Life Processes

These dolphins are one type of animal. The dolphins are alive and healthy because they are able to eat, drink, move, grow and reproduce. These are the life processes that stop animals from dying.

In this module you will:

- learn how we can sort living things into groups
- find out how humans and animals stay alive
- understand the difference between living and non-living things
- know how to keep plants alive.

Look at these animals.

Compare the animals. Talk about what is similar and what is different. Think about what they look like, where they live, what they eat, how they move, etc. These are the animals’ features.

Amazing fact

There are at least six million kinds of animal in the world making up the animal kingdom!
What group does this animal belong to?

Learn how we can sort living things into groups.

The Big Idea

We can put animals that are like each other into groups.

Scientists have sorted animals into groups to make it easier to learn about them. To do this, the scientists look at the features of the animals, like you did when you compared the mouse, rat, chimpanzee and gorilla.

parrot

rabit

camel

chicken

Look at the animals on page 6.

- Can you sort the animals into two groups? Write the names of the animals in the table. There are five animals, so the groups will not be equal.

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>parrot</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Explain why you put the animals into these groups. Is there a feature that one animal has that another does not have? Do some animals have the same feature?

Vertebrates are the group we belong to. Only 10 per cent of the animals that live on Earth are vertebrates. That means that 90 per cent of the animals that live on Earth are animals with a skeleton outside their bodies or with no skeleton at all. These animals are called invertebrates.

Can you sort the animals in the word bank into vertebrates and invertebrates? Write them in the table.

<table>
<thead>
<tr>
<th>Vertebrates</th>
<th>Invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>camel</td>
<td>butterfly</td>
</tr>
<tr>
<td>worm</td>
<td>rabbit</td>
</tr>
<tr>
<td>spider</td>
<td>snail</td>
</tr>
<tr>
<td>horse</td>
<td>bird</td>
</tr>
</tbody>
</table>

One way that scientists group animals is to look at the animal’s bone structure. Some animals, like hippos, have a skeleton inside their bodies. Other animals, like crabs, have a skeleton (shell) outside their bodies and some, like jellyfish, have no skeleton at all. The animals with backbones inside them are called vertebrates.

Word Bank

Think about...

How can we sort a group of animals, like the vertebrates, into smaller groups?
What group does this animal belong to?

Learn how we can sort living things into groups.

The Big Idea

We can sort animals that are like each other into smaller groups.

Only 10 per cent of the animals on Earth are vertebrates, but they are still a very large group of animals to study. So it is useful for scientists to divide vertebrates into smaller groups.

The diagram shows how we can sort vertebrates into five smaller groups: mammals, amphibians, birds, reptiles and fish.

Sort the animals in the word bank into the correct spaces on the diagram. One has been done for you.

Word Bank

goat trout camel snake shark lizard toad sparrow ostrich frog

Look at the diagram on page 8 again and complete the sentences.

Fish and young amphibians have __________. Reptiles, __________, __________ and amphibians lay __________. Fish and __________ have __________ skin.

Look at the photos of vertebrates. Underneath each photo write which group (mammal, reptile, amphibian, bird or fish) it belongs to and why it belongs to that group.

Think about...

Which group does a whale belong to?
What group does this animal belong to?

Learn how we can sort living things into groups.

The Big Idea

Some animals are more difficult to sort.

Think back to the last unit and answer the questions.
1 What are the five groups of vertebrates?

2 Which group do humans belong to?

3 Name two features that mammals have, but other vertebrates do not have.

Some animals might look as if they belong to one group but, watch out, look closely and you will have to think again!

I live in the sea all my life but I do not have gills to breathe. I have lungs so I must come to the surface of the sea to breathe. I feed my young milk. Which group do I belong to?

I live in the sea for half my life and can dive half a kilometre under the sea, but I do not have gills to breathe. I have lungs so I must come to the surface to breathe. I lay eggs and have feathers. Which group do I belong to?

I live in the sea for half my life and can dive half a kilometre under the sea, but I do not have gills to breathe. I have lungs so I must come to the surface to breathe. I lay eggs and have feathers. Which group do I belong to?

Think about...

Can you think of ways of making even smaller groups of animals?

Answer the questions about how animals are grouped together.

1 What are the two main groups of the animal kingdom?

2 In the vertebrate group there are five groups. Humans belong to a group called mammals. What are the other four groups called?

3 Which animal group does the ostrich belong to? Why?
Staying alive

Find out how humans and animals stay alive.

The Big Idea

Animals need to stay alive. How do they do it?

Why are penguins birds? Why are whales mammals? Think of two reasons for each animal.

Like humans, all animals need to be able to breathe and have food to eat and water to drink to stay alive. These are the essential life processes.

This lion is chasing antelope. Is it doing this for fun or for its dinner?

To get food and drink animals need to be able to move. Eating food and drinking makes them grow and mature, so they can reproduce and have young. Moving, growing and reproducing are also life processes.

Amazing fact

The cheetah is the fastest land mammal. It can run at speeds of about 100 km per hour but only for short lengths of time. The cheetah prefers to creep up on its prey then at the last minute run very fast. It can go from standing to 96 km per hour in 3 seconds so its prey does not have much chance to escape.

This person is running. Is he running to catch food? He might be running to the supermarket to buy food!

Draw a line to match each animal with the food it eats.

- eggs
- grass
- fish

In the box below each animal write one word to describe of how it moves.

Look at the photo of a market. How many foods can you see? Write the names of the foods in your Investigation notebook.

Investigation: Fruit and vegetables

Next time you go food shopping with your parents count all the different types of fruit and vegetables. Try to find out out where they came from.

Think about...

Why do cats hunt at night?
Staying alive

Find out how humans and animals stay alive.

The Big Idea

Animals use their senses to stay alive.

We use our senses to stay alive. Most animals have much better senses than we have. That is because they need their senses to hunt or to help them escape when they are being hunted.

Draw a line from the body part to the correct sense. One has been done for you.

Look at the photo. Which three senses are the lion and antelope using the most in this chase to stay alive?

To find food and water you need to see or smell where it is. To make sure you are not eaten you need to see and hear your attacker before they get close to you.

Amazing fact

A cat uses its senses to protect itself and to hunt.
- A cat’s eyes can see much better than our eyes and cats do not need to blink as often as humans.
- A cat’s nose has a sense of smell 14 times stronger than our noses.
- A cat’s ears can hear sounds much better than our ears. Cats can swivel their ears to find the direction of the sound.

Investigation: Where did the sound come from?
1. Sit in a circle with your group.
2. Take it in turns to sit in the middle of the circle blindfolded.
3. One person in the circle drops a marble onto a metal tray.
4. Ask the blindfolded student to point in the direction of the sound.
5. Give the tray and the marble to a different student. Repeat the activity five times.

A cat is right every time. How about you?

Draw an imaginary animal that is good at staying alive in the wild.

Draw your animal in your Investigation notebook. How does the animal move? What senses does it need? For example, does it need very big ears?

Show your drawing and talk about why your animal will survive well in the wild.

Think about...

Why is it important that animals have young?
Staying alive

Find out how humans and animals stay alive.

The Big Idea

Animals grow up, mature and reproduce.

Having enough food to eat allows our bodies to grow and mature. This baby will grow up and may have babies of its own one day.

What is your height?

If possible, measure the heights of a baby, a toddler, a child, a teenager and an adult. Record their heights on the bar chart. Record your height too. What do you notice?

Humans grow up to become adults. Adults are able to reproduce and have families of their own. All animals grow and reproduce.

Growing and reproducing are very important life processes. If animals did not give birth to babies they would eventually die out or become extinct.

Amazing fact

The Arabian oryx became extinct in the wild in 1972 in the Middle East. In 1982, thanks to the efforts of many people, including King Khalid Abdul Aziz, it was re-introduced to the wild. Now there are over 1000 Arabian oryx.
Staying alive

Find out how humans and animals stay alive.

The Big Idea

Animals look after their young in different ways.

Animals grow up and reproduce. They have offspring so that their species does not die out.

How many adults and how many children are there in your family?

Some animals, like humans, produce only a few offspring. These animals care for their offspring while they are growing up.

Other animals, like fish, produce lots of offspring. These animals leave their offspring to grow up on their own.

The following types of animals produce different numbers of eggs.

<table>
<thead>
<tr>
<th>Animal group</th>
<th>Name of animal</th>
<th>Number of eggs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td>Robin</td>
<td>4–6</td>
</tr>
<tr>
<td>Reptiles</td>
<td>Crocodile</td>
<td>20–100</td>
</tr>
<tr>
<td>Amphibians</td>
<td>Frog</td>
<td>500–1000</td>
</tr>
<tr>
<td>Fish</td>
<td>Herring</td>
<td>20 000–40 000</td>
</tr>
</tbody>
</table>

1. Which animal lays the fewest eggs?
2. Which animal lays the most eggs?
3. Describe what is happening to the numbers of eggs in the last column.

All animals stay alive by eating and drinking water.

Animals use their eyes and ears to sense danger. They move quickly to escape.

Young animals reproduce to become adults and live for one reason: that reason is to breathing.

Amazing fact

Twelve rabbits were introduced into Australia in 1859. In less than 100 years there were over 6 000 000 (six million) rabbits!

Can you explain what the robin can do that the herring cannot do?

Complete the sentences using the words in the word bank.

reproduce sense breathing move drinking grow eating

Now turn to page 26 to review and reflect on what you have learned.
Is this living or non-living?

Understand the difference between living and non-living things.

The Big Idea

There are living and non-living things.

Think about what animals need to do so that they can stay alive. Write three examples.

Animals are living things because they breathe, eat, move, grow and reproduce.

Plants are living things because they grow, move and reproduce. They do not need to move to get food because they make food using energy from the Sun. However, they do move by turning towards the light.

When plants and animals die they are no longer living but they once lived.

A car moves but has never breathed, eaten, grown or reproduced so it is non-living.

Which of the things in the word bank are living and which are non-living? Write them in the table. One has been done for you.

<table>
<thead>
<tr>
<th>Living</th>
<th>Non-living</th>
</tr>
</thead>
<tbody>
<tr>
<td>rabbit</td>
<td></td>
</tr>
</tbody>
</table>

Word Bank

- rabbit
- bird
- tree
- cut flowers
- plastic flower
- wooden chair
- metal bar
- concrete
- brick
- glass

Complete the table. Use the words in the word bank. You can use each word more than once.

<table>
<thead>
<tr>
<th>Group</th>
<th>Movements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mammals</td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td>fly, walk, run, swim</td>
</tr>
<tr>
<td>Reptiles</td>
<td></td>
</tr>
<tr>
<td>Amphibians</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
</tr>
</tbody>
</table>

Animals move in different ways on land, in water and in the air.

Why do animals move in different ways?

Think about...

Most mammals live on the land. Do you know any that live in water or live in the air? How do they move?

How does each animal move? Can you describe it to a partner? You can use words like creep, crawl, slither or jump.

Looking around and write down all the non-living things you can see.

Now turn to page 27 to review and reflect on what you have learned.
How can we help plants to grow?

Know how to keep plants alive.

The Big Idea

Plants are living things and they need to stay healthy to survive.

- Garlic
- Centuria
- Sunflower
- Crocus

Write three examples of plants that you have seen today. Did you see any of the plants in the photos? Did the plants you saw look healthy?

Look at the picture above. Would you ever see this happening?

Plants have similar living processes to animals but there are differences.

How plants are similar to animals

- Plants need food and water.
- Plants grow and produce seeds and reproduce.

How plants are different to animals

- Plants do not move from place to place.
- Plants make their own food from water, air and sunlight.

Complete the sentences using the words in the word bank.

All plants have roots which bring up _______ from the ground.

All plants have a __________ which holds the plant up and delivers water to the leaves and flowers.

All plants have __________ which make food using water and sunlight.

All plants have __________ which attract insects and produce the seeds.

Word Bank

green leaves  stem  flowers  water
How can we help plants to grow?

Know how to keep plants alive.

The Big Idea

Plants need water and light to stay healthy.

Discuss the four different parts of a plant. What does each part do?

Investigation: Plants in nature

1. Look around the local environment. Look for plants that are growing well.
2. Make some cards like the one below to record the information about your healthy plants. Or copy the card in your Investigation notebook.
3. Repeat the investigation for plants that are not growing well.

Discuss what you found out. What do plants seem to need to grow well?

You are now going to carry out an investigation to find out what plants need to grow well.

Investigation: What does a plant need to grow well?

You will need four young potted plants.

A. Keep one plant in a warm, sunny place and water it regularly.
   Warm + light + water

B. Keep one plant in a colder place with light and water it regularly.
   Cold + light + water

C. Keep one plant in a warm, sunny place but do not water it.
   Warm + light – water

D. Keep one plant covered with black plastic and water it regularly.
   Warm – light + water

1. Watch the plants grow for four weeks.
2. Record the changes each week. Take photographs if you can.

Now turn to page 27 to review and reflect on what you have learned.

Think about...

What would happen to us if the Sun stopped shining on the Earth?

Discuss what you have found with your teacher.

Draw how the plants looked in your Investigation notebook.

Label each plant as shown below.

- Plant A: Sun and water
- Plant B: In cold and light
- Plant C: No water
- Plant D: In dark

Discuss what you have found with your teacher.

Write about where you would put a plant in your house to give it the best chance to stay alive. Explain how you would look after the plant.

<table>
<thead>
<tr>
<th>Name of the plant:</th>
<th>Place where it is growing:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount of sunlight</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of water</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Height of the plant (cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width of the plant (cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What we have learned about life processes

What group does this animal belong to?
- Name one difference between a mammal and a reptile.
- Sort the animals in the word bank into the correct places in the table.

<table>
<thead>
<tr>
<th>Invertebrates</th>
<th>Vertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Staying alive
- Imagine you are alone in the desert. What do you need to stay alive? Circle the correct words.
- There is an insect called a mayfly which only lives for one or two days. What is the one life process it must do before it dies?
- I can name the life processes.
- I know the five senses.
- I understand why reproduction is so important for the survival of animals.
- I can name at least three animal groups.

Is this living or non-living?
- Is a piece of limestone a living or non-living thing? Explain why.
- What can a bird do that a rat cannot do?
- I know the difference between living and non-living things.
- I know that animals move in different ways.

How can we help plants to grow?
- Unjumble the letters to find the names of the main parts of a plant.
- Name two things that plants need to grow well.
- I know the names of the main parts of a plant.