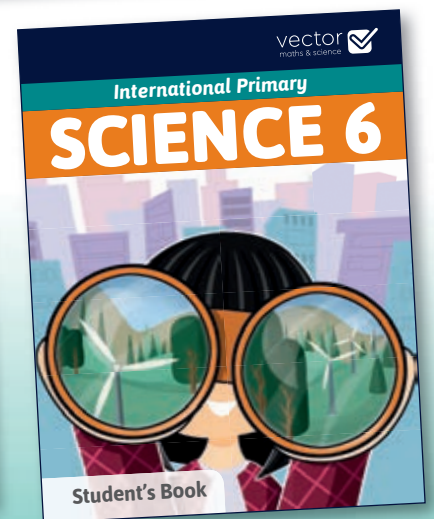
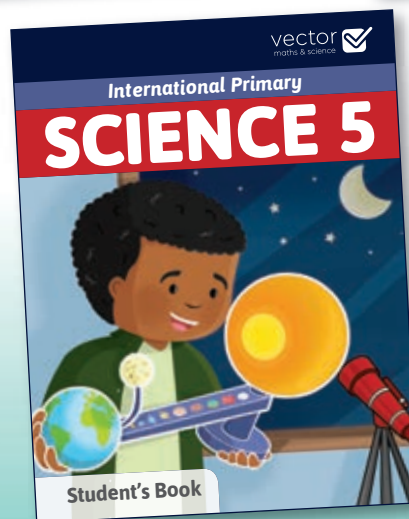
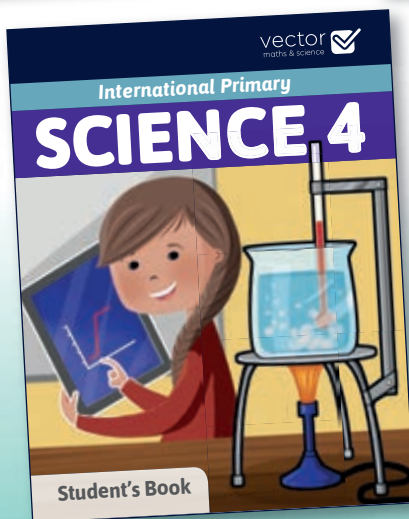
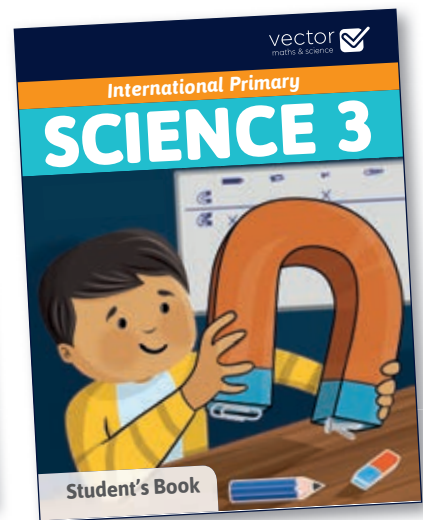


International Primary

SCIENCE



sample pages catalogue

SCIENCE

worth exploring!

VECTOR IPS* is a brand-new exciting series designed to engage students, spark their interest in scientific knowledge and equip them with the skills necessary to excel in the modern, ever-changing world.

6 LEVELS



VECTOR IPS* is an innovative six-level course for primary students. The framework is designed to provide a comprehensive set of progressive learning objectives for science and aims to systematically develop practical skills through scientific enquiry. These skills are useful in everyday life and are not limited to science lessons. The course is organised through the topic-based approach, thus allowing learners to investigate a variety of scientific topics in depth and encouraging them to ask questions, predict, observe, explore, explain, practice, and assess their understanding and abilities.



Biology



Chemistry



Physics

COURSE FEATURES • FOR STUDENTS:

- > **Age-appropriate** learning objectives
- > An integrated approach to the **gradual development of scientific enquiry skills**
- > Lessons based on the teaching model of **Engage, Explore, Explain, Elaborate, Evaluate (5 Es Model)**
- > A special emphasis on **vocabulary building** and **EAL (English as an Additional Language) support**
- > A focus on **scientific literacy** and **literacy support**
- > A **Glossary** with definitions and pictures
- > A **Materials section** with the necessary materials for each unit
- > **Resources**, such as Resource Sheets and Resource Pictures
- > A **Work like a scientist section** with the necessary scientific methods, procedures and tools for each level
- > Activities encouraging **critical thinking** and **personal response**
- > **Independent exploration and lab activities**
- > **Homework activities**
- > End of unit **review pages**
- > Colourful, **high-quality pictures and visuals** that assist scientific knowledge
- > Questions and activities that **challenge** students to extend or expand their knowledge into scientific concepts
- > Extension of topics and ideas in **real-life contexts**
- > **Unit maps** which organise and present the scientific concepts of each unit



COURSE FEATURES • FOR TEACHERS:

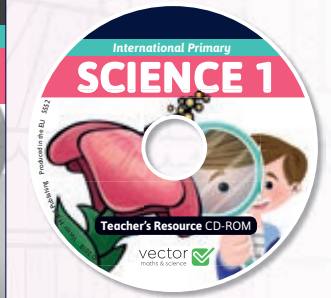
- > **Learning objectives** identified and **scientific enquiry skills** developed in each lesson
- > **Scientific background** information
- > **Lists of student preconceptions** and guidance for detecting and reconstructing them
- > Extensive and detailed **lesson plans** for all lessons and review sections; ideas and suggestions for teaching scientific enquiry; as well as differentiated activities and questions for students of basic or advanced performance
- > **Guidance** for practical activities
- > **EAL (English as an Additional Language) support**
- > A focus on **higher order thinking questions** according to Bloom's taxonomy
- > **Safety** warnings and guidelines
- > Continuous **assessment support** by various means
- > **Reminders** to facilitate the teaching procedure
- > **Resources**, such as Worksheets, Resource Sheets, Resource Pictures, Language Focus activities and Assessment Sheets (The Resources are also provided in the Teacher's Resource CD-ROM)
- > The **keys** for all the questions and activities in the Student's Book and the Workbook, as well as the keys for the Worksheets, the Language Focus activities and the Assessment Sheets
- > **Cross-curriculum links**
- > All sections of the Student's Book are provided for teachers in an **easy-to-access form**
- > **Optional activities** making the lesson more enjoyable and giving further practice

Components

FOR STUDENTS



FOR TEACHERS



Syllabus • SCIENCE 1

SCIENCE 1

LEARNING OBJECTIVES

Unit 1- Humans and Animals

Lesson 1.1 What are the parts of your body?

- Identify the main external parts of the body.

Lesson 1.2 How are humans similar and different?

- Identify the similarities and differences between humans.

Lesson 1.3 How can you have a healthy diet?

- Recognise the importance of a healthy diet with the right type and amount of food and water.

Lesson 1.4 How do humans and animals sense the world around them?

- Examine how humans and animals become aware of the world around them through the senses.

Lesson 1.5 How do babies grow into adults?

- Relate humans and animals to their offspring.
- Discuss that offspring grow and change into adults.

Unit 2- Properties of Materials and their Uses

Lesson 2.1 What are objects made of?

- Identify common materials.
- Distinguish between an object and the material from which it is made.

Lesson 2.2 How do humans sense materials?

- Experiment with and discuss different materials using the senses.
- Recognise properties of different materials.

Lesson 2.3 How do humans use different materials?

- Recognise properties of different materials.
- Recognise uses of different materials according to their properties.

Lesson 2.4 How can you sort materials into groups?

- Recognise properties of different materials.
- Classify objects based on the properties of their materials.

Unit 3- Life Around You

Lesson 3.1 What are living things?

- Categorise humans, animals and plants as living things.
- Identify certain features that are common to all living things, e.g. moving, growing, needing food and water, etc.

Lesson 3.2 Is it living or non-living?

- Identify living and non-living things.
- Identify certain features that are common to all living things, e.g. moving, growing, needing food and water, etc.
- Identify that non-living things may show some of the features that are common to all living things, like moving but not all of them.
- Explain that something must show all of the features of living things to be classified as a living thing.

Lesson 3.3 Where do plants and animals live?

- Relate different plants and animals to different environments.
- Identify the plants and animals that live in a local environment.
- Recognise that animals find what they need to survive in their local environment.

Unit 4- Forces and Movement

Lesson 4.1 How do things move?

- Identify and perform movements.

Lesson 4.2 How do pushes and pulls make things move?

- Identify pushes and pulls as forces.

Lesson 4.3 What can change how things move?

- Indicate that forces make things speed up, slow down or change direction.

Unit 5- Sensing Sounds

Lesson 5.1 What is a sound source?

- Recognise different sound sources.

Lesson 5.2 Is it a loud or a soft sound?

- Distinguish between loud and soft sounds.
- Recognise that loud sound can harm your ears.
- Recognise that some loud sounds are useful.

Lesson 5.3 How do you hear sounds?

- Recognise that sound must enter our ear in order for us to hear it.

Lesson 5.4 How does sound travel?

- Recognise that sound travels away from a source in all directions.
- Explore how sound becomes fainter as it travels away from the source.

Unit 6-How Plants Grow

Lesson 6.1 What are the parts of a plant?

- Identify the main parts of a plant either in real plants or in model plants.

Lesson 6.2 What does a plant need to grow?

- Experiment to deduce that light and water are essential for a plant's survival.

Lesson 6.3 How does a plant grow from a seed?

- Examine how seeds grow into (flowering) plants.

SCIENTIFIC ENQUIRY SKILLS

- Observe and collect evidence in order to answer a question.
- Ask questions and participate in discussions about how to search for answers.
- Predict outcomes.
- Decide what steps to take in order to answer a scientific question.
- Collect data through observation, investigation and measurement in order to answer questions.
- Make suggestions and follow instructions.
- Record the steps in a process or task.
- Compare and contrast.
- Compare results and/or observations with predictions.
- Model and share ideas in order to evaluate and expand on them.



SCIENCE 2 • Syllabus

SCIENCE 2

LEARNING OBJECTIVES

Unit 1- Light

Lesson 1.1 Is it a light source?

- Recognise different sources of light and classify the Sun as one of them.

Lesson 1.2 Can you see in the dark?

- Explain that darkness occurs when there is no light.
- Recognise that people need light in order to see things.
- Explain the uses of light sources.

Lesson 1.3 What are shadows?

- Be able to identify shadows.
- Explain how shadows are formed.

Unit 2- Electricity

Lesson 2.1 Does it work with electricity?

- Identify things that need electricity to work.
- Distinguish between devices that use batteries, mains electricity or both.

Lesson 2.2 How can you stay safe?

- Recognise the dangers of electricity.
- Examine ways to use electricity safely.

Lesson 2.3 What does a circuit need to work?

- Identify the components of a simple circuit, like batteries, wires and bulbs.
- Connect the components of a simple circuit to make it work.

Lesson 2.4 How do switches work?

- Explore how to use a switch in order to open or close a circuit.

Lesson 2.5 How do buzzers and motors work?

- Identify buzzers and motors as components of a circuit.
- Explore how a buzzer and a motor work in a circuit.

Unit 3- Testing Materials

Lesson 3.1 Which objects can you squash or twist?

- Explore and describe how squashing and twisting can change the shape of some objects.
- Explore how some objects can't change shape by squashing or twisting.

Lesson 3.2 Which objects can you bend or stretch?

- Explore and describe how bending and stretching can change the shape of some objects.
- Explore how some objects can't change shape by bending or stretching.
- Investigate how different materials stretch.

Lesson 3.3 Which objects are elastic?

- Identify and explore elastic materials.

Lesson 3.4 How do materials change when you heat or cool them?

- Explore and define the changes in some everyday materials when they are heated or cooled.

Lesson 3.5 Which materials dissolve in water?

- Explore how some materials dissolve in water.

Unit 4- Properties of Materials and their Uses

Lesson 4.1 Natural or man-made materials?

- Identify natural and man-made materials.

Lesson 4.2 What types of rocks are there?

- Identify some types of rocks.

Lesson 4.3 How do people use rocks?

- Outline how different types of rocks are used.

Lesson 4.4 What can you find in soil?

- Explore the uses of soil.
- Discover what soil consists of.

Unit 5- The Sun and the Earth

Lesson 5.1 Does the Sun really move?

- Explore the apparent movement of the Sun in the sky.
- Discover how shadows change during the day.

Lesson 5.2 How do shadows change during the day?

- Discover how shadows change during the day.

Lesson 5.3 How do day and night happen?

- Explore and explain how the day and night happen according to the scientific model of Earth spinning.

Unit 6- Life and Environments

Lesson 6.1 Where do living things live?

- Recognise that environments have similarities and differences.
- Recognise that environmental conditions affect living things (plants and animals) that live in a specific environment.

Lesson 6.2 How do people harm the environment?

- Identify ways that humans harm the environment.

Lesson 6.3 How can people take care of the environment?

- Recognise and apply ways to take care of the environment.

Lesson 6.4 What's the weather like?

- Recognise different types of weather.
- Talk about the weather through observation.
- Record the weather.

Lesson 6.5 What are the four seasons?

- Name the four seasons and the types of weather that characterise them.
- Relate seasons with human and animal activities, as well as plant growth.

Lesson 6.6 Can people forecast the weather?

- Relate the weather forecast to human activities.
- Talk about the weather through observation.
- Record the weather.

SCIENTIFIC ENQUIRY SKILLS

- Observe and collect evidence in order to answer a scientific question.
- Use first-hand experience.
- Find information using simple sources.
- Ask questions and try to find a way to answer them.
- Make predictions before taking actions.
- Recognise that a test or comparison may be unfair.
- Suggest ways to collect evidence.
- Discuss dangers and decide on safety routes.
- Observe and record.
- Be able to measure.
- Use different means to display observations.
- Compare and contrast.
- Recognise simple patterns and associations.
- Discuss or write about predictions, what finally happened and why.
- Revise and describe the steps of an investigation.

SCIENCE 3

LEARNING OBJECTIVES

Unit 1- Life Processes and Living Things

Lesson 1.1 How do living things feed and move?

- Recognise life processes of nutrition (water and food) and movement common to living things.

Lesson 1.2 How do living things reproduce?

- Recognise life process of reproduction common to living things.

Lesson 1.3 How do living things grow and respire?

- Recognise life processes of growth and respiration common to living things.

Lesson 1.4 How can you find out if something is living or non-living?

- Recognise life processes of sensitivity and excretion common to living things.
- Identify living and non-living things based on the seven life processes.

Lesson 1.5 How can we sort living things into groups?

- Sort animals using one or more characteristics.
- Record and present the physical characteristics of humans.

Lesson 1.6 How can we sort vertebrates into groups?

- Recognise that vertebrates are animals with a backbone and invertebrates are animals that don't have a backbone.
- Identify humans as vertebrates and mammals.
- Sort vertebrates into the five groups of mammals, birds, reptiles, amphibians and fish according to their characteristics.

Unit 2- Properties and Uses of Materials

Lesson 2.1 What properties does a material have?

- Recognise properties of different materials.
- Recognise that objects made of the same material may have different properties.
- Investigate absorbent materials.

Lesson 2.2 How can we sort materials into groups?

- Sort materials according to their properties.

Lesson 2.3 Is it magnetic or not?

- Distinguish between magnetic and non-magnetic materials through experimentation.

Lesson 2.4 How do we use different materials?

- Explain why materials have different uses depending on their properties.

Unit 3- Growing Plants

Lesson 3.1 What are the parts of a plant?

- Recognise and name the parts of plants (roots, stem, leaves, flowers and fruit).
- Recognise that the same parts look different in different kinds of plants.

Lesson 3.2 Are all the parts of a plant important?

- Investigate whether leaves are necessary for a plant to grow.
- Investigate whether a healthy stem is necessary for a plant to grow.
- Investigate whether healthy roots are necessary for a plant to grow.
- Investigate whether flowers are necessary for a plant to grow.
- Recognise that plants need healthy leaves, stems and roots to grow well.

Lesson 3.3 How do we sort plants into groups?

- Sort plants in different ways.

Lesson 3.4 Do plants need water to grow?

- Investigate whether plants need water to grow.

Lesson 3.5 How do plants get water?

- Recognise that water is taken in through the roots.
- Explore how water is transported through the stem.
- Recognise that plants need roots to grow well.

Lesson 3.6 Are light and temperature important for plants?

- Investigate whether plants need light to grow.
- Investigate whether plant growth is affected by temperature.

Lesson 3.7 Do plants have sensitivity?

- Explore how seeds grow roots towards the ground (positive gravitropism).
- Explore how plants grow towards the light (positive phototropism).

Unit 4- Forces**Lesson 4.1 How can forces change the movement of an object?**

- Recognise that a force is either a push or a pull.
- Investigate how forces can change the movement of objects, either when they start or stop moving or when they change direction.
- Investigate how forces can make an object move faster or more slowly.

Lesson 4.2 How can forces change the shape of an object?

- Examine how forces can change the shape of objects.

Lesson 4.3 How can you measure forces?

- Examine how forces can change the shape of objects.
- Measure forces with force meters.
- Recognise that forces are measured in newtons.

Lesson 4.4 What is friction?

- Recognise that there is a force of friction between two surfaces that slide or tend to slide across each other.
- Explore how the amount of friction depends on the types of the two surfaces.
- Recognise that friction can make an object start or stop moving or change the object's direction.

Unit 5- Senses**Lesson 5.1 What is the sense of hearing?**

- Explore the sense of hearing and how humans and animals become aware of the world around them using the sense of hearing.
- Distinguish sounds and their sources.
- Investigate whether we hear better with one or two ears.

Lesson 5.2 What is the sense of sight?

- Explore the sense of sight and how humans and animals become aware of the world around them using the sense of sight.
- Recognise the limitations of human eyesight.
- Recognise that we see better with both eyes.

Lesson 5.3 What is the sense of touch?

- Explore the sense of touch and how humans and animals become aware of the world around them using the sense of touch.
- Recognise ways that the sense of touch can trick us.
- Explore the texture of different objects.

Lesson 5.4 What is the sense of smell?

- Explore the sense of smell and how humans and animals become aware of the world around them using the sense of smell.
- Identify different objects by their smell.

Lesson 5.5 What is the sense of taste?

- Explore the sense of taste and how humans and animals become aware of the world around them using the sense of taste.
- Distinguish between different tastes.
- Recognise how the sense of smell affects the sense of taste.

Unit 6- Staying Healthy**Lesson 6.1 What are nutrients?**

- Name food groups and the kinds of food that belongs to them.
- Relate food groups to the nutrients they contain.

Lesson 6.2 How can you have a balanced diet?

- Recognise the importance of a balanced diet, with the right kinds and amount of food and the importance of drinking water.

Lesson 6.3 How can you stay healthy?

- Recognise and discuss other healthy habits, including sleep, exercise, hygiene and mental health.

Lesson 6.4 What is an unhealthy diet?

- Recognise what constitutes an unhealthy diet and what the consequences are.
- Recognise that not all sugars and fats are unhealthy.

SCIENTIFIC ENQUIRY SKILLS

- Collect evidence using different means in order to answer a question or test an idea.
- Make suggestions about how to collect evidence and plan an investigation.
- Make predictions and share them.
- Suggest ways to collect evidence and plan a fair test with assistance.
- Make a test to answer a question.
- Make observations and comparisons of objects, living things and events.
- Use simple equipment to take measurements and record observations in different ways.
- Use drawings, tables and charts to record and display results.
- Draw conclusions from results and try to explain them using scientific knowledge.
- Begin to recognise simple patterns in results and make generalisations from results.

SCIENCE 4

LEARNING OBJECTIVES

Unit 1- Humans and Animals

Lesson 1.1 What are skeletons?

- Recognise that humans and some animals have bony skeletons.
- Recognise the pattern of a bony skeleton in humans and some animals.
- Recognise that some animals do not have skeletons.

Lesson 1.2 What are the main bones of a skeleton?

- Recognise that bones have different shapes and sizes.
- Recognise the skull, the ribs, the vertebrae and the thigh bone as some of the main bones of the human skeleton.
- Recognise the spine as a main part of the human skeleton.
- Recognise that bones grow as we grow up.

Lesson 1.3 Why is the human skeleton important?

- Recognise some functions of the skeleton, including that it gives shape, supports the body, allows movement and protects many organs of the body.

Lesson 1.4 How do muscles work?

- Recognise that humans and some animals have muscles attached to their bones.
- Examine how muscles work in pairs and that they contract to pull bones and move them.

Lesson 1.5 What are microorganisms?

- Recognise that microorganisms are living things that we can't see with the naked eye.
- Recognise that microorganisms are everywhere.
- Recognise different types of microorganisms.
- Recognise that some microorganisms are useful, and some are harmful to humans.

Lesson 1.6 What are some illnesses and their symptoms?

- Recognise symptoms of being unwell.
- Recognise that different types of illnesses have different symptoms.
- Explain how to protect oneself and others from germs.

Lesson 1.7 How can you feel better?

- Identify different types of medicines.
- Recognise ways to stay safe when using medicines.

Unit 2- States of Matter

Lesson 2.1 What are the states of matter?

- Identify the three states of matter: solid, liquid and gas.
- Recognise that volume is a common property of matter.
- Identify the units of volume (cubic centimetres, cubic metres, millilitres, litres).
- Measure the volume of liquids and solids using measuring cylinders (or beakers).

Lesson 2.2 How are solids, liquids and gases different?

- Recognise that matter is made of particles.
- Identify how particles are arranged in solids, liquids and gases.
- Identify the properties of matter.
- Relate the different properties of matter to the particle model.
- Identify and explore some gases.

Lesson 2.3 What are melting and freezing?

- Explore the changes in materials which are heated or cooled.
- Recognise that melting is the process of a solid being heated and changing into a liquid.
- Recognise that freezing is the process of a liquid being cooled and changing into a solid.

Lesson 2.4 What are boiling and condensation?

- Recognise that boiling and evaporation are the processes through which a liquid changes into a gas.
- Recognise that condensation is the process through which a gas changes into a liquid.

Lesson 2.5 What are melting, boiling and freezing points?

- Explore the changes in materials which are heated or cooled.
- Recognise what boiling point, melting point and freezing point are.
- Measure the boiling point, melting point and freezing point of water.
- Recognise that the melting point is the same as the freezing point.
- Recognise that different materials have different melting points.

Unit 3- Magnets

Lesson 3.1 What are magnets?

- Distinguish magnetic from non-magnetic materials.
- Investigate which magnet is stronger.

Lesson 3.2 Are all metals magnetic?

- Explore which metals are magnetic and which metals are not.

Lesson 3.3 How can two magnets attract or repel each other?

- Determine the poles of a bar magnet.
- Explore how like poles of magnets repel and unlike poles of magnets attract each other.
- Explore that a free turning magnet comes to rest in the north-south direction.

Lesson 3.4 How can you make a magnet?

- Explore two ways in which magnets can be made.
- Construct an electromagnet.

Unit 4- Life and Environments

Lesson 4.1 How can we identify animals and plants?

- Use identification keys.
- Design an identification key with help.
- Name some characteristics of dolphins and whales.

Lesson 4.2 How can we identify invertebrates?

- Use identification keys.
- Recognise that invertebrates are animals without a spine.

Lesson 4.3 Where do animals live?

- Recognise what a habitat is.
- Name different habitats.
- Discover that different animals live in different habitats.
- Recognise that an animal gets what it needs to survive (food, shelter, water) from its habitat.

Lesson 4.4 What are habitats like?

- Discover that different animals live in different habitats.
- Recognise that a habitat includes other animals, non-living things and environmental factors, e.g. the temperature.
- Recognise that some animals eat plants.
- Recognise that some animals eat other animals.

Lesson 4.5 How are animals suited to the environment they live in?

- Discover that different animals live in different habitats.
- Explain how an animal is suited to its environment.
- Explain how the adaptations of an animal help it survive in its environment.

Lesson 4.6 How do we affect the environment in good and bad ways?

- Recognise that people's actions and natural phenomena pollute the environment.
- Recognise that people's actions contribute to the pollution of the environment more than natural phenomena do.
- Recognise that people's actions pollute the air, the water and the ground.
- Recognise that pollution affects the health of living things.
- Recognise that people's actions affect the environment in good and bad ways.

Lesson 4.7 Do pollutants stay in the environment for a long time?

- Observe that some materials, like plastic, decay very slowly.
- Discover that pollutants affect every part of the environment.

Lesson 4.8 How can we take care of the environment?

- Discover that when people reuse objects, they affect the environment in a good way.
- Discover that when people recycle objects, they affect the environment in a good way.
- Discover that when people reduce waste, they affect the environment in a good way.

Unit 5- Electricity**Lesson 5.1 What are the components of a simple circuit?**

- Identify the components of simple circuits, like cells, wires and bulbs, and recognise their functions.
- Connect the components of a simple circuit to make a complete circuit.
- Explore the effects of a break in a complete circuit.

Lesson 5.2 What is electric current?

- Recognise that an electric current is particles flowing in one direction around a circuit.
- Use a model to show how the electric current flows around a circuit.

Lesson 5.3 How can you break a circuit?

- Recognise that a circuit doesn't work when there is a break in it.
- Explore how to use a switch in order to open or close a circuit.
- Recognise things that can cause a break in a circuit.

Lesson 5.4 How can we use electricity safely?

- Examine ways to use electricity safely.
- Recognise the dangers of electricity.
- Investigate how an electric current flows through water.

Lesson 5.5 How can a circuit have more bulbs?

- Make complete circuits with more than one bulb.
- Recognise that in a series circuit with identical bulbs, all the bulbs shine equally brightly.
- Experiment on how adding more bulbs to a series circuit makes them shine less brightly.
- Explore that wherever there is a break in a series circuit the electric current will not flow.

Lesson 5.6 How can a circuit have more cells?

- Make complete circuits with more than one cell.
- Experiment on how adding more cells to a circuit can make the bulb shine more brightly or even blow.

Lesson 5.7 How do buzzers and motors work?

- Identify buzzers and motors as components of a circuit.
- Explore how a buzzer and a motor must be connected to a circuit in order to work.
- Identify how many 1.5 V cells must be used in a circuit to make a component work.

Unit 6- Sensing Sounds**Lesson 6.1 What are sounds?**

- Demonstrate how a vibrating object makes sound.

Lesson 6.2 How do we hear sounds?

- Investigate how sound travels from the source to our ear through air.
- Recognise that the pinnae of the ears are useful for collecting sounds.

Lesson 6.3 How does sound travel through matter?

- Experiment on how sound travels through solids, liquids and gases.
- Explore that sound does not travel through a vacuum.

Lesson 6.4 What does sound travel best through?

- Investigate how sound travels through solids best, less well through liquids and worst of all through gases.
- Explore how sound travels through different solid materials.

Lesson 6.5 How can you change the loudness of sound?

- Identify soft and loud sounds.
- Investigate how the size of the vibration correlates with the volume of the sound.

Lesson 6.6 How can you measure the volume of sound?

- Identify the unit of sound volume (decibels).
- Measure sound volume with a sound level meter.

Lesson 6.7 How can we muffle sounds?

- Investigate how different materials can make sounds quieter.

Lesson 6.8 What is the pitch of sound?

- Relate the pitch of sound to how fast the vibration is.
- Differentiate pitch from loudness.

Lesson 6.9 How can you make a musical instrument?

- Identify how musical instruments make sound.

Lesson 6.10 How can you change the pitch in musical instruments?

- Find patterns between the pitch of a sound and features of the object that produced it.

SCIENTIFIC ENQUIRY SKILLS

- Collect evidence from diverse sources using different methods.
- Test ideas and predictions based on patterns, evidence and scientific knowledge.
- Propose questions for investigations, make predictions about them and discuss.
- Create fair tests and plan how to collect evidence using different methods.
- Decide what to measure, and select the appropriate apparatus.
- Make observations and comparisons.
- Take simple measurements, e.g. temperature, time and length, using appropriate apparatus.
- Start to recognise the necessity of repeated measurements.
- Use drawings, tables, timelines, and charts to record and display results.
- Distinguish patterns and trends in results and try to explain them.
- Explain evidence and results, use them to support or disprove predictions, and share the evidence and results with others.
- Relate evidence to scientific knowledge in different situations.

SCIENCE 5**LEARNING OBJECTIVES****Unit 1- Light**

- Demonstrate that light travels in straight lines away from a light source.
- Describe how we see light sources when light enters our eyes.
- Use ray diagrams to show how light travels from the source to our eyes.
- Recognise that light is reflected off different surfaces.
- Explore how the angle at which light hits a mirror is equal to the angle at which light reflects off the mirror.
- Draw ray diagrams to show how light is reflected off a mirror.
- Distinguish between regular reflection and diffuse reflection.
- Describe how we see an object when light travels from a source, reflects off the object and enters our eyes.
- Draw ray diagrams to show how light travels from the source to the object and into our eyes.

Unit 2- States of Matter

- Rank objects based on how well their surfaces reflect light.
- Recognise that a mirror image is back to front.
- Identify the uses of mirrors.
- Apply the law of reflection to make a periscope.

- Discover that evaporation happens when a liquid turns into a gas without boiling.
- Explain what happens to the particles of a liquid when it evaporates.
- Recognise different situations in real life in which evaporation takes place.
- Recognise that condensation happens when a gas turns into a liquid.
- Discover that evaporation is the reverse of condensation.
- Examine how water vapour contained in the air may condense when it meets a cold surface.
- Explain what happens to the particles of water vapour when it condenses.

- Recognise that water in a gaseous state is called water vapour and is part of the air around us.
- Discover that a liquid boils when its temperature reaches its boiling point.
- Recognise that the boiling point of pure water is 100 °C at sea level.
- Examine what happens to the particles of a liquid when it boils.
- Examine what factors affect the boiling point of a liquid and how they affect it.
- Discover that a solid melts when its temperature reaches its melting point.
- Recognise that a liquid freezes when its temperature reaches its freezing point.
- Recognise that the melting point of ice is 0 °C and that it is also the freezing point of pure water.
- Explain what happens to the particles of a liquid when it freezes.
- Recognise that impurities can change the freezing point of water.
- Recognise that the parts of a solution are the solute and the solvent.
- Describe what happens to the particles of a solid solute when it dissolves in a liquid solvent.
- Explore how when the solvent evaporates from a solution, the solid solutes are left in their solid state.
- Investigate the different stages of the water cycle.
- Explore how the processes of evaporation, condensation and melting take place in the water cycle.
- Recognise the importance of the water cycle for all living things.
- Recognise that heat is a form of energy that flows from a warmer object or place to a cooler one because of their difference in temperature.
- Identify different uses of heat.
- Examine how heat can change the state of matter of a material.
- Recognise that temperature is a measure of how hot or cold a person, an object or a place is.
- Recognise that the rate of evaporation is a measure of how fast or slowly a liquid evaporates.
- Examine the factors that affect a liquid's rate of evaporation.
- Recognise when scientists plan an investigation, they keep some factors the same and they change others to have correct and reliable results.

Unit 3- The Life Cycle of Flowering Plants

- Recall the parts of flowering plants (roots, stem, leaves, flowers and fruit).
- Observe the function or functions of each plant part.
- Recognise that flowering plants reproduce.
- Distinguish between the two ways flowering plants reproduce.
- Explore seed dispersal.
- Observe how seeds can be dispersed by wind or by water.
- Investigate how various factors affect the dispersal distance of wind-dispersed seeds.
- Observe how seeds can be dispersed by explosion and by animals.
- Sort seeds according to the four methods of dispersal.
- Analyse the process of pollination in flowering plants.
- Observe that seeds are formed when pollen fertilises the egg cell.
- Trace how parts of a flower change into parts of fruit, after fertilisation.
- Observe that flowers can be pollinated by animals, wind, water and humans.
- Explore the frequency of visits to flowers, by different pollinators.
- Recognise the importance of bees as pollinators.
- Recognise that flowering plants produce flowers which have male and female parts.
- Trace the functions of each flower part.
- Track differences between various kinds of flowers.
- Describe and explain the life cycle of flowering plants.
- Relate life cycle stages to life cycle procedures.

Unit 4- Investigating Plant Growth

- Recognise that plants need water, light and the proper temperature to grow.
- Recognise that energy from light is essential for plants to grow.
- Explore how seeds need water and warmth in order to germinate.
- Explore how seeds do not need light for germination.

Unit 5- The Earth in Space

- Make a model of the Sun and the Earth and compare their sizes.
- Explore how the Sun looks small in the sky because it is very far away from the Earth.
- Model the movement of the Moon around the Earth and compare their sizes.
- Explore the apparent movement of the Sun in the sky.
- Discover how shadows change direction during the day.
- Recognise that the Earth rotates around its axis every 24 hours.
- Demonstrate and explain how daytime and nighttime occur.
- Demonstrate how the Earth orbits the Sun while it rotates on its axis.
- Recognise that the Earth takes 365¼ days to complete a revolution around the Sun.
- Identify the pattern of how the length of day in a place changes throughout the year.
- Compare the length of day in different places on Earth.
- Relate the variation of hours of daylight to the Earth's tilted axis.
- Explain how the Earth's tilted axis and its revolution around the Sun causes the seasons.
- Relate the seasonal changes to the way the sunlight hits the different parts of the Earth and the amount of daylight.
- Order the planets from the Sun.
- Model the size and distance of the planets from the Sun.
- Research the life and discoveries of scientists that developed models of the solar system.
- Identify ways in which people can explore and study space without physically going there.
- Research the history of space exploration.

Unit 6- Shadows

- Explore how shadows are formed.
- Examine the factors that affect the size of a shadow.
- Demonstrate how an object forms shadows of different shapes.
- Examine how shadows change direction and length throughout the day.
- Relate the position of the Sun in the sky to the position and length of shadows.
- Identify the unit of light intensity (lux).
- Measure light intensity with a light meter.
- Examine how light intensity changes throughout the day.
- Recognise that light intensity is higher during the summer and lower during the winter.
- Compare materials based on how much light they allow to pass through them.
- Classify materials as transparent, translucent or opaque.
- Explore how white light is separated into different colours and how different colours mix to make white light.
- Examine how transparent and translucent objects absorb colours and allow different colours to pass through them.
- Examine how opaque objects reflect and absorb different colours.
- Explain how we see the colour of transparent, translucent and opaque objects.

SCIENTIFIC ENQUIRY SKILLS

- Recognise that scientists suggest new theories and explanations for phenomena by synthesising evidence with creative thinking.
- Test predictions through observations and measurements, and make links with previous knowledge.

- Make predictions based on scientific knowledge and suggest ways to test them.
- Design a fair test using scientific knowledge.
- Collect adequate evidence to test an idea.
- Define factors that should be considered in a variety of contexts.
- Make relevant observations using different means.
- Take measurements, e.g. volume, temperature, time and length, using appropriate apparatus.
- Discuss and recognise the importance of repeated measurements and observations.

- Use drawings, tables, graphs and charts to record and display results.
- Determine whether predictions are supported by results.
- Start to evaluate repeated results.
- Identify patterns and trends in data and use them to make predictions and propose explanations using scientific knowledge.
- Interpret obtained data and results, and decide whether they are sufficient to draw conclusions.

SCIENCE 6

LEARNING OBJECTIVES

Unit 1- Humans and Animals

- Use scientific names for major organs of body systems.
- Determine the position of major organs in the body.
- Determine that the functions of the major organs are necessary for humans to live.
- Explain how major organs of the body function.
- Explain how major organs cooperate.
- Identify the difference between heartbeat and pulse.

Unit 2- Testing Materials

- Differentiate reversible from irreversible changes and give examples.
- Experiment with mixing solids and separating them again when possible.
- Experiment and observe changes when certain solids are added to water.
- Experiment with separate solids which don't dissolve or react with water, using different methods, like filtering.
- Investigate how some solids dissolve in water and form solutions.
- Explore how a substance can be in a solution even if it can't be seen.
- Experiment to find out how to make a solid dissolve faster.
- Experiment to find out which factors affect dissolution.

Unit 3- Life and Environments

- Explain that food chains represent feeding relationships.
- Design food chains by using diagrams and describe them in text to explain that plants (producers), which use energy from the Sun, are always at the beginning of a food chain.
- Identify producers, consumers, predators, and prey.
- Investigate and write about food chains in different habitats.

Unit 4- Electricity

- Recognise which materials are conductors and insulators of electricity through experimentation.
- Recognise that water is a conductor of electricity through experimentation.
- Experiment to find out which metals are good conductors of electricity.
- Measure electric current.
- Discuss ways to stay safe with electricity.
- Recognise uses of conductors and insulators in everyday life.
- Use symbols to draw circuit diagrams.
- Relate circuit components to their symbols .
- Examine the effects of changing different circuit components.
- Investigate different ways of wiring, including parallel and serial wiring.
- Use experimentation to explore how the thickness and length of a wire can change the strength of a current.
- Recognise scientists who explored electricity and batteries.

Unit 5- Human Activity and the Environment

- Investigate how human activity affects the environment, e.g. reduction of biodiversity, air pollution, etc.
- Identify different ways of caring for the environment e.g. reducing one's energy footprint.
- Support others who care for the environment.
- Investigate recycling.
- Support the actions of others who care for the environment.

Unit 6- Forces

- Differentiate mass from weight.
- Measure mass, weight, and forces using their units.
- Recognise the direction of forces.
- Explain how forces act in pairs.
- Recognise balanced and unbalanced forces.
- Recognise the effects of forces on the movement and shape of different objects.
- Explore buoyancy.
- Relate movement to energy.
- Explore how friction changes the movement of different things.
- Investigate factors that affect friction, including different surfaces.
- Identify air resistance as friction.

SCIENTIFIC ENQUIRY SKILLS

- Recognise that scientists suggest new theories and explanations for phenomena by synthesising evidence with creative thinking.
- Collect evidence and data during an investigation in order to test ideas and predictions.
- Design tests in order to test an idea.
- Make predictions based on scientific background knowledge.
- Define crucial factors for an investigation.
- Select which equipment to use.
- Make valid observations using apparatus.
- Decide when repeated observations and measurements are needed for sufficient evidence.
- Use bar charts, line graphs and tables to display results.
- Compare and analyse results and data.
- Evaluate repeated observations and results.
- Distinguish patterns and trends and identify results that do not apply to those patterns or trends.
- Draw conclusions from results and use them to make predictions.
- Hypothesise and justify one's hypothesis using scientific background knowledge.
- Evaluate whether the obtained evidence supports predictions.



vocabulary list with the keywords of each lesson

an introduction of each lesson without revealing all the scientific concepts

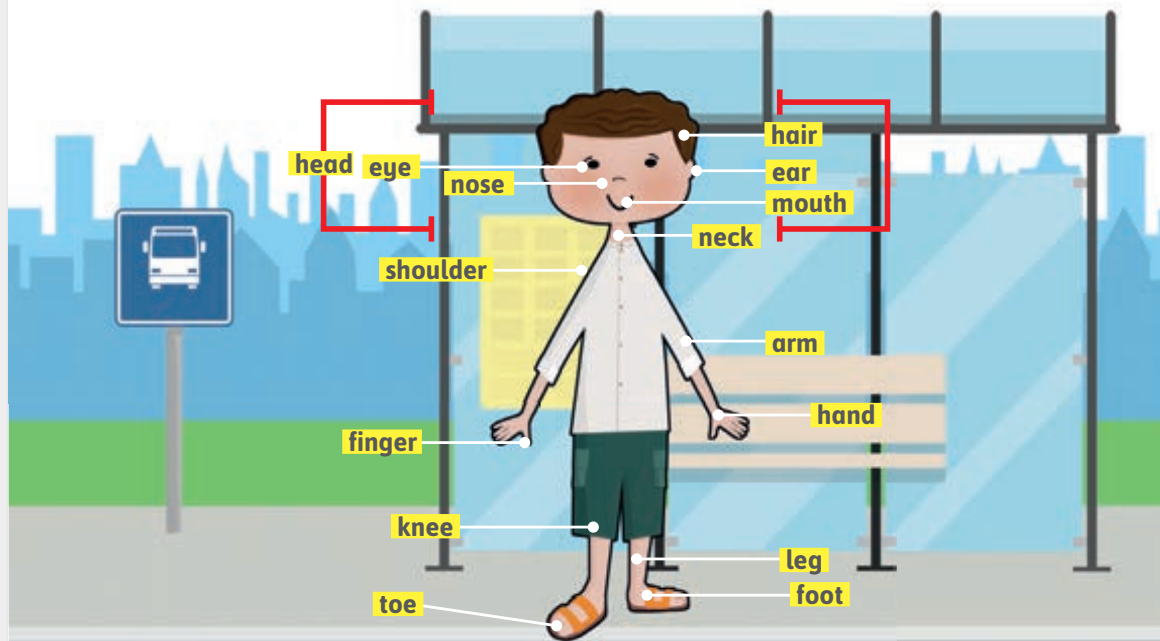
1 Humans and Animals

1.1 What are the parts of your body?

Keywords arm body ear eye finger foot hair
hand head knee leg model mouth
name neck nose shoulder toe

Let's think

Your **body** has many parts.



A Why do you need each part of your body?

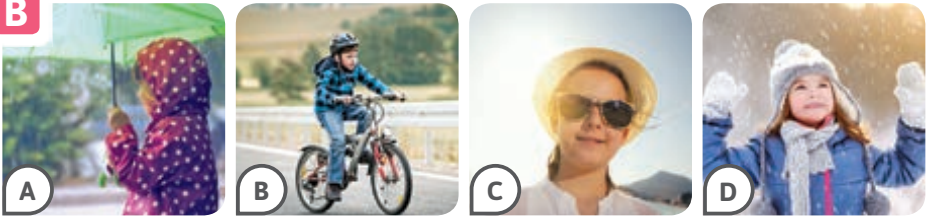
4

visuals and high-resolution pictures facilitate the understanding of scientific knowledge

activities that encourage critical thinking and personal response, and incorporate topics and ideas in real-life contexts

Humans and Animals  Unit 1

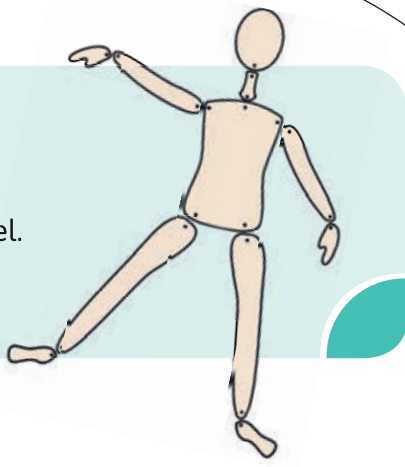
B



The children are wearing a raincoat, a helmet, a hat and sunglasses, a woolly hat, a scarf and gloves. On which parts of the body are they wearing them? Why?

 Let's explore!

- Make a **model** of the human body.
- Draw the parts of the head on your model.
- **Name** the parts of your model.



inquiry-based exploration activities, in which students work either independently or in small groups

Fun fact



Each human has lines on the ends of their fingers.

extension and application of knowledge in real-life contexts

 **Your body has many parts.**

5

a description of important concepts and ideas presented in the lesson, used for evaluation

The Review activities help students consolidate their knowledge, and help teachers assess the Ss' progress.

1 Review

Humans and Animals Unit 1

1. Draw lines, as in the example.



2. How are you and your partner similar? How are you different?



3. Complete the table with the numbers (1-9) for the kinds of food.

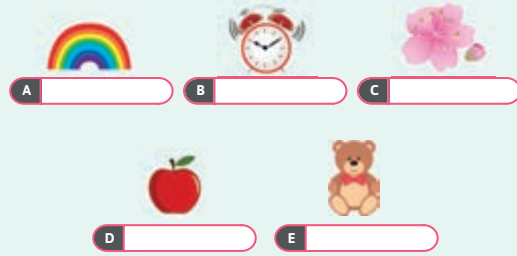


Bread, rice, cereal, potatoes, spaghetti	
Meat, fish, eggs, beans	
Milk, cheese, yoghurt	
Fruit and vegetables	
Oils and spreads	

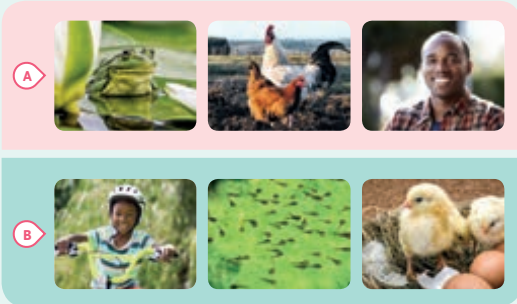
14

4. Complete A-E with the words in the box.

hearing sight smell taste touch



5. Draw lines to match the young with their parents.



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The steps of the scientific method, procedures and tools are presented at the back of the book so that students can follow them to conduct investigations.

Work like a scientist

Work like a scientist

Steps of the scientific method

Scientists study different things, like animals, plants, materials, or phenomena. You can do the same to find out about the world around you.

1. Look and ask a question

Luna is looking at her mother watering the plants and has a question.



2. Guess what will happen

Luna tells Yin what she thinks the answer to the question is.



3. Make a plan

Luna and Yin make a plan to find out the answer to the question. The girls also make a list with the materials they will use. They also think about what to do.



60

4. Do the test

Luna and Yin look at the plants and draw what they see.



5. Talk about what you found

Luna and Yin compare their drawings and talk about what they found.



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The materials needed for the activities of each unit are presented at the back of the book.

Materials

Unit 1 Humans and Animals

banana	cardboard box	cinnamon sticks	coloured pencils
glue	onions	paper fasteners	pebbles
pencils	rice	scissors	

Unit 2 Properties of Materials and their Uses

aluminium foil	Blu-Tack	coloured pencils	cotton towel
glue	magnifying glass	paper towel	plastic bag
plastic bottle	plastic bowl of water	plastic cup	plastic ruler
play dough	rope	rubber gloves	scissors
silk scarf	sticky tape	teddy bear	wooden spinning top

64

65

The key scientific terms with definitions or pictures that help students visualise vocabulary are presented at the back of the book. The additional vocabulary items included in lessons are marked with an asterisk*.

Glossary

adult	a fully-grown person or animal12
alarm	a device that warns us of danger.....44
aluminium foil*	a thin sheet of metal21
ambulance*	a big van that takes people to hospital when they are very ill....49
animal	a living thing that is not a person or plant26
ask	to make a question..... 7
baby	a very young child or animal12
body	the whole of a person 4

The parts of the human body

caterpillar*	a small, long animal with many legs that eats the leaves of plants and grows into a butterfly.....12
---------------------	--

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Glossary

cocoon*	something that some insects make so that they are safe as they grow into adults.....17
compare	to see how things are similar or different 8
container*	an object such as a box or a bottle, that we use to carry or store something45
cotton towel*	a piece of material we use to dry something or someone18
count	to see how many things, people, etc. there are49
dark*	without light.....15
desert	a large, hot, dry area with sand or rocks and few plants30
diet	the kinds of food that humans and animals eat 9
different	not the same36
direction	the place towards which something or someone is moving38
do the test	to do something to see what will happen21
drill*	a tool that we use to make a hole in the ground.....50
ear protectors*	something that you put on your ears to keep them safe from a loud sound45
environment	the place where people, animals and plants live, which gives them a home, food and water30
explore	to look at something carefully to learn more about it18
fabric	a soft flexible material that we use to make clothes and other things17
far	not near48
faster	moving more quickly38
fawn*	a young deer12
find out	to learn something11

70

Practice activities to support and expand students' knowledge and help them develop scientific enquiry skills are provided.

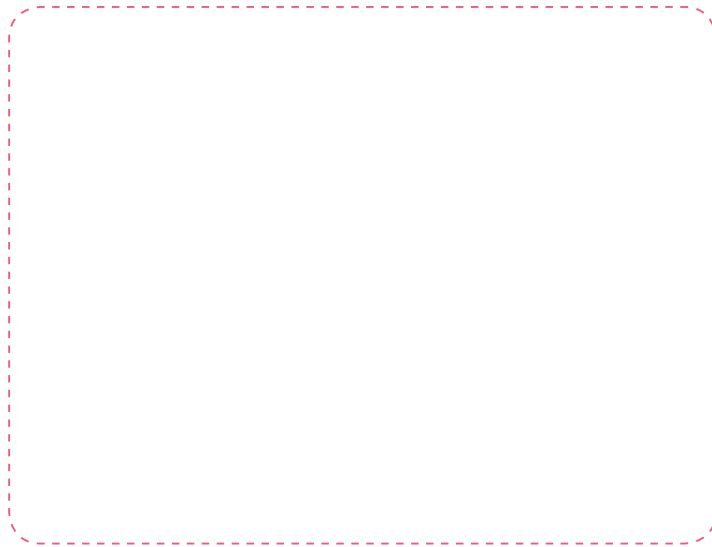
1 Humans and Animals

1.1 What are the parts of your body?

1. Read about a funny person and draw him. Then colour him in.

He has:

- a big head
- small eyes
- a big mouth
- a big nose
- big ears
- a short neck
- curly hair
- short arms
- big hands
- long fingers
- long legs
- small feet



2. Find and circle the words in the grid, as in the example.

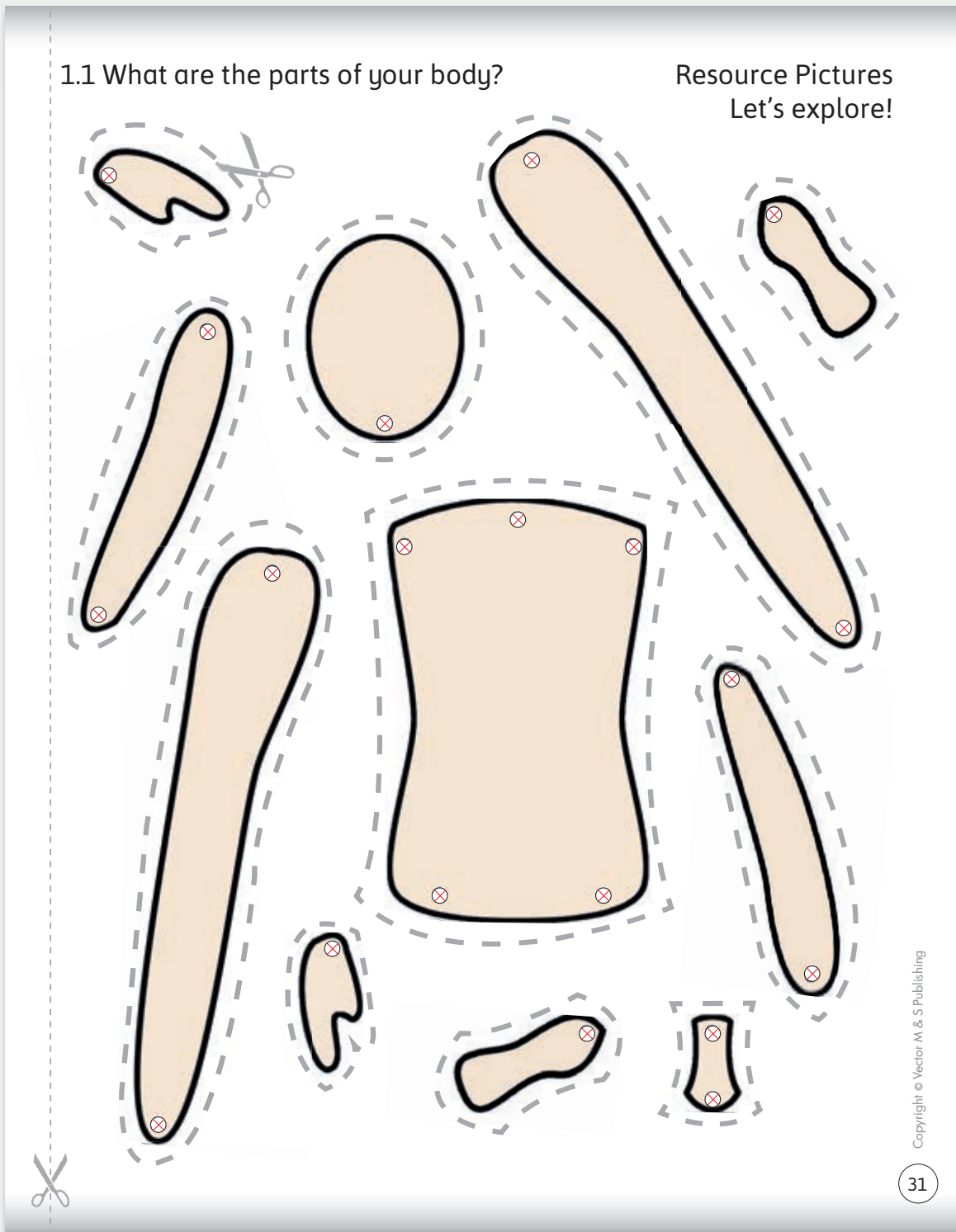
~~body~~ knee neck finger toe shoulder

x	k	n	e	e	r	n	s	t
f	i	n	g	e	r	e	w	o
b	o	d	y	f	e	c	q	e
p	h	z	y	i	p	k	e	d
p	s	h	o	u	l	d	e	r

Cut-out pictures for activities or assessment are also provided.

1.1 What are the parts of your body?

Resource Pictures
Let's explore!



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learning objectives are identified and scientific enquiry skills are developed in each lesson

links with other science lessons and different school subjects

materials and resources that are needed for the lesson

lists of student preconceptions about the specific topic

extensive and detailed lesson plan with ideas and suggestions about how to conduct the lesson and develop scientific enquiry

guidance about how to detect students' prior knowledge and experiences by asking appropriate questions

1.1 What are the parts of your body?

Learning Objectives

- Identify the main external parts of the body.

Scientific Enquiry Skills

- Observe and collect evidence in order to answer a question.
- Make suggestions and follow instructions.
- Model and share ideas in order to evaluate and expand on them.

Cross Curriculum Links (CCL)

- Let's explore section can be linked with the school subject of art and design, as Ss are asked to make a model of the human body.

Materials and Resources

- > RS a, RS b, RSc, RPs Let's explore!
- > Let's explore!: coloured pencils (or crayons), scissors, paper fasteners (10 per S)

Common Student Preconceptions

- Ss may have never thought about the purpose of different external parts of the body.
- Some Ss may confuse parts of the body, for example, hands-arms, legs-feet, etc.

LESSON PLAN

Keywords

- For the presentation of the keywords, see the guidelines in TB map.

> arm > body > ear > eye > finger > foot > hair
> hand > head > knee > leg > model > mouth
> name > neck > nose > shoulder > toe

Let's think

- Read the text to provide Ss with useful information on the topic of the lesson.

A

- Draw Ss' attention to the picture and ask them to say what they see (Enzo is standing at a bus station.).
- Starting from his head, read each word out loud and encourage Ss to point to each part of Enzo's body, as well as you doing the same thing.
- Then, read each word out loud again and encourage Ss to point to each part of their body, as well as you doing the same thing.
- Ask Ss the question.
- Ask Ss questions, like **Do you need your hands to write?** (Yes.), **Do you need your nose to walk?** (No, I need my nose to smell.). This will help **lower-performing Ss**.
- Encourage Ss to name other body parts and things they can do with each part. This will challenge **higher-performing Ss**.

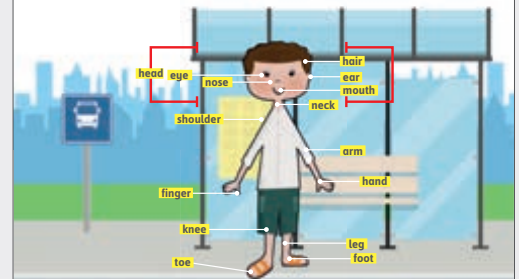
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1 Humans and Animals

1.1 What are the parts of your body?

Keywords arm body ear eye finger foot hair hand head knee leg model mouth name neck nose shoulder toe

Let's think Your **body** has many parts.



A Why do you need each part of your body?

- Suggested answers: I need my hands to write; I need my legs to walk; I need my eyes to see; I need my nose to smell.

B

- Draw Ss attention to pictures A-D and ask them to say what they see (A. A girl is holding an umbrella and wearing a raincoat, while it is raining., B. A boy is riding a bike and wearing a helmet., C. A girl is wearing sunglasses and a hat on a sunny day., D. A girl is wearing a woolly hat, a scarf and gloves on a snowy day.)
- Read the text aloud and ask Ss the question.
- Ask Ss more questions, e.g. **What else do you wear on your body and where do you wear them?** (I wear trousers on my legs, I wear shoes on my feet.).
- The child in picture A is wearing a raincoat on her body to stay dry in the rain; the boy in picture B is wearing a helmet on his head to protect his head; the girl in picture C is wearing sunglasses and a hat on her head to protect her eyes and head from the Sun; the girl in picture D is wearing a woolly hat on her head to protect her head and ears from the cold. She is also wearing gloves on her hands and a scarf on her neck, for the same reason.

Let's explore! CCL: art and design

- Before you begin the Let's explore! activity, read the following guideline carefully and explain it to Ss in order to keep them safe.

keys to all the activities and questions are given

guidance for the practical activities and development of scientific enquiry skills

Humans and Animals Unit 1

B



The children are wearing a raincoat, a helmet, a hat and sunglasses, a woolly hat, a scarf and gloves. On which parts of the body are they wearing them? Why?

Let's explore!

- Make a **model** of the human body.
- Draw the parts of the head on your model.
- **Name** the parts of your model.



Fun fact



Each human has lines on the ends of their fingers.

Your body has many parts.

Humans and Animals Unit 1

Overview

- Read out the check point at the end of the lesson to provide Ss with a brief summary.
- Provide Ss with the RSs of the keywords of the lesson.
- Ask Ss to trace the words and cut them out to revise the keywords they have learnt.

Assessment

- Ask Ss to point to and name different parts of their bodies.
- Ask questions, like *Which body parts do you need to hold your pencil with?* (my hand and fingers), *Where do you wear a helmet?* (on my head), *Why?* (to protect my head when I ride my bike), *What do you wear when it's cold outside?* (gloves and scarf), *Where do you wear them?* (on my hands and around my neck), etc. so that Ss can practise using the body parts vocabulary.

More exploration

- Play a simple game, like 'Teacher says'. Say 'Teacher says touch your nose' and Ss are expected to touch their nose.

WORKBOOK

These activities can either be done in class or be assigned as homework.

- **Activity 1:** Ss are expected to follow the given instructions and draw and colour in a funny person.
- **Activity 2:**

x	k	n	e	e	r	n	s	t
f	i	n	g	e	r	e	w	o
b	o	d	y	f	e	c	q	e
p	h	z	y	i	p	k	e	d
p	s	h	o	u	l	d	e	r

Don't forget to prepare the materials and resources for the next lesson.

! > Ss should be careful when using scissors.

- Divide Ss into pairs.
- Tell Ss to look at the picture of the model of the human body in their SB and name the parts.
- Provide each pair with coloured pencils, scissors and paper fasteners (10 per S).
- Ask Ss to go to the WB and find the RPs Let's explore!
- Ask Ss to cut out the pictures from the RPs.
- Explain to Ss that they will make their own model of the human body.
- Explain to Ss that first they have to cut out the body parts from their WSS. Then they have to join them together with the paper fasteners by piercing through the circles marked with a red X. Assist Ss with cutting and using paper fasteners.
- Ask Ss to draw the parts of the head on the model, e.g. eyes, nose and mouth.
- Encourage Ss to add more details to their drawings, like other characteristics of the head or clothes on the body. This will challenge **higher-performing Ss**.
- Tell Ss to show their model to their partner.
- Ask Ss to point at and say the parts of the body on their models to their partner.
- Ask Ss to check their answers in pairs.

Fun fact

- Read the Fun fact to Ss.
- Ask Ss to look at the ends of their fingers and see the lines.

aspects of formative and summative evaluation of Ss' learning

questions and activities which help teachers assess students' knowledge after the enquiry process and the acquired skills

optional activities for extension of the acquired knowledge

keys to the activities in the Workbook

reminders to facilitate the teaching procedure

extension and application of the acquired knowledge in real-life contexts

notes for the teacher which focus on safety issues

differentiated questions or activities providing students with necessary assistance or challenging them

The Review activities help students consolidate their knowledge, and help teachers assess the Ss' progress.

1 Review

1. Draw lines, as in the example.

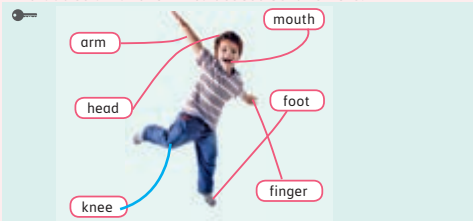
2. How are you and your partner similar? How are you different?

Do you like riding your bike?
Yes, I do.
Me too.

3. Complete the table with the numbers (1-9) for the kinds of food.

			Bread, rice, cereal, potatoes, spaghetti
			Meat, fish, eggs, beans
			Milk, cheese, yoghurt
			Fruit and vegetables
			Oils and spreads

- Draw Ss' attention to the picture and ask them to say what they see (A boy).
 - Ask Ss to look at the example and guess what the activity is going to be about (It is about matching the words to the body parts).
 - Ask Ss to draw lines to match the words to the right body parts.
 - Give Ss some time to do the activity.
 - Use the recommended procedure presented in the Introduction of the TB to assess Ss' answers.



- Draw Ss' attention to the picture and ask them to guess what the girls are discussing (They are asking and answering questions about what they like doing).
 - Explain to Ss that they will have to discuss with their partner how they are similar or different.
 - Divide Ss into pairs.
 - Encourage Ss to ask each other questions, e.g. *Do you like tennis? Do you like lettuce?*, etc. and discuss.
 - Encourage Ss to talk about how they look and what they like.
 - Make sure Ss take turns asking and answering.

🔑 Open answers

- Draw Ss' attention to pictures 1-9 and ask them to say what they see (1. fish, 2. bread, 3. oil, 4. apples, 5. milk, 6. carrots, 7. rice, 8. broccoli, 9. cereal).
 - Ask Ss to complete the table with the numbers of the kinds of food 1-9.

REVIEW Humans and Animals Unit 1

4. Complete A-E with the words in the box.

hearing sight smell taste touch

5. Draw lines to match the young with their parents.

- Give Ss some time to do the activity.
 - Use the recommended procedure in the Introduction of the TB to assess Ss' answers.
 - Ask Ss to suggest other kinds of food for each food group. This will challenge **higher-performing Ss**.
- 🔑 Bread, rice, cereal, potatoes, spaghetti: 2, 7, 9
Meat, fish, eggs, beans: 1
Milk, cheese, yoghurt: 5
Fruit and vegetables: 4, 6, 8
Oils and spreads: 3

- Read out the words in the box to Ss. Ask them *What are these five words?* (our senses).
 - Draw Ss' attention to pictures A-E and ask them to say what they see (A. rainbow, B. alarm clock, C. flower, D. apple, E. teddy bear).
 - Tell Ss to match the words with the pictures A-E according to the sense they could use. Tell Ss that they have to use each word only one time.

- Give Ss some time to do the activity.
- Use the recommended procedure presented in the Introduction of the TB to assess Ss' answers.

🔑 A. sight B. hearing C. smell D. taste E. touch

- Draw Ss' attention to the group of pictures in A and B, and ask them to say what they see (Group A: frog, chickens, man, Group B: boy/child, tadpoles, chicks).
 - Ask Ss to guess what the activity is about (It is about matching young with their parents.).
 - Tell Ss to match the pictures.
 - Give Ss some time to do the activity.
 - Use the recommended procedure presented in the Introduction of the TB to assess Ss' answers.

🔑 frog-tadpoles chickens-chicks man-child/boy

📅 Don't forget to prepare the materials and resources for the next lesson.

Supportive material for class activities is also provided.

1.3 How can you have a healthy diet? Worksheet
Let's explore!

Name: _____ Date: _____

1. Make a plan of a healthy meal and draw it. Have food from each food group in your meal.

Fruit and vegetables	Bread, rice, cereal, potatoes and spaghetti
Meat, fish, eggs and beans	Oils and spreads
Milk, cheese and yoghurt	

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Resource Sheets to recycle and revise the keywords of each unit are also provided.

1.1 What are the parts of your body? Resource Sheet a

arm	body
ear	eye
finger	foot
hair	hand

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vocabulary list with the keywords of each lesson

3 Testing Materials

3.1 Which objects can you squash or twist?

an introduction of each lesson without revealing all the scientific concepts

Keywords shape squash twist

Let's think

You can make objects from different materials. You can change the **shape** of objects when you **squash** or **twist** them.



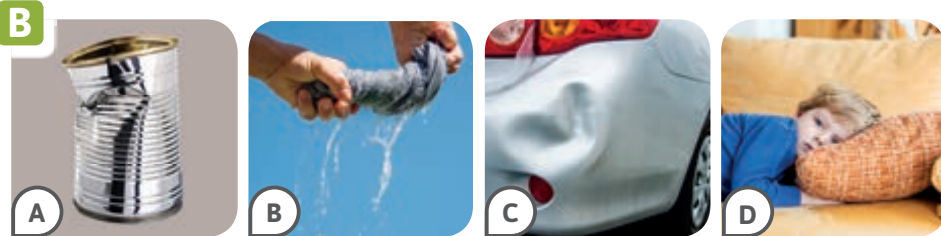
- A**
1. What are the children twisting?
 2. What are the children squashing?

24

visuals and high-resolution pictures facilitate the understanding of scientific knowledge

activities that encourage critical thinking and personal response, and incorporate topics and ideas in real-life contexts

Testing Materials  Unit 3



1. Which objects are squashed? Which objects are twisted?
2. Can you change the shape of these objects with your hands?

 Let's explore!

- Look at the objects you have.
- Can you change their shape? How?
- Do the test to find out.
- Talk about what you found.



inquiry-based exploration activities, in which students work either independently or in small groups

Fun fact



When some metals get very hot, we can change their shape with tools.

extension and application of knowledge in real-life contexts

- You can change the shape of some objects when you squash or twist them.
- It isn't easy to change the shape of some objects with your hands.
- Some objects don't keep their new shape when you stop squashing or twisting them.

25

a description of important concepts and ideas presented in the lesson, used for evaluation

vocabulary list with the keywords of each lesson

4 Forces

4.1 How can forces change the movement of an object?

an introduction of each lesson without revealing all the scientific concepts

Keywords force pull push

Let's think

A **force** can be a **push** or a **pull** on an object. We use forces every day, but we can't see them. We only see what they do. Forces can change the movement of an object.



A Who is pushing and who is pulling the sledge?

activities that encourage critical thinking and personal response, and incorporate topics and ideas in real-life contexts

Let's explore!

- Do magnets push or pull magnetic materials?
- Plan a test to find out.
- Do the test and record your results.
- Explain what happened.



? Does the magnet push or pull magnetic materials?

A

visuals and high-resolution pictures to facilitate the understanding of scientific knowledge

Forces  Unit 4



A




B




C

How do forces change the movement of the balls?



Let's explore!



- How can you change the movement of the ball?
- Make a plan.
- Make the ball start moving, stop moving and change direction.
- How will the size of the force affect the movement of the ball?
- Record your results.
- Discuss what happened.


?

What happens when you use a force on an object?


B

inquiry-based exploration activities, in which students work either independently or in small groups

Science in action




1. What is moving the sailing boat?



2. What makes the water wheel turn?

extension and application of knowledge in real-life contexts

- 

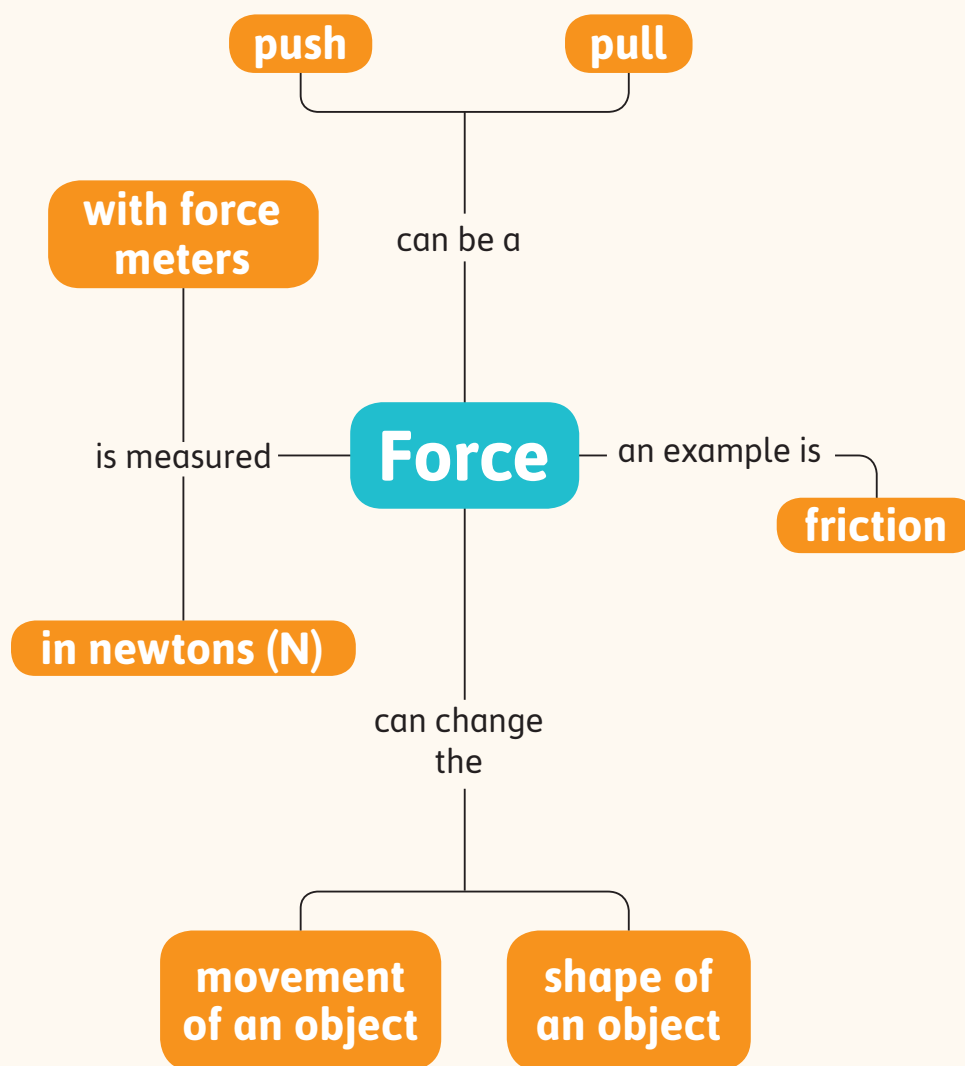
 - A force can be a push or a pull.
 - Forces can make objects start and stop moving.
 - Forces can make objects change direction.

a description of important concepts and ideas presented in the lesson, used for evaluation

Visual tools which organise and present the scientific concepts of each unit are provided.

Unit maps

4 Forces



Resource Sheets which are used to initiate a discussion in the class based on various topics, are provided at the back of the Workbook.

5.1 What is the sense of hearing?

Resource Sheet
Science in action

Alphabet of the sign language



vocabulary list with the keywords of each lesson

1 Humans and Animals

1.1 What are skeletons?

Keywords bone pattern skeleton structure support vertebrate

an introduction of each lesson without revealing all the scientific concepts

Let's think

Humans and some animals have **bones** inside their bodies. You can feel some of these bones through your skin.

A



1. Where do you think you have bones in your body?
2. Touch your arms and head. What do they feel like?
3. Who do you think has more bones, an adult or a baby?

activities that encourage critical thinking and personal response, and incorporate topics and ideas in real-life contexts



Let's explore!

- Make a model of the human body.
- Where do you think you have bones in your body? How can you find out where your bones are?
- Explore the bones you can feel in your body.
- Draw the bones in your model.
- Does your partner's model have bones in the same places? Compare the models.
- Compare your model to your classmates' models.



Can you see a **pattern** in the models?

inquiry-based exploration activities, in which students work either independently or in small groups

Humans and Animals  Unit 1

B



A human skeleton



B cat skeleton



C jellyfish

visuals and high-resolution pictures to facilitate the understanding of scientific knowledge

Bones are hard, strong and not heavy. The human **skeleton** is the **structure** of the bones inside the body. The skeleton **supports** the body and gives it a shape. Most **vertebrates** have skeletons made of bones. Not all animals have skeletons. Jellyfish have very soft bodies. There is fluid inside the body of a jellyfish which gives it its shape. Name animals with skeletons made of bones.



How can you make your bones stronger?

expansion of students' knowledge into scientific concepts

Science in action



The body of a baby has about 300 bones. The body of an adult has 206 bones. What do you think happens to some of the bones that a baby has as it grows up?

extension and application of knowledge in real-life contexts



- A skeleton supports the body of a human and of many animals and gives it its shape.
- The human skeleton is the structure of the bones inside the body.
- Some animals have skeletons made of bones inside their bodies.

7

a description of important concepts and ideas presented in the lesson, used for evaluation

Activities that focus on the development of the vocabulary of each unit are also provided.

Unit 1: Humans and Animals

Language Focus

Name: _____ Date: _____

1. Match. Write **a-e** in the boxes.

- | | |
|--|---|
| 1. irregular bone <input type="checkbox"/> | a. the part of the skeleton that protects the brain |
| 2. long-term <input type="checkbox"/> | b. an illness that lasts for years or for the whole of a person's life |
| 3. skull <input type="checkbox"/> | c. a bone that is not long and straight but has a different shape to other bones |
| 4. spine <input type="checkbox"/> | d. a strong elastic structure between each vertebra of the spine |
| 5. spinal disc <input type="checkbox"/> | e. the line of bones in an animal's or human's back that are connected together |

2. Complete the sentences with the words in the box.

prescription warnings flu short-term fever syrup

- Diabetes is a long-term illness, but the flu is a _____ illness.
- When people feel sick, they may have a _____.
- Sometimes when you cough you take a _____ to feel better.
- The doctor gives you a _____ with the medicines you have to take.
- The purpose, the uses, the _____, the directions and the other information are important to read before taking a medicine that doesn't need a doctor's prescription.
- When people have a _____ his body temperature is higher than it should be.

3. Complete the sentences with the words in the box.

pollen insulin germs

- _____ are harmful to humans.
- _____ may cause an allergy.
- _____ is a substance that keeps the amount of glucose in the blood at the level it should be.

Activities for the assessment or evaluation of the knowledge students have acquired are also provided.

Unit 1: Humans and Animals

Assessment Sheet

Name: _____ Date: _____

Total score / 40

1. Read the sentences. Write **Yes** or **No**.

1. All animals have skeletons inside their bodies. _____
2. The human skeleton is the structure of bones inside the body. _____
3. Human and animal skeletons have similar bones. _____
4. Muscles can push bones. _____
5. We can see microorganisms with the naked eye. _____
6. Germs cause all illnesses. _____

Score / 6

2. What are the three functions of the skeleton?

Score / 3

3. Complete the sentences with the words in the box.

symptoms pairs skull shapes useful lungs long

1. Bones have different _____ and sizes. There are flat bones, _____ bones, short bones and irregular bones.
2. The _____ protects the brain. The ribs protect the _____, the heart and other important organs.
3. Muscles work in _____.
4. Some microorganisms are harmful and some microorganisms are _____ to humans.
5. When people are not well, they may have _____ like sneezing, coughing, headaches, fever, etc.

Score / 7

SCIENCE

worth exploring!



6 LEVELS



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