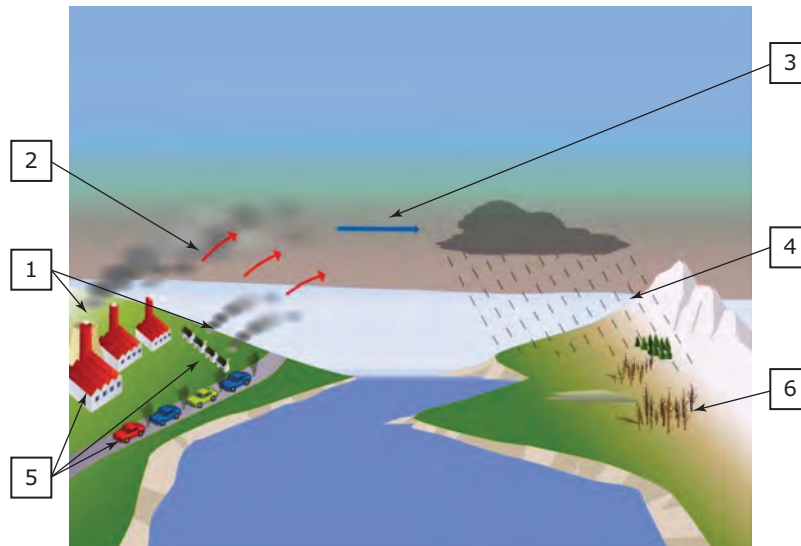


Exercise 1

Reading

Match the labels and explanations to the correct place on the diagram. Number 1 has been done for you.



- | | |
|---|---|
| 1 | acidified water falls as rain |
| 2 | fumes are blown by wind |
| 3 | trees, crops and others are damaged |
| 4 | fossil fuels are burned |
| 5 | factories, homes and cars |
| 6 | sulphur dioxide and nitrogen oxide are released |

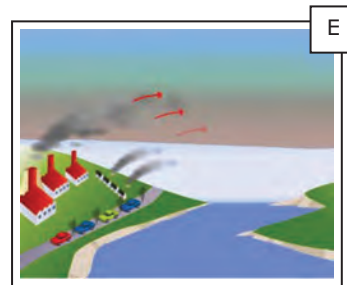
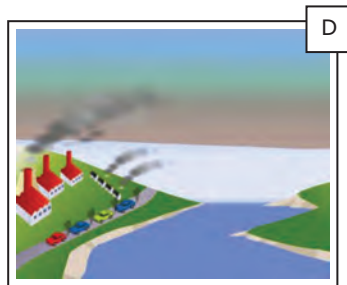
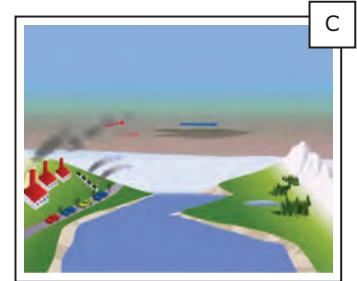
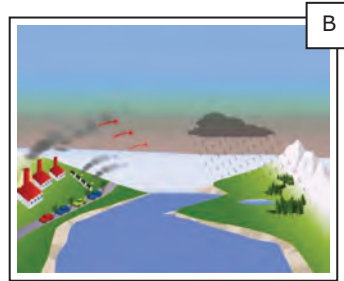
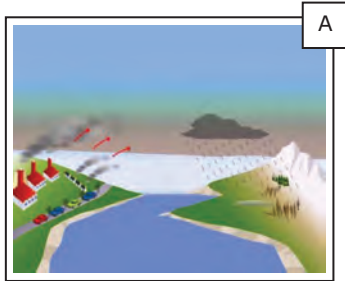
Exercise 2

Reading

Write the number of the correct caption (1-5) next to each picture on the next page.

- 1 Fossil fuels such as coal and oil are burned in factories, houses, motor vehicles and power stations.
- 2 Invisible sulphur dioxide and nitrogen oxide fumes are released into the air, where they may be blown by the wind along the upper atmosphere for great distances.
- 3 During their journey, these gases react with sunlight and combine with moisture in the air to form weak sulphuric acid and nitric acids.

- 4 They eventually fall to the earth in acid rain, where they soak into the soil and enter rivers and lakes.
- 5 This acidified water harms trees, crops, fish life and even human health.



Exercise 3

Reading

Join the parts to make sentences about acid rain and the environment.

- | | |
|---|---|
| <p>1 Firstly, fossil fuels such as coal and oil</p> | <p>are released into the air, where they may be blown by the wind along the upper atmosphere for great distances.</p> |
| <p>2 After that, invisible sulphur dioxide and nitrogen oxide fumes</p> | <p>react with sunlight and combine with moisture in the air to form weak acids.</p> |
| <p>3 During their journey, these gases</p> | <p>eventually fall to the earth in acid rain, where they soak into the soil and enter rivers and lakes.</p> |
| <p>4 Next, sulphuric acid and nitric acids</p> | <p>harm trees, crops, fish life and even human health.</p> |
| <p>5 Then, this acidified water</p> | <p>are burned in factories, houses, motor vehicles and power stations.</p> |

Use the speaking frame to talk about acid rain and the environment.
Use the words in the boxes to help you.

1

Environment one stop oil

fossil fuels
coal
oil

are burned

factories
houses
motor vehicles
power stations

2

invisible
sulphur dioxide
nitrogen oxide
fumes

are released
blown

air
wind
great distances

3

journey
gases

react
form
combine

sunlight
moisture
air
weak acids

4

sulphuric acid
nitric acids

fall
soak into
enter

soil
rivers
lakes

5

acidified water

harms

trees
crops
fish life
human health

Don't forget the sequencing phrases you've seen!

Firstly,

After that,

Next,

Then,

You could also say 'Lastly, ... Finally, ...'

Environment (acid rain)

Keith Kelly

Objectives

Geography

Students look at how acid rain is formed and harms the environment.

Language

Skills: Speaking and reading

Grammar: Present simple tense, present simple passive, present tense + to, (get + participle)

Vocabulary: **Nouns:** *rainfall, pH value, fossil fuels, coal, oil, sulphur dioxide, nitrogen oxide, fumes, crops*

Adjectives: *invisible, acidified*

Adverbs: *eventually*

Verbs and verb phrases: *can be defined, burned, released, may be blown, soak into, harms, react with (present tense + to)*

Activities

Activities	Language skills
Students say what they know about how acid rain is formed	Speaking; vocabulary; present simple tense
They label a diagram of acid rain	Vocabulary
They order a set of pictures showing the sequence of events in the process of acid rain formation	Speaking; reading; vocabulary; present simple tense; present simple passive; (<i>get + participle</i>)
They watch the animation and check their answers	Reading; vocabulary
They read and join up phrases to describe the process and show the sequence of events	Reading; vocabulary
(Groups or pairs) They give an oral commentary on the animation	Speaking; vocabulary; present simple tense; present simple passive; (<i>get + participle</i>)

Procedure

With the whole class

(Typical situation: whole class watching the presentation and animation on an interactive whiteboard or projector.)

1. [*Slide 1*] Introduce the topic. Ask the class to look at the diagram of the formation of acid rain in exercise 1 on the worksheet. Ask students questions to help them say

what they know about the process of acid rain formation, but do not go into detail. Introduce some key vocabulary (see above). Then get the students to do exercise 1 in pairs: they label the diagram. Monitor and help. When students have finished, check answers with the whole class. (See answer key.)

2. Ask the students to continue working in pairs to do exercise 2 on the worksheet: they match the pictures with the correct caption. Monitor and help, but do not give students the answers.
3. *[Slides 2 and 3]* Play the animation. Tell the students to watch carefully and check whether they numbered the pictures correctly. Students check their answers in pairs. (See answer key.)
4. *[Slide 4]* Tell students not to look at exercise 2 while they do the next exercise. Students continue to work in pairs and do exercise 3 on the worksheet: they join the phrases to show the correct sequence of actions. Monitor and help. Then check answers with the whole class. (See answer key.)
5. *[Slide 5]* Tell students to work in pairs and practice talking about the process of how acid rain is formed using the speaking frame in exercise 4. One student talks while the other listens and checks notes. When the first student has finished they swap roles.

With groups (one group studies acid rain and then presents it to the class)

(Typical situation: students arranged in groups around computers e.g. in a language lab)

1. *[Slide 1]* Students work in their group and do exercise 1 on the worksheet: they label the diagram. When students have finished, they can check their answers with the answer key.
2. Ask the students to do exercise 2 on the worksheet: they match the pictures with the correct caption. Monitor and help, but do not give students the answers.
3. *[Slides 2 and 3]* Play the animation. Tell the students to watch carefully and check whether they numbered the pictures correctly. Students can also use the answer key to check their answers.
4. *[Slide 4]* Tell students not to look at exercise 2 while they do the next exercise. Students do exercise 3 on the worksheet: they join the phrases to show the correct sequence of actions. They can use the answer key to check their answers.
5. *[Slide 5]* The group gets ready to give an oral commentary on the animation. They can rehearse it once or twice if they wish. Encourage them to use the speaking frame in exercise 4 to help them prepare and also during their presentation. Play the animation; students give the commentary. Encourage students to distribute speaking roles equally in their group. They may talk about one or two slides each depending on how many students there are in their group. The original PPT has been provided here so that you have the option to use the slides without the text which appears in the animation.

Language focus

Notice the sentence 'During their journey, these gases react with sunlight and combine with moisture in the air to form weak sulphuric acid and nitric acids.' In this sentence we have a structure which is a present tense verb followed by an infinitive verb which expresses 'outcome' or 'consequence' but not 'purpose' which is what this structure usually represents.

Though 'get + participle' doesn't appear in this text, it is common in the language of processes and so you may wish to introduce it and use it here depending on the level of your learners.

Answer Key

Exercise 1

Key: 1 fossil fuels are burned, 2 sulphur dioxide and nitrogen oxide are released, 3 fumes are blown by wind, 4 acidified water falls as rain, 5 factories, homes and cars, 6 trees, crops and others are damaged

Exercise 2

Key: A 5, B 4, C 3, D 1, E 2

Exercise 3

Key:

1.	Firstly, fossil fuels such as coal and oil	are burned in factories, houses, motor vehicles and power stations.
2.	After that, invisible sulphur dioxide and nitrogen oxide fumes	are released into the air, where they may be blown by the wind along the upper atmosphere for great distances.
3.	During their journey, these gases	react with sunlight and combine with moisture in the air to form weak acids.
4.	Next, sulphuric acid and nitric acids	eventually fall to the earth in acid rain, where they soak into the soil and enter rivers and lakes.
5.	Then, this acidified water	harms trees, crops, fish life and even human health.