1 ▶ **Watch.** How do the bee and flower work together?
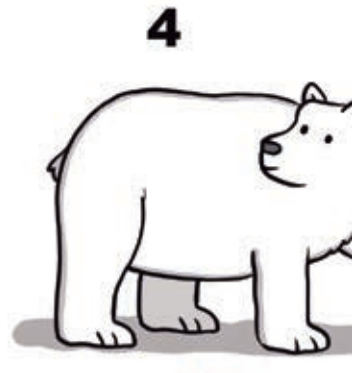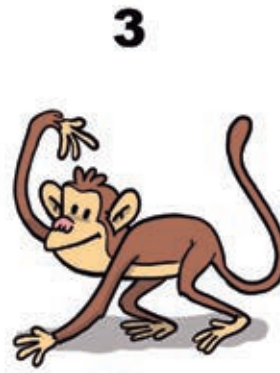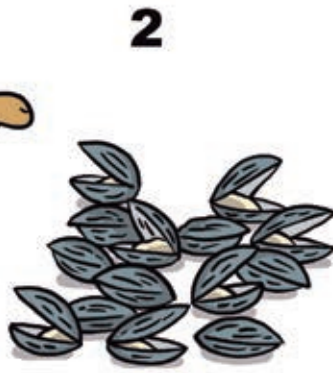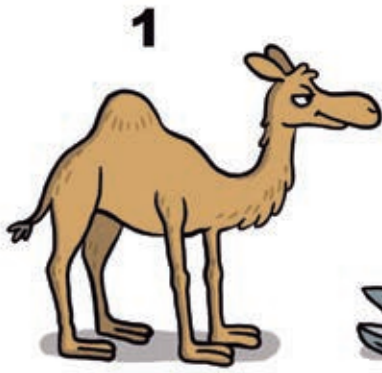

1

2

3

4

T

I

H

B

A

Let's learn about ...
- how we classify living things
- why ecosystems are important
- how we can protect ecosystems

2 📊 **Match the numbers to the correct letter.**

1	2	3	4	5	6	7

3 **Look at the maze. Find an example of ...**

a. a mammal

b. a mollusc

c. an amphibian

4 🗨 **Work in pairs. Ask and answer questions about a natural space near where you live.**

Be mindful

Close your eyes. Listen to the sounds of the forest. What do you hear? 🔊 **001**

Scientists classify living things into groups with similar characteristics. It's important to classify living things to understand how they're similar and different.

1 **Work in pairs.**

a.   Choose a living thing from the box. Describe it. Your classmate guesses the living thing.

b.   Think of ways to group the living things.

Plants

There are different types of plants: **trees**, **bushes**, **ferns**, **grasses** and **mosses**.

Trees can be **deciduous** or **evergreen**.

Some plants produce **seeds**.

Some plants have got **flowers**.

Scientists can classify plants by where they grow.

Animals

Animals can be **vertebrates** or **invertebrates**. Vertebrates have got a backbone and include **mammals**, **birds**, **fish**, **reptiles** and **amphibians**. Invertebrates haven't got a backbone and include **worms**, **arthropods**, **echinoderms** and **molluscs**.

Animals can be warm-blooded or cold-blooded.

Scientists can also classify animals by:

- what they eat.
- their body parts.
- where they live.
- the way they reproduce.

Scientists can also classify living things by the **ecosystem** where they live. An ecosystem is a community of living things in a particular area.
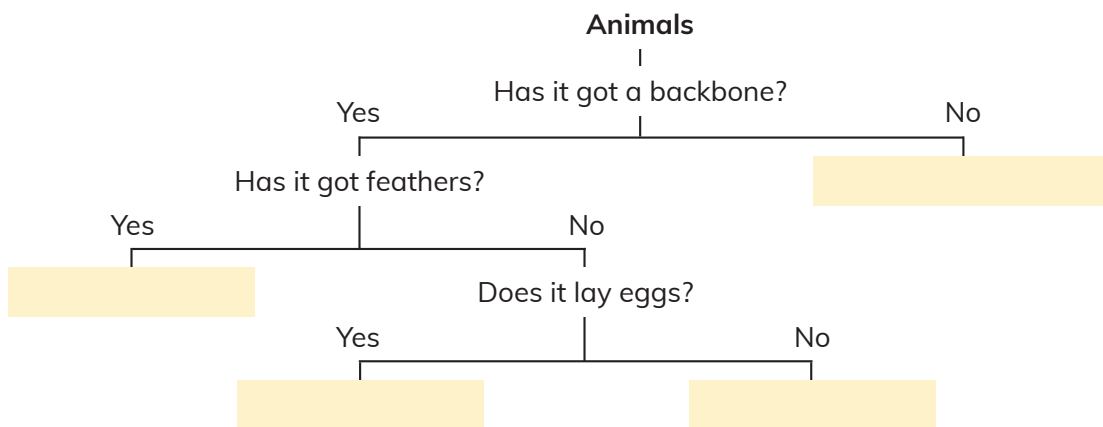
2 **Work in pairs. Name an animal that lives in each ecosystem.**

a. a pond **b.** a forest **c.** a desert

3 📊 **Copy the Carroll diagram in your notebook. Find one more animal for each box.**

	Lays eggs	Doesn't lay eggs
Lives in water	*fish*	
Lives on land		

4 📊 **Copy the diagram in your notebook and classify the animals.**

Animals
|
Has it got a backbone?
Yes — No

Has it got feathers?
Yes — No
Does it lay eggs?
Yes — No

duck   horse

spider   frog

🏠 **At home**   Make a diagram to classify four animals.

13

What's an ecosystem?

There are many different types of ecosystems on Earth, for example grasslands, ponds, forests, coasts and cities.

Grasslands are areas with long and short grasses. There aren't many trees and animals like horses, rabbits and mice live there.

Forests are areas covered in trees. They provide oxygen that living things need for respiration. **Tropical rainforests** are hot and humid with a lot of rain. Most of the trees are evergreen, which means they don't lose their leaves. Animals like monkeys, jaguars, frogs and parrots live there. **Temperate forests** have usually got deciduous trees which lose their leaves in winter. Animals like foxes, bears, owls, squirrels and eagles live there.

Ponds are freshwater ecosystems. Some plants grow under the water, like pondweed. Other plants have got just their roots under the water, like water lilies. Animals like frogs, fish, ducks and many types of insects live in ponds. Plants next to the pond provide shelter for frogs and birds.

Coastal ecosystems appear where the sea meets the land. They can be beaches, coral reefs or **mangroves**. There are a lot of different plants and animals that live there, including fish, turtles and birds. The water isn't very deep so the animals and plants receive a lot of sunlight, which helps them to eat and grow.

An **urban** ecosystem consists of all the living and non-living things in a town or city. These can include buildings, roads, parks, gardens and rivers or streams. Trees provide shade and make the temperature lower. Animals like foxes, cats, pigeons and rats live there.

1 In what kind of ecosystems can you find ... ?

a.

b.

c.

2 Listen. Jump when you hear a living thing that lives in the grassland. Put your hands on your hips when you hear a living thing that lives in a pond. 🔊 **002**

In an ecosystem, all living things need food. Food chains show how living things in an ecosystem get energy. Plants are **producers**, which means they produce their own food. Animals are **consumers**, which means they eat, or consume, other living things for food.

3 🔟 Copy and match in your notebook.

a. Producers — eat other animals.

b. Consumers — make their own food.

c. Herbivores — eat plants.

d. Carnivores — eat other living things.

4 📊 Look at the food chains. Answer the questions.

a. What do owls eat?
b. What do seals eat?
c. What type of living thing is at the beginning of both food chains?
d. What type of ecosystems do the food chains belong to?
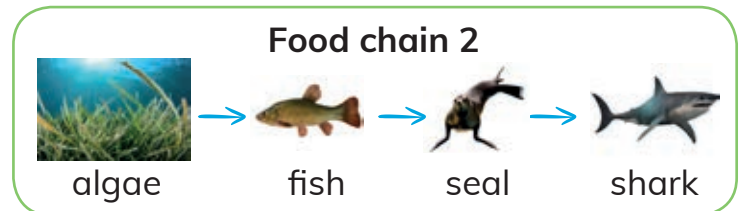
5 Choose an ecosystem. Draw a food chain. Show your food chain to a classmate. Can they identify the ecosystem?

Food chain 1

grass → grasshopper → mouse → owl

Food chain 2

algae → fish → seal → shark

🏠 **At home** Show your food chain to someone at home. Tell them what you know about the ecosystem.

Challenge

Make an insect hotel

Can you make a habitat for insects to live and grow safely?

Before you start

Insects are very important to ecosystems, but chemicals from farms are killing them. They're at the bottom of food chains, so when insects die, there are problems for other animals in the food chain.

1 **Look at the photos. Match the insects to their ecosystems.**

You need ...

- a clean empty milk carton
- cardboard tubes
- natural materials: dry leaves, pine cones, moss, bark, small sticks
- scissors

1 Use the scissors. Remove one side of the milk carton.

2 Cut the cardboard tubes as tall as the sides of the milk carton.

3 Put the tubes into the milk carton. Put as many as you can.

4 Put the natural materials in the tubes and between the tubes. Fill the milk carton with materials.

6 Keep a diary.

- How many insects can you see?
- What kind of insects are living there?

Compare your results with your classmates.

5 Find a space outside with shelter and shade. Leave your insect hotel there. Check your hotel every week.

How do living things interact in an ecosystem?

An ecosystem is a community of animals, plants, micro-organisms, non-living things and their shared environment.

1 ▶ **Watch.** **Complete the sentences.**

a. An ecosystem can be …

- **small**, like a puddle.
- **big**, like a forest.
- **big** or **small**.

b. An ecosystem consists of all the …

- **living things** in an area.
- **non-living things** in an area.
- **living** and **non-living things** in an area.

2 **Find the living and non-living things in the picture.**

fish | wind | soil
frog | bird | insect
rocks | plants | bear
trees | worm | deer
sunlight | water

Non-living and living things interact in an ecosystem. Living things are called **biotic factors**. Non-living things are called **abiotic factors**. Abiotic factors are important in an ecosystem because living things (biotic factors) need abiotic factors to grow, eat and reproduce, for example:

☀️ **Sunlight** provides energy for plants to grow.

Wind carries seeds from plants to other places to grow. 🌀

💧 All living things need **water** to survive and grow. Some animals live in water.

Living things need **oxygen** for respiration. 👤

3 Classify the biotic and abiotic factors in activity 2.

4 🔁 **Copy and complete the sentences.**

sunlight   oxygen   wind   water

a. The _____ helps seeds travel.

b. Living things need _____ to grow. Some animals and plants live in this.

c. Living things need _____ for respiration.

d. _____ provides energy for plants to grow.

WOW

Scientists estimate there are over 8 million species of animals and plants on Earth.

An ecosystem is healthy when there is **balance** and **biodiversity**. This means there are lots of different animal and plant species which make the ecosystem stronger. The biotic and abiotic factors are important.

Human activity and environmental changes can affect the balance of an ecosystem. When the balance changes it can cause many problems.

Language learning lab

We use *going to* to talk about future events. Complete the sentences with *is going to*, *are going to*, *isn't going to* or *aren't going to*.

a. The temperature is getting hotter. The ice _____ melt.

b. The water is polluted. The fish _____ get sick or die.

c. The grass is dying. The animals _____ have any food to eat.

5 👥 **Look at the picture in activity 2. Imagine the river hasn't got any water. What changes are going to happen in this ecosystem?**

The animals are going to …   *The plants are going to …*

🏠 **At home**   Go for a walk in a natural area or park near your house. Make a list of the biotic and abiotic factors you find.

The ecosystems of the Earth can be protected through responsible use. Some human activities can damage our ecosystems.

Humans spray chemicals on their crops to kill insects. These chemicals are called **pesticides** and affect the food chain. When it rains, the pesticides travel to streams and rivers which make fish and plants sick.

Overfishing is when humans take too many fish from the sea. This affects the food chain because bigger animals don't have enough fish to eat.

Humans leave plastic rubbish on the ground or in the water which is called **litter**. Animals get trapped in it. Sometimes they eat it and get sick or die. Dangerous chemicals from litter can pollute the soil and water.

When we **build cities**, animals and plants lose their natural habitat. Transport and factories cause **air pollution** in cities.

Deforestation is when humans cut down a lot of trees in one place. Animals lose their habitat.

CULTURE

Rachel Carson was an American scientist. In 1962, she wrote a book called *Silent Spring* about the dangers of using chemicals on plants and how they can enter the food chain.

Imagine you can write a book about an environmental problem. Which problem do you choose?

1 ▶ **Watch.** What can we do to protect our ecosystems?

When we cut a tree, we can plant a new one.

Remember to recycle.

Use public transport.

Buy local or organic food when you can. Grow your own fruits and vegetables!

We must take only what we need. Taking too much is bad for the balance of our ecosystems.

2 🔁 **Copy and complete.**

[car] [ecosystems] [tree] [rubbish]

♩♫ **Be a habitat hero.** ♪🎵

Be a habitat hero.
Take only what you need.
When you cut a _____,
plant another seed.

Be a habitat hero.
Keep your planet clean.
Don't put _____ on the ground,
in the rivers or the sea.

Be a habitat hero.
Use the bus, not a _____.
It keeps our air clean
and can take you very far.

Be a habitat hero.
Protect our _____
because when they're gone,
you're really going to miss them!

3 **Listen and check. Say the** *Be a habitat hero chant.* 🔊 **003**

4 💡 **Make a poster. Show how we can be a habitat hero!**

🏠 **At home** Show your poster to someone at home and explain what it means.

Why are ecosystems important?

Healthy ecosystems are important because they can clean the water, clean the air, keep the climate stable, provide living things with food and other products and keep the soil healthy. Ecosystems also provide habitats for plants and animals.

Tropical rainforest ecosystems only cover about 6% of the Earth but they're very important.

- Rainforests clean the water and air because they filter carbon dioxide and pollutants from the atmosphere.
- A lot of medicines come from rainforest plants.
- More than 50% of the land animals on Earth live in rainforests.
- Many foods, like bananas and pineapples, grow in rainforests.

WOW

The Amazon rainforest is more than ten times bigger than Spain!

1 Which of these do we get from rainforests?

mangoes   apples   rubber   plastic   coffee beans   wheat

Forest ecosystems provide trees. People can build houses and make paper with wood from trees.

Grasslands have got soil with many **nutrients**. Farmers use grasslands for **agriculture** and **livestock farming**. They grow many **crops**, like cereals or corn. Animals, like cows or sheep, eat the grass.

Pond ecosystems help keep water clean. They provide a habitat for plants and animals that live in water.

2 Think of one reason why these ecosystems are important to us. Write them in your notebook.

a. rainforests   b. forests   c. grasslands   d. ponds

3 Do research. What kind of ecosystem can you find near you? What food or materials can you get from that ecosystem?
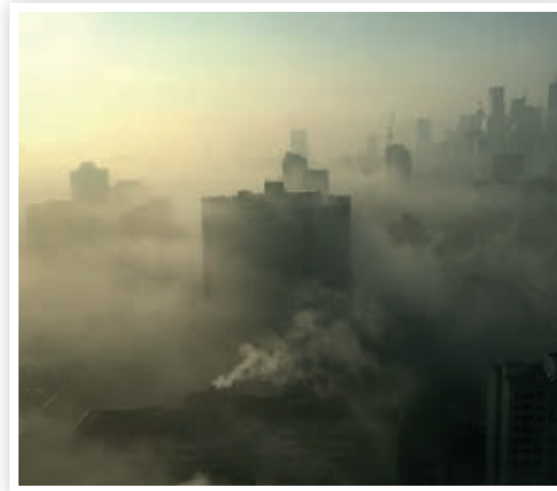
Which location has got the most air pollution?

Hypothesis

I think the _____ has got the most air pollution.

Materials

- 4 plastic plates
- magnifying glass
- masking tape
- permanent marker
- petroleum jelly

Step 1

Use the permanent marker to label each plate with a different location around the school.
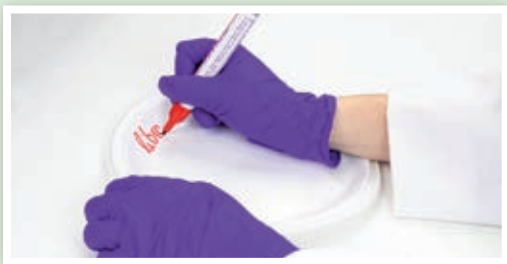
Step 2

Spread a thin layer of petroleum jelly on each plate.

Step 3

Use the masking tape to hang the plates in their location. Wait three days and collect your plates.

Step 4

Use the magnifying glass to observe the different particles that were collected.

▶ **Watch.** **Compare your results with a classmate. Fill in the worksheet.** ⬇

1 **Complete the diagram.**

Ecosystems

Is it a water ecosystem?

No — Yes

pond

Has it got many trees? — [ ]

urban

Yes — No

forest

[ ] — Has it got many buildings, roads and people?

grasslands

Yes — No

[ ] — [ ]

2 **Choose an ecosystem. Copy and complete the table in your notebook.**

Name of ecosystem	An animal that lives here	A plant that grows here	Why this ecosystem is important to us	How we can protect this ecosystem

3 **What's the difference?**

a. biotic / abiotic
b. producer / consumer
c. recycling / litter

4 ✓ **Do the quiz.**

5 📶 **Do the WebQuest.**

WebQuest

What do you know about deserts? When you finish your WebQuest, answer *true* or *false*.

a. The desert is hot in the day and night.
b. Plants grow in the desert.
c. Snakes and lizards live in the desert.
d. No humans live in the desert.

1 🧩 **Check. Copy the chart and colour the stars.**

I can ...

classify animals and plants**.**

☆ ☆ ☆

I can ...

explain what an **ecosystem** is.

☆ ☆ ☆
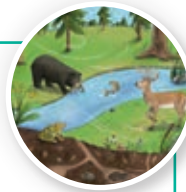
I can ...

talk about the main **characteristics** of five types of ecosystems.

☆ ☆ ☆

I can ...

understand how animals and plants are connected by **food chain**.

☆ ☆ ☆

I can ...

test which location has got the most **air pollution**.

☆ ☆ ☆

I can ...

name some ways we can **protect** ecosystems.

☆ ☆ ☆

Key:

★ I'm not sure.

★★ I need some practice.

★★★ I understand.

2 🧩 **Keep an ecosystem journal. When you visit a new natural area:**

| make notes about the biotic and abiotic factors you find there | draw or paint a picture of what you see | find out how people are protecting the area |