

Primary Science Texts

Dave Peck

Subject: Science (Biology)

Year Group: P1

Syllabus unit title and number: **Unit 2: Plants and Animals**

- Text 1 What plants grow around your home and your school? Do you know the names of any of the plants? If not, try to find out by asking family and friends. What types of plant are the biggest, the smallest, the most beautiful? Which plants do animals eat? Which plants do people eat?
52 276
- Text 2 What animals live around your home and your school? What different types of animals you have seen? What do we mean by wild animals? How are wild animals different from other animals? What do the different animals eat? Are there any animals that people eat? Which ones?
47 270
- Text 3 Look closely at the leaves from some different plants. What shapes are they? What colours are they? What are the edges of the leaves like? What sizes are they?
Put the leaves with similar shapes into groups. Then do the same with leaves of the same or similar colour. Then group together leaves with edges that look the same or similar. Then arrange the leaves in a row from the biggest at one end to the smallest at the other end.
81 431
- Text 4 We have seen that all leaves are very thin and that different plants have leaves that are different shapes and sizes. We have also seen that leaves are almost always green but not always the same shade of green.
Look closely at the plants growing near your home or school. What else grows on the plants as well as leaves?
Can you see any flowers, seeds or fruits? What are they like?
72 383
- Text 5 Look at where different plants grow. Do they grow with other plants of the same type or with different plants? Do they grow in dry ground or near water? Do they grow in the sunshine or in the shade? Are there some places where lots of plants grow and places where no plants grow? Why do you think this might be? What can we do to make sure plants grow well in our gardens and farms?
76 382
- Text 6 What plants do you like to eat? What parts of the plant do you eat? Is it the root, the leaves, the flowers, the fruits, the seeds or

the whole plant? Can you think of plants we grow so that we can eat each of these parts?

47 222

Text 7 Watch some animals and birds feeding. What does each type of animal eat? What do animals like goats, cattle, zebras, pigeons and caterpillars eat? What do dogs, cats, lions, eagles and vultures eat?
33 198

Text 8 Do you think the plants and animals you see around your home and school would grow well in a desert, on a mountain, on the sea-shore or in Antarctica? Of course they would not. Why do you think this is? Where would you expect to find plants and animals similar to those in your area? Why?
56 288

Text 9 We have learned that some animals eat only plants. What would happen if there were no plants for them to eat? Can you think why this would also be bad for the animals that do not eat plants but eat other animals?
42 213

Text 10 Have you spotted any animals that have patterns or colours that make them hard for you to see? Why do you think it is good for some animals to be able to hide from others?
35 171

Subject: Science (Biology)

Year Group: P1

Syllabus unit title and number: **Unit 3: Our Five Senses**

Text 1 Where does light come from in the daytime? Where does light come from in the night? What do people do so that we have light at night or in dark places? What happens when you shut your eyes? Sight is one of our five senses. We are able to see light because we have this sense. Do you think other animals also have this sense? What do you think and why?
71 351

Text 2 We have another sense called hearing. Listen carefully to all the sounds around you. What sounds can you hear? What is making each of these sounds? What happens when you cover your ears? Can you still hear the sounds? What happens when you cup your hands around your ears, as if your hands are big ears? How does the sound change? Why do you think it changes?
67 358

- Text 3 What do you think your nose is for? You breathe air in and out through it and your nose also gives you your sense of smell. What are your favourite smells? Are there any smells you don't like? Lots of animals have sensitive noses and they smell the air all the time. Why do you think animals need to be able to smell what is around them?
67 337
- Text 4 Another of your senses is taste. Look closely at your tongue or a friend's tongue. What does the tongue look like? Can you see the little taste buds that cover the tongue? What tastes do you like? Are there any tastes that you do not like? Why do you think it is important that we can taste our food?
59 301
- Text 5 You also have a sense called touch. You can use your skin to feel things. What can your sense of touch tell you about the things that you touch? Try touching different things with your fingers. Can you tell if what you touch is hard or soft, hot or cold, wet or dry, rough or smooth? Can you tell what shape something is?
80 412
- Text 6 We now know that we have five senses. We can see, hear, smell, taste and feel. Do you remember what part of the body we use for each of these senses?
Think about all of the sources of light. Which is the brightest? Which is the weakest? Why do you think you should never look straight at the sun?
59 297
- Text 7 Listen again to all the sounds around you. Which is the loudest? Which is the quietest?
See if you can tell which direction a sound is coming from just by listening carefully. You should close your eyes or wear a blindfold while you do this. Different people around you can make a noise by clapping and you try to point at them. Can your ears tell the direction a sound comes from?
71 375
- Text 8 You will also need to use a blindfold to do a smell test (or close your eyes). Try gently smelling different things that someone carefully holds to your nose. See if you can tell what they are using only your sense of smell. What smells can you identify easily? Are any smells more difficult?
54 292
- Text 9 A taste test is like a smell test. Again you need a blindfold. Why is this? Somebody carefully places a small piece of a food in your mouth and you have to taste it and say what the food is. An

adult should be there to make sure the foods are clean and safe. Did you get some of the foods right? Which ones? Are some more difficult than others?

70 344

Text 10

Close your eyes or wear a blindfold to do a touch test. Feel different objects with your fingers. Describe what each one feels like. Is it hard or soft, hot or cold, wet or dry, rough or smooth? What shape is it? Can you identify objects using only your sense of touch? Try touching the objects with the skin on your arms, your face or your legs. Can you feel the objects as well as you can with your fingers? What about if you wear gloves or cover your fingers with something? Can you still feel the objects well?

99 513

Subject: Science
Year group: Primary 2
Unit 2: Plants and animals

1 OBSERVE, DISCUSS, DRAW

Go outside and look for plants. How many different plants can you see? Talk about the plants – can you see a big plant, like a tree? Can you see small plants, like grass? Can you see plants with big leaves and plants with small leaves? Now look at the colours of plants. What colour are their leaves? What colours are their flowers? Draw your two favourite plants.

2 OBSERVE, DISCUSS

Plants have different parts. Each plant part has its own job. Choose one plant and look at it carefully. Can you see its leaves and its stem? Does the plant have flowers or fruit? Where are its roots? Now talk with others about these questions: What colour are its leaves? Which part of the plant holds it up? Which part of the plant is underground? Are any parts of the plant brightly coloured? Do any parts of the plant smell good?

3 OBSERVE, DISCUSS

If possible, go to a stream, river or pond. Look at the plants that live in the water. Can you see any plants with big, flat leaves? Can you see any plants with tall, thin leaves? Draw two water plants. Now find some plants in a dry place. Talk with others about how they are similar and different to water plants. Draw two plants that live in dry places.

4 ACTIVATE VALUES, TELL OTHERS

There are many different types of plant. Different plants like to live in different places – some live in water, some live in dry places, some live in forests, some live in farms or gardens. These places are called habitats. Talk with others about why we must look after the different habitats. How many reasons can you think of? Now tell somebody else about your ideas.

5 THINK ABOUT DAILY LIFE, DISCUSS, DRAW

People and animals eat plants. Talk with others about your favourite foods. Which come from plants? We eat different parts of plants. We eat leaves from some plants, like spinach. Which other leaves do we eat? We eat roots from some plants, like cassava. Which other roots do we eat? We eat fruit from some plants, like bananas. Which other fruit do we eat? Draw some leaves, roots and fruit that you like to eat. Write down their names.

6 OBSERVE, TELL OTHERS

There are many different small animals, for example ants, flies, cockroaches and worms. Go outside and look for small animals. Ask someone to tell you their names. How many different animals can you find? Now choose one small animal. Sit and watch it carefully. How does it move? What does it eat? Where does it live? Does it like to be in the sun or the shade? Tell others what you have discovered.

7 ROLE PLAY

Some animals must try to keep safe because other animals (**predators**) eat them. Many of these animals are brown, so that their predators cannot see them easily. Some animals fly away from danger, and others hide underground. Pretend to be a bird flying away from a cat. Pretend to be a mouse running into its burrow.

8 OBSERVE, TELL

People keep animals for food and to help them with different jobs. Which animals do your family or neighbours keep? Why do people keep chickens? Why do people keep goats and cows? How do donkeys help people? Choose one animal and watch it carefully. How does it move? What does it eat? Where does it shelter? Does it like to be in the sun or in the shade? How does it care for its young? Tell others what you have discovered.

9 ACTIVATE VALUES, CREATE A PLAY

Bandingilo is a national park in South Sudan. It has grasslands and trees and the White Nile river runs through it. Many animals live in the grasslands of Bandingilo, including antelopes, zebra and giraffes. Predators, including lions and cheetahs, also live there. The river is home to hippopotamuses and crocodiles. With others, make up a play to tell others about Bandingilo and why people must look after it.

10 COMPARE HABITATS

Habitats are places where plants and animals live. Think about the different habitats you have studied, including the area around your house, water habitats, and the grasslands and trees of Bandingilo. With others, talk about how the habitats are similar and different. Then talk about why different animals and plants live in different habitats. Now draw your favourite habitat and the animals and plants that live in it.

Subject: Science
Year group: Primary 2
Unit 3: Sense organs

- 1 IDENTIFY + TELL SOMEONE:**
You use your senses to detect the surroundings. For example, you use your skin to feel. Tell somebody the sense organs you use to see, hear, taste and smell.
- 2 PRACTICAL:**
You use your nose to smell. Find three things that smell. Blindfold your friend and hold each thing near their nose. Can they tell you what each smell is?
- 3 PRACTICAL:**
You use your skin to feel. Find a rough and a smooth object. Feel each object with your fingers, face, elbows and feet. Where is your skin best at feeling?
- 4 DISCUSS, DRAW, OBSERVE:**
You use your tongue to taste. Talk about your favourite tastes. Now draw your friend's tongue. Can you see the little bumps? These are taste buds.
- 5 PRACTICAL:**
Test your taste. Ask someone to put one salt grain on one spoon and a sugar grain on another spoon. Without looking, put one in your mouth. Is it salt or sugar?
- 6 PRACTICAL:**
You use your eyes to see. Different objects are different colours. Find 5 objects that are different colours. Write the name of each object and its colour.
- 7 OBSERVE, DRAW, LABEL:**
Light enters your eye through the black hole in the middle. This is your pupil. Draw your friend's eye. Label the pupil and eyelashes.
- 8 PRACTICAL:**
Stand a stick upright in the ground outside. Mark its shadow on the ground at morning, noon and night. Discuss how the length and position of the shadow change.
- 9 PRACTICAL:**
You use your ears to hear. Sit and listen to the sounds around you. What can you hear? Listen to people playing musical instruments. Which is your favourite?
- 10 PRACTICAL:**
Bang with a stick to make loud and quiet sounds. Now put a little water in a glass bottle and bang it. Add more water. Does the pitch get higher or lower?

Subject: Science
Year group: Primary 3
Unit 2 Plants and animals

- 1 OBSERVE, RECORD, COMPARE:**
Look at the plants around you. How many different plants can you see? Choose two plants and draw them. Think about how the plants are similar and different.
- 2 DISCUSS:**
Water lilies live in water. They have big, flat leaves and long, bendy stems. Talk with others about how the leaves and stems help water lilies to live.
- 3 OBSERVE, SPECULATE:**
Habitats are places where plants and animals live. Look for animals in different habitats, like under rocks or in grass. What helps them to survive in these habitats?
- 4 ACTIVATE VALUES, WRITE SPEECH:**
The grass of Boma National Park is a special habitat. Many animals live there, like lions and giraffes. Write a speech to say why people must look after Boma.
- 5 DRAW, COMPARE:**
Look for plants that live in shady habitats and plants that live in sunny habitats. Draw leaves from plants in the two habitats. How are the leaves different?
- 6 WRITE, COMPARE:**
Fish live in water and goats live on land. Write what fish must do to live in water. Write what goats must do to live on land. Think about the differences.
- 7 HEALTH, DISCUSS:**
Mosquitoes give people malaria. They lay their eggs in water. Discuss with others how to make fewer places for mosquitoes to lay eggs. Why is this a good idea?
- 8 LIST AND THINK:**
A fruit is the part of a plant that has seeds and flesh. Write the names of fruits you like to eat. Why do you like these fruits? Where do they grow?
- 9 OBSERVE AND DRAW:**
If you have a fruit, like a tomato or banana, ask an adult to cut it in half. Look carefully at what is inside and draw what you see. Can you find the seeds?
- 10 OBSERVE AND DRAW:**
Plants grow from seeds. Look for seeds at home, like beans or maize. Look for seeds on plants outside. Draw the seeds. Write their names and how they are useful.

Subjects: Science
Year group: Primary 3
Unit 3: Using our senses

- 1** Can you remember learning about the five senses? Your skin is the sense organ for the sense of touch. Work with a friend, and point to the sense organs they use for sight, hearing, taste and smell. Draw a picture of your friend and label their five sense organs. Which sense organ is the biggest?
- 2** When you talk with your friends, which senses do you use? Tell your friend about your journey to school, and listen when they tell you about their journey to school. Now close your eyes, and talk about your journeys home from school. What difference did closing your eyes make? Now think again about the senses you use in conversations. Has your answer changed? Do you use sight as well as hearing?
- 3** Can you see in the dark? You need light to see things. Look at your pencil. You can see the pencil because light from the Sun travels to it. Then the pencil reflects this light, which travels into your eyes and makes an image. Draw the Sun, a pencil and an eye. Draw a straight line showing light going from the Sun to the pencil. Draw another straight line showing light going from the pencil to the eye.
- 4** What colours can you see around you? Point to something red, something yellow and something blue. Red, yellow and blue are the primary colours. If you mix the primary colours, you can make other colours. What colours are road signs? Why do you think they have these colours? Road sign colours are different from the colours around them. This makes them easy to see. Now talk with a friend about why some animals have similar colours to their surroundings.
- 5** Why do we have two eyes? Ask your friend to hold their pencil about 1 metre from your face. Touch the pencil. Now cover one eye, and try to touch the pencil again. Was it easier when you looked with one eye, or with two eyes? We have two eyes to help us to judge distance (know how far away something is). Talk about why it is important to judge distance. Which animals need to be good at judging distance?
- 6** Some people cannot see, or have problems with their sight. Talk with your friend about things that are difficult to do if you cannot see. With your friend, choose one person to cover their eyes. Walk around together – the person who can see must help the person who cannot see. Swap over, and then talk about your experiences. What did it feel like when you could not see? What did your friend do that was helpful? Did they do anything unhelpful?
- 7** Listen to the sounds around you. What can you hear? Now close your eyes. Your teacher will move to a different place and clap their hands. Point to where the sound comes from. Keep pointing, open your eyes and see how many of your classmates are correct. Now cover one of your ears and repeat the activity. Did fewer people point correctly when they used only one ear? Using two ears helps us to judge where sounds comes from.

- 8** Some people cannot hear, or have problems with their hearing. Talk with your friend about things that are difficult to do if you cannot hear well. How can you help older people who cannot hear well? Some people who cannot hear use sign language. Sign language is a way of communicating without sound. It involves using gestures, facial expressions and body language. With your friend, make up some signs you could use for different animals and foods.
- 9** Your skin is the sense organ for touch. Use the skin on your fingers and on your face to touch rough and smooth objects. Now ask your friend to close their eyes. Pass them an object, and ask them to use their sense of touch to identify it. Then swap over. Talk about how easy or difficult it is to identify the objects. Can you think of things you should not touch, perhaps because they are hot, sharp or poisonous?
- 10** Which sense organs do you use to smell and taste? Talk with your friend about why you need to smell and taste. Smells can tell you if food is spoiled, or if there is a dead animal nearby. You can enjoy smelling food or flowers. Taste helps you to enjoy food, and to know if food is spoiled. Next time you eat, hold your nose for a few minutes. Can you taste the food well?

Subject: Science (Biology)

Year Group: P4

Syllabus unit title and number: **Unit 2: Grouping Plants and Animals, their Conservation and Food Chains**

- Text 1 Think of some animals that live in South Sudan and other parts of Africa. List the animals and the food that each animal eats? Which animals eat only plants? These are called herbivores. Which animals eat only other animals? These are called carnivores. Which animals eat both plants and other animals? These are called omnivores. Do you think humans are herbivores, carnivores or omnivores?
64 392
- Text 2 Watch a dog, a cat or another carnivore eating. What are its teeth like? Watch a goat, a cow or another herbivore eating. What are its teeth like? Why do carnivores have pointed, sharp biting teeth? Why do herbivores have large, flat chewing teeth? Look at your own teeth and feel them with your tongue. You have both types of teeth. Where in your mouth are teeth of each type? Why do we have both types?
76 404
- Text 3 Watch some different insects feeding. You might see some ants, caterpillars, flies, bees, butterflies, locusts or grasshoppers. Can you tell which of them bite their food, which chew their food and which suck up liquids? Have you ever been bitten by a mosquito? What food did it want from you and how did it get it?
56 315
- Text 4 Watch some different birds feeding. Some birds have beaks that are very small while others have large beaks. Birds' beaks may be straight, curved, blunt, pointed, narrow or wide. Describe the beaks of some birds that you see in your area. Why do you think a bird of prey (like a kite) has a sharp, strong, curved beak? Why do you think a seed eating bird (like a sparrow) has a small, pointed beak? Can you think of some other examples?
80 431
- Text 5 In this unit, we have learned about the foods that different animals eat. Some depend on the plants they need to eat. Some depend on the other animals they need to eat. Discuss what would happen if all the plants died. This would affect both the herbivores and the carnivores. Why do you think this is true?

Why is it important for us to look after all the animals and plants around us?
73 385

- Text 6 A food chain is a way of showing plants and the animals that feed on them on each other.
Two examples of food chains:
Grass → Zebra → Lion
Flower → Butterfly → Spider
Can you think of any more?
35 199
- Text 7 Because animals depend on each other and on the plants that grow where they live, we say all living things are interdependent. Because they are interdependent, we try to help them survive. Helping plants and animals in this way is called conservation. Discuss what you can do to conserve the plants and animals in and around your home and school.
60 346
- Text 8 South Sudan has National Parks (such as Boma, Southern, Bandingilo, Nimule and Zeraf Wildlife Reserve) with very important populations of animals. Many of these animals that live here are rare or endangered. What does endangered mean? Discuss why South Sudan has such an important part to play in conservation.
49 310
- Text 9 If you can, visit a National Park, a nature reserve, a farm or a zoo to learn about what is being done to conserve South Sudan's wild animals and plants. Why do you think it is true to say that we humans depend on animals and plants and need to live in a healthy environment?
55 275
- Text 10 People around the world are very worried about climate change. The world is getting hotter, sea levels are rising and some areas are drying out. This is very bad for humans and all life on earth. Discuss how climate change could affect plants and animals and what humans should be doing about it.
53 296

Subject: Science (Biology)

Year Group: P4

Syllabus unit title and number: **Unit 3: Seeds and Germination**

Text 1 Look closely at a bean or other large seed. What do you see on the outside? Draw or write down what you see. Carefully open the seed so that you can see the two halves inside. If you look very carefully you should be able to see the tiny plant embryo that grows into a plant when a seed germinates. What does this look like? Can you see the parts that grow into the shoot and the root? Draw what you see.

82 404

Text 2 Beans are only one type of seed that we eat. Sometimes we eat whole seeds and sometimes we grind or mill seeds to make meal or flour. Discuss with family and friends and see how many different types of seeds you can think of that we eat either whole or made into meal or flour.

55 277

Text 3 All the seeds that we eat grow on plants. Farmers and gardeners have to look after their plants so that they grow well and produce a lot of seeds. The first step is to make sure the seeds they plant germinate. What is germination? You might have worked this out already when you looked at the inside of a seed.

60 310

Text 4 A very good way to study germination is to plant a bean or another seed and watch it grow. You could do this at home or at school. As it takes time, your teacher may ask you to do this a week or two before this unit. Once the seed starts to germinate, record the changes you see each day.

60 288

Text 5 There is a bible story of a farmer who sows seed without taking enough care. Some seed falls on the path and is eaten by birds. Some falls on stony ground with little soil. Some on soil which contains thorns and some on good soil.

Only the seed planted in good soil grows well. What do you think 'good soil' means? What is the moral of this story?

68 348

Text 6 You are going to plan some experiments to find out what seeds need to germinate. If you have already looked at germinating seeds at school or at home, you know these seeds had everything they needed to be able to germinate. To begin with plan how you could find out whether seeds need water to germinate. Discuss with your teacher, family or friends whether the experiment you have planned will show what you want it to.

76 420

Text 7 When you planned your experiment to find out if seeds need water to germinate, did you plan a fair test? Your plan should have some seeds without water and some others with water. If those with water germinate, those without water do not and everything else is the same for the two sets of seeds, you know seeds need water to germinate. This is a fair test.
67 357

Text 8 Plan another experiment to find out if seeds need light to germinate. Again, think very carefully to make sure you plan a fair test. How can you make sure everything is exactly the same for your two sets of seeds except for the light?
44 235

Text 9 Now plan a final experiment, again a fair test, to find out whether seeds need heat to germinate. How can you keep some seeds cold and the other seeds warm while keeping all other conditions the same? Can you think of ways to make your experiment even better?
48 259

Text 10 Now you know what seeds need so that they can germinate. You also know that farmers and gardeners grow a lot of crops that give us the seeds we eat. Write some instructions or do some drawings that farmers or gardeners could use to make sure their seeds germinate.
49 264

Subject: Science (Biology/Physics)

Year Group: P5

Syllabus unit title and number: **Unit 2: Understanding and Using our Eyes and Ears**

- Text 1 Look at your eyes in a mirror or at those of a friend or family member. Our eyes are side by side on the front of our heads. Look at some other animals or pictures of animals. Where are their eyes positioned?
Stretch your arms out in front of you. Gradually move your arms backwards while looking straight ahead. Stop moving your arms when you can still see both hands. The angle between your arms is your field of vision.
80 423
- Text 2 The human field of vision is about 135°. Were your arms at about that angle? Some animals, like chickens and goats, have eyes on the sides of their heads. What do you think their field of vision is? Some animals have a full 360° field of vision. Describe what that would be like. Why do you think some animals have a wide field of vision and other animals, like lions and eagles, have eyes on the front of their heads?
80 418
- Text 3 Ask someone to hold an object in front of you at different distances. Each time, reach out and touch the object with your hand. Now cover one eye and try again. Do you agree it is much easier to know how far away the object is when you use both eyes?
As our eyes are on the front of our heads we have binocular vision. From what our two eyes see, our brains work out how far away things are.
80 391
- Text 4 Look at a drawing of the structure of the eye. What does each part of the eye do? Make your own drawing and write the function of each part of the eye alongside its label. You may notice that the image formed at the back of the eye is upside down. Why do you think what you see appears to be the right way up?
65 309
- Text 5 Cover your eyes and ask those around you to take turns to make a clapping sound. Each time you point to where the noise seems to come from. Could you tell the direction the sound was coming from?
Do the same again but this time with your eyes covered and one ear blocked with a finger. Can you tell the direction of the sound with only one ear?
Your brain works out the direction from the sound in each ear.

- Text 6 Look at a drawing of the structure of the ear. What does each part of the ear do? Make your own drawing and write the function of each part of the eye alongside its label. The outer ear directs the sound into your ear canal. Why does cupping your hand over the ear make you hear the sound louder? The inner ear contains your balance organs. Why are these so important?
71 368
- Text 7 Our senses of sight and hearing (Do you remember the other three senses?) are very important to us. These senses are also very important to animals. Why do you think good eyesight and hearing are so important to, for example, an antelope, a cheetah, a sparrow and a vulture? What can humans do if they have problems with their vision or their hearing?
63 351
- Text 8 Materials can be described by what happens when light falls on them. Transparent materials and translucent materials allow light to pass through them. Opaque materials do not allow any light through.
You can look through a transparent material and see what is on the other side. Why do you think you cannot do this with a translucent material?
List some of the uses of the three types of material.
69 400
- Text 9 We already know sound waves travel through gases (the air). How do you know this?
Plan an experiment to find out if and how well sound travels through solids and through liquids. You may need to work with a friend.
Carry out your experiment at home or in school and report what you found out.
54 287
- Text 10 What do we mean by the pitch of a sound? We know that when a string on an instrument is plucked it can make a low or a high pitched sound. Using stretched strings, wires or rubber bands, investigate how the pitch changes when you pluck different thicknesses (of string, wire or rubber band) and when you change the amount of stretch. Try to make your investigation a fair test.
70 377

Subject: Science (Physics / Earth Science)
Year Group: P5
Syllabus unit title and number: **Unit 3: Weather**

- Text 1 You probably know that farmers and gardeners use manure or chemical fertilisers to make their crops grow well. They also water their crops. Manure and fertilisers give plants the minerals they need. Find out why plants need minerals and water. What happens to plants that do not get enough?
49 290
- Text 2 If they are to grow well and be healthy, plants need to make important chemicals like proteins and the green pigment chlorophyll. Three important minerals they need to make these chemicals are nitrogen, phosphorus and potassium (NPK). Plan an investigation (a fair test) to show what happens to plants if they do not get one of these three minerals.
59 349
- Text 3 If the weather is poor, farmers' crops do not grow well enough and there may be food shortages or even famine. Find out and produce a report on what might happen to crops because of different weather conditions. Examples you might think about could include strong winds, too much or too little rain and very hot or very cold weather.
60 333
- Text 4 Discuss what sort of instrument you might need to measure the strength and perhaps also to show the direction the wind is coming from. How could you make a simple instrument yourself? You might think about things you might have seen like washing drying in the wind, a flag, a windsock or a wind vane. You may be able to make your wind instrument.
64 346
- Text 5 Why does wind blow? The pressure of the air is the key. When air warms it expands so the same amount of air takes up more space. It becomes lighter than the cooler air around it and it rises. As the warm air rises, cooler air blows in to take the place of the warm air. This moving air is wind.
Make a drawing to explain this and then use your drawing to teach someone why the wind blows.
79 388
- Text 6 Discuss the ways we use wind energy. Have you ever seen a wind turbine? What are these for? William Kamkwamba became famous in his country, Mali, when he was only 14 for making wind turbines from bicycle parts. The turbines produced electricity to power irrigation systems and to give people light. Find out about William and his work.

List other ways we use wind energy.

65 327

- Text 7 A rain gauge is used to measure the amount of rainfall. How could you make a simple rain gauge using a plastic bottle? Design and make your rain gauge and then use it at home or in school to record the daily amount of rain each day for a week. Remember your results will not be very interesting in the dry season! Also remember to empty the gauge at the same time each day when you record your measurement. Why is this important?
- Text 8 How do we measure the temperature of the air? Simple liquid thermometers have been in use for hundreds of years. Today we also have digital thermometers. You can make a simple liquid thermometer using a straw, a bottle, some coloured liquid and a cork. Find out how to do this, design and make your thermometer. How can you get the scale on the straw right? Use it to record the temperature at home each day.
75 407
- Text 9 How different is the temperature during the day and during the night? Why is the night so much cooler? The sun shines all the time but the earth spins so that the sun is only shining on half of the planet at a time. Explain to a family member why we have day and night using drawings or using objects like balls or stones of different sizes to represent the sun and the earth.
74 376
- Text 10 Scientists warn that our planet is getting hotter. This global warming is causing climate change leading to more frequent and more serious environmental disasters. Discuss what sorts of disasters have been happening? Why is it so important that scientists keep using weather instruments every day? We can all play our part in saving our planet. Discuss what we can do.
60 368

Subjects: Science

Year group: Primary 6

Unit 2: Organisation and structure of living things

- 1** With others, go outside and find five different types of plant, for example trees, grass or food crops. Draw each of the plants, including their leaf shape and any flowers or fruit. Measure or estimate the height of each plant and write this on your drawing. Write down the names of the plants, if you know them. Then talk in your group about whether the plants are useful – do they provide shade, or food, or homes for animals?
- 2** In a group, dig up a small plant, including its roots. Different groups will dig up different plants. Place your plant on a flat surface and measure its height above ground, and the depth of its roots below ground. If you do not have a ruler, measure the plant parts against a pencil. Then draw the plant on manilla paper. Label the roots, stem, branches, leaves, leaf buds, flowers, flower buds, fruit, seeds. Give your drawing to your teacher.
- 3** Every plant part has a special job, or function. Read the information and name plant parts W, X, Y and Z. Part W carries water from the roots and holds the plant up. Part X holds the plant in place and takes water from the soil. Part Y is often brightly coloured and is where seeds are made. A plant has many of Z, which are often green and flat. The plant makes its own food in Z.
- 4** Look at the drawings from activity 2. In your group, talk about the different plants' roots. How are they similar and different? Many plants have branched roots – how does this help them to take in water? Why do plants that live in dry places have deep roots? Now discuss how the roots hold the plants in place – why are the roots of many trees as wide as their branches? Some roots store food – what do they look like?
- 5** Leaves make food for their plant by photosynthesis. To do this, they take in oxygen from the air and water from the soil, via the roots and stem. The leaves use light to help oxygen and water join together. Look at a leaf and talk about the features that allow it to make food: Can you see its veins to carry water? Is it flat and green to absorb as much light as possible? Why do shade-loving plants have bigger leaves?
- 6** In your group, find a plant with a soft stem and pull it out of the ground. Take a small glass or tin of water and add a little ink. Place the plant in the coloured water (roots down) and leave for a few hours. Now slice the plant stem – can you see coloured ink? What does this show? Plant stems also hold plants up. Talk about why different plants have stems with different thickness, height and bendiness.
- 7** Plant parts are adapted to their functions. This means they have features that allow them to do their jobs well. Think back to your discussions about roots, leaves and stems in activities 3, 4, 5 and 6. Now write a paragraph about how roots, leaves and stems are adapted to their functions. Add drawings if you like. At home, read your paragraph to a family member and answer any questions they may have.

- 8** Cut a slice of onion, and peel off a very thin layer. Hold this in ink for a few seconds, and then rinse thoroughly with water. Now look at the piece of onion through a hand lens. Can you see a pattern that looks like bricks, each with a tiny circle in it? Each 'brick' is an onion cell and each circle is a cell nucleus, which controls the cell. Draw the onion cells and label one nucleus.
- 9** Plants and animals are multicellular organisms, which means they are made of many cells. A multicellular organism has five levels of organisation: cells, tissues, organs, organ systems and the organism itself. Research and write down a definition for each level of organisation. Then match each of these to its level of organisation: heart, elephant, muscle cell, muscle tissue, circulatory system.
- 10** Plants have two organ systems – the shoot system and the root system. The shoot system includes all parts of the plant that are usually above the ground, for example leaves, roots and flowers. Match each of these to its level of organisation: maize plant, leaf cell, shoot system, leaf tissue, leaf. Now list these levels of organisation in order of increasing complexity, starting with the cell: organism, cell, organ, tissue, organ system.

Subject: Science

Year group: Primary 6

Unit 3: Weather, air and diffusion

1 INVESTIGATE:

Liquid water evaporates into the air. Put a tiny drop of water on a plate or spoon. Where can you put it so the water evaporates? Test your idea.

2 DISCUSS:

High in the air, water vapour condenses to make clouds. Rain falls from clouds. Talk with others about what may happen if there is too much rain, or not enough.

3 APPLY KNOWLEDGE AND DRAW:

Wood uses oxygen from the air to burn. Draw and label a picture to explain why a fire goes out when you cover it with sand.

4 OBSERVE:

In diffusion, particles move from regions of high to low concentration. Make tea, but do not stir the mixture. Watch as tea diffuses through the water.

5 APPLY KNOWLEDGE AND LIST:

If a material is in the solid state, its shape does not change. Find 6 objects that are made of solid materials. Write the names of the objects and materials.

6 EXPLAIN ORALLY:

The amount of material in an object is its mass. Find a small stone. Now find a stone with a greater mass. Explain to others how you know its mass is greater.

7 USE PROP IN ORAL DESCRIPTION:

If a material is in the liquid state, it flows and its volume does not change. Take a cup of water and use it to help you describe to others what liquids do.

8 APPLY KNOWLEDGE AND DRAW:

Metals are usually shiny and they conduct electricity. Look for objects made of metal, then draw them. Is charcoal a metal? Explain your answer in writing.

9 MODEL MAKING:

Copper is an element, so is made of copper atoms only. The atoms are in rows. Use small objects, like stones, to show the arrangement of atoms in copper.

10 MODEL MAKING:

Carbon dioxide is a compound. Its molecules have one carbon atom joined to two oxygen atoms. Use small objects to make a model carbon dioxide molecule.

Subject: Science

Year group: Primary 7

Unit 2: Diseases and hygiene

1 DISCUSS AND OBSERVE:

Talk with others about different water sources. Which source do you use, and what are its advantages and disadvantages? How do you carry and store water safely?

2 PRACTICAL:

Pour dirty water into a see-through cup. Write what you see. Look at the water tomorrow. How has it changed? Why must you filter and boil water before drinking?

3 INTERVIEW:

Find someone who has had a waterborne disease, like cholera, bilharzia or typhoid. Ask them about the symptoms of the disease, and how it made them feel.

4 POSTER:

If a person has cholera or typhoid, their poo contains disease-causing bacteria. Make a poster to explain why boiling water & washing food prevent the diseases.

5 EXPLAIN IN WRITING:

TB, measles and covid are airborne diseases. Write down why coughing into a handkerchief, avoiding crowds and opening windows prevent the diseases spreading.

6 ROLE PLAY:

Pretend to be a nurse who has cared for Chol in hospital. Chol is well enough to go home, but does not want to. Tell Chol about the advantages of home nursing.

7 RESEARCH:

Protein foods, like eggs, repair and build the body. Name four other protein foods, and find out why pregnant women need extra protein.

8 RESEARCH:

Nutrients are substances in food that we need to be healthy. Find out why a breastfeeding mother needs each of these nutrients: iron, calcium, protein.

9 EXPLAIN ORALLY:

Handling food unhygienically causes contamination. Tell a child the reasons for: washing hands when cooking, covering food, storing food in cool places.

10 REVISION:

Here are some diseases: TB, covid, cholera, typhoid, depression, measles. Which spread through water, and which through air? How can you prevent each disease?

Subjects: Science
Year group: Primary 7
Unit 3: The Earth and solar system

- 1 At night, go outside and look up at the sky. Can you see the moon? What shape is it? How many stars do you think there are? Is anything moving in the sky? How do you feel when you look at the night sky? What would you like to find out about the objects in the sky?
- 2 Draw some of the shapes of the moon. You can see the moon because it reflects light from the sun. The shape of the moon looks different on different nights because the Earth and moon move. Draw the shape of the moon every night for a month. Can you see a pattern in the changing shapes? The changing shapes are called the phases of the moon.
- 3 What stories have you heard about the moon? Talk about these stories with your friends. Talk about how the moon is important in different religions. People have always been curious about the moon. They asked themselves questions about its changing shape and position, and made careful observations for many nights. Thanks to their hard work, we now know that the moon orbits (travels round) the Earth. Its journey takes 28 days.
- 4 How many stars do you think there are? Talk about what you think it is like on the surface of a star. No one knows the number of stars, but scientists estimate that there could be about one quadrillion, which is written as a 1 followed by 24 zeros. Stars are huge balls of extremely hot gas. The Sun is one of these stars – we can feel its heat 150 million kilometres away.
- 5 The Earth is a planet that orbits the Sun. There are seven other planets that orbit the Sun. Which of these planets can you name? Together, the Sun and its eight planets make up the Solar System. Starting from the Sun, the planets of the Solar System are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Work with a friend to make up a way of remembering the names of the planets in order.
- 6 Every planet takes a different time to orbit the Sun. Here are the names of the planets and the times they take to orbit the Sun: Mercury – 88 days; Venus – 225 days; Earth – 365 days; Mars – 687 days; Jupiter – 12 years; Saturn – 30 years; Uranus – 84 years; Neptune – 165 years. Can you spot a pattern in the times? Describe the pattern by finishing this sentence: As the distance from the Sun increases...
- 7 Work in a group of nine to make a model Solar System. Use clay or balls to model the Sun and its planets. They are all spheres. Jupiter and Saturn are the biggest planets. Uranus and Neptune are half the size of Saturn; Venus and Earth are one tenth the size of Saturn. Mars and Mercury are smallest. Ask one student to hold the Sun. The other students each hold one planet and walk around the Sun in their orbits.
- 8 The Solar System planets have orbited the Sun for more than 4 billion years. Why do they not fly off into Space? A big force attracts the planets to the Sun. It is called the force of gravity. The Sun is very heavy, so it pulls the planets towards it very

strongly. The Moon orbits the Earth. What force do you think keeps the Moon in its orbit? Predict which has the stronger gravitational force – Sun or Earth? Why?

- 9** Can you remember the time for the Moon to orbit the Earth? The Earth is not the only planet with a moon – Mars has two, Jupiter 67, Saturn 62, Uranus 27 and Neptune 14. How many moons are there altogether in the Solar System? Plan a talk for your family about the moons of the Solar System. Tell them about the moons of different planets, their orbits, and what stops them moving away into Space.
- 10** Objects that orbit the Earth are called satellites. The Moon is a natural satellite. There are about another 5000 artificial satellites that humans have sent into orbit. Artificial satellites have many purposes. These include: predicting the weather; communicating radio and internet signals; looking at different places on Earth from above. Talk about how information from satellites can be used to help people, and how the information might also be used to cause harm.

Subject: Science (Biology)

Year Group: P8

Syllabus unit title and number: **Unit 2: Reproduction and Sustainability**

- Text 1 What mammals & birds (domestic or wild) are in your local area? Humans are mammals too! What common characteristics do a) mammals b) birds and c) both share?
28 157
- Text 2 Like all animals, birds and mammals reproduce. Why is this necessary? What are the differences and the similarities between how birds and mammals reproduce?
24 157
- Text 3 Fertilisation happens when a sperm and an egg or ovum combine. Internal fertilisation happens in birds & mammals. What does this mean and why is it important?
27 159
- Text 4 Mating (or sexual intercourse) is needed so fertilisation can take place internally. How do animals mate? How must male and female reproductive systems differ?
24 159
- Text 5 The key parts of the female reproductive system are the ovary, oviduct, uterus & vagina. Discuss the function of each part. If you can, copy & label a drawing.
29 159
- Text 6 Ovulation is the process of releasing an egg. How often does this happen? Where do the words ovulation, ovary & oviduct come from? See last Wednesday's text.
27 159
- Text 7 The key parts of the male reproductive system are testes, sperm ducts, urethra & penis. Discuss the function of each part. If you can, copy & label a drawing.
29 158
- Text 8 In humans, ovulation takes place each month and pregnancy lasts for 9 months. Investigate how often other animals ovulate and how long their pregnancies last.
25 158
- Text 9 Why does the uterus have strong muscular walls? What do you think the blood supplies to the baby through the placenta & umbilical cord while it is in the womb?
30 159

Text 10 Discuss the process of giving birth & stages involved from breaking of the waters to delivery of the baby & afterbirth. Why is post-natal care so important?
27 156

Subject: Science (Biology)

Year Group: P8

Syllabus unit title and number: **Unit 3: Interdependence Between Plants and Animals**

Text 1 Animals & plants need energy to stay alive. They take the energy from glucose in a chemical reaction called respiration. How do animals & plants get glucose?
27 158

Text 2 In respiration, glucose reacts with oxygen to make carbon dioxide & water plus energy to keep the animal or plant alive. Write a word equation for respiration.
27 159

Text 3 Plants make glucose by a chemical process called photosynthesis. All the food you have ever eaten came from photosynthesis, even meat. Discuss and explain.
24 155

Text 4 Plants need carbon dioxide, water and energy to carry out photosynthesis. The products are glucose and oxygen. Write a word equation for photosynthesis.
23 152

Text 5 Compare the word equations for respiration and photosynthesis. What do you notice? Why is it true to say animals and plants are interdependent?
23 143

Text 6 Why do we say plants are producers and animals are consumers?
Consumers may be herbivores, carnivores or omnivores?
Remind yourself what these words mean.
24 154

Text 7 Chlorophyll is a green substance in plants that traps energy from sunlight for photosynthesis. It cannot happen in roots or in plants kept in the dark. Explain.
27 160

Text 8 A starch test can be used to test a leaf & see if photosynthesis has happened. How could you find out if plants need light or carbon dioxide for photosynthesis?
30 160

Text 9 Many scientists are worried about global warming & there being too much carbon dioxide (CO₂) in our atmosphere. Why should we be worried about loss of forests?
27 159

Text 10 Draw a table comparing all you have learned about animals and plants. Include what they add to and take from the air, where they get their food and energy.
29 155