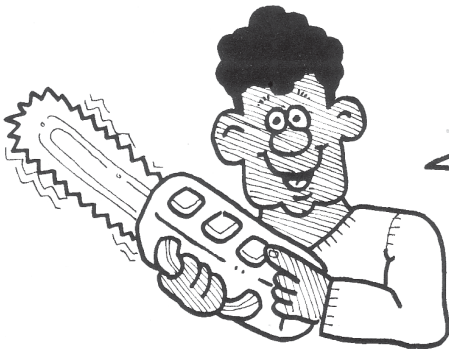


Why Cut Down the Trees?



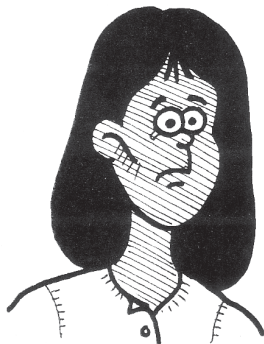
I am a miner. I came to the rainforest ten years ago to mine for gold. We have to cut and burn a lot of trees to make a road to the mines. We use chemicals like mercury to extract the gold from the rock. Unfortunately, some mercury gets into the rivers and poisons the water. I feel sorry that this happens, but mines provide wealth and work for a lot of people.

I am a cattle rancher. I moved to the rainforest some years ago to raise cattle. I came with a team of farm workers and we began clearing the forest, a few thousands acres at a time. The only problem is that just two years after the cattle move in, the soil becomes useless, so we have to move on to clear another patch of forest. It is hard work, but I earn good money.



I am a logger. I work for a large company which exports timber all over the world. The rainforest is a rich source of valuable timber for the building industry. Being a logger means that there is always work.

I am an engineer with a hydro-electric company. We dam the rivers to produce electricity. Huge numbers of trees are cut down to make way for these dams. The dams also cause flooding of up to half a million hectares of land each. It is a shame to see the forest being flooded, but without electricity, how can we develop our country?



I am a farmer. I have to live on the edges of the forest. My family and I clear trees to grow crops for food. We plant maize and other crops. After a couple of years, the land becomes barren and we have to move on and clear another patch. Life in the forest is difficult, but is better than living in a shantytown in one of the big cities.



In the forest stood a fine straight tree. Nobody knows what sort it was – there were so many types in the Maoris' ancient forests. Ratu, the hero of many stories, decided to make a canoe out of the tree. So he sharpened his axe and, without another moment's thought about it, chopped the fine tree down. But when he came back the next morning, the tree was standing again, the dew glistening on its leaves and the sun shining on its rough bark.

Surprised and annoyed, Ratu thoughtlessly took up his axe and once more chopped the tree down. This time he lopped off all the branches too. But the next morning, there was the tree standing up once more. On the leaves there were insects, on its branches were all sorts of birds. The wind sang through

the tree on its way through the forest.

Ratu snatched up his axe and ran angrily at the tree. For the third time, he cut it down. But he came back at dawn the next day. Moving quietly through the forest, he drew closer to the tree he wanted for his canoe. To his surprise, he heard a great deal of noise ahead of him. It was the buzzing and fluttering of the wings of swarms of bees, beetles, birds and other forest creatures Ratu could hear some of the birds singing too.

Then, peering through the bushes, he saw a surprising sight. The fallen tree was surrounded by many creatures which lived in or on it-and already they were putting branches, leaves and bark in their right places. The tree was already complete again. Ratu saw the spirits of the forest appear and started to pull it upright. But his angry took hold of him at this and he ran out of his hiding-place, shouting: 'Stop that, it's my tree!'

The animals and spirits of the forest turned towards Ratu and, with one voice, replied: 'And who gave you permission to kill one of our trees?'



Story about the Maoris of New Zealand taken from The Stories of Vanishing Peoples, John Mercer, Allison & Busby, London, 1982

Think, talk and write about the following:

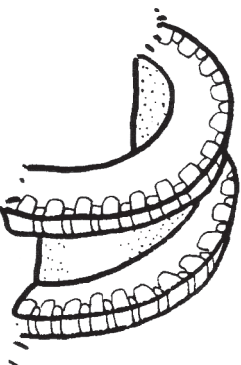
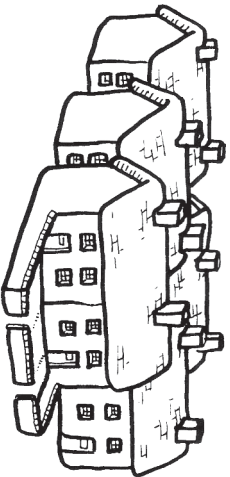
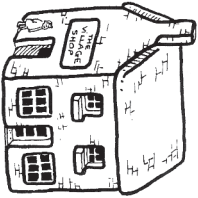
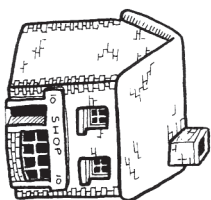
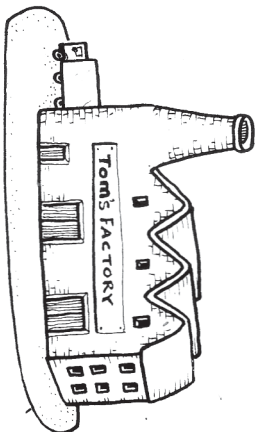
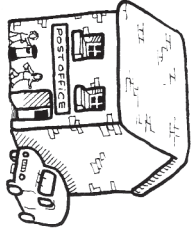
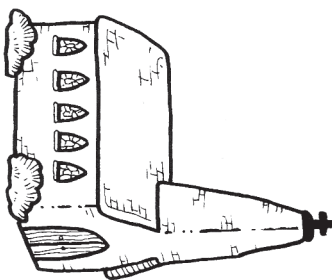
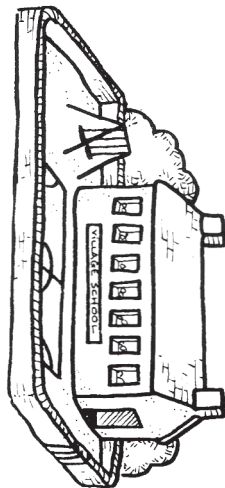
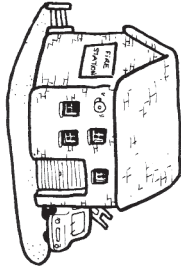
1. Why did Ratu decide to cut down the tree?
2. Why was he surprised when he returned to the forest to collect his tree?
3. Describe how Ratu might have felt when he saw what the creatures and spirits of the forest were doing.
4. Explain what you think the animals and spirits of the forest meant when they said: 'And who gave you permission to kill one of our trees?' What might they have to say to us today?
5. Find out more about Maori People of New Zealand



You and you partner are village planners. Cut out the buildings below. You have been asked to plan for the development of a village on the land shown in Carta Oibre 19A.

You must (a) try to preserve the natural environment and (b) try to make the village layout as practical as possible for the people living there.

Areas of woodland and marshland should not be developed. You should try to preserve as many free standing trees as possible. When buildings are placed on the branches and leaves of free standing trees, this indicates that the trees have been damaged. A practical road network should be drawn leading into the village and between the buildings. When you have decided on your plan, be prepared to tell others why you feel it works best.





CÁRTA OIBRE 19A

The Planning Game

