





NATURAL SCIENCE 5



W	e	Co	me	,
---	---	----	----	---

Page 4

- What does it mean to be a living thing?
- Page 6
- · Animal and plant cells
- · Cells, tissues, organs, organ systems
- · The five kingdoms
- · Dichotomous keys
- · Weird and wonderful organisms

What can we measure and show in ecosystems?

Page 18

- Food chains
- Food webs
- · Threats to biodiversity
- · Protecting species

What is geology?

Page 32

- The four layers of the geosphere
- · Relief formation
- · Classifying rocks
- · Classifying minerals

- What are the best ways to harness
 - energy? Page 44
- How do light, sound and heat energy behave differently? Page 58
 - How does electricity affect us? Page 70

- · Different forms of energy
- · Energy transformations
- Renewable energy sources
- Non-renewable energy sources
- · Properties of sound
- · Light sources and properties of light
- Reflection
- Refraction
- · Properties of heat
- Electrical charges
- · Static electricity
- Current electricity
- Edison and the lightbulb
- Famous inventors and inventions
- Cybernetics and robotics

Our Project 1: Doing better research pp 30-31

Our Project 2: Digital etiquette pp 56-57

Our Project 3: Try, try again pp 82–83

Find out more

Documentaries

• Discover why plants have a cell wall.	• Living or non-living?
• Find out the best way to clean up an oil spill.	• Cooperation is key
• Make a model of the geosphere.	• Mining for rocks
• Discover how important light is for plants.	• Shine on sunny sun
• Investigate how sound travels.	• Hear energy, see energy, feel energy
• Find out what happens when you change components in an electrical circuit.	• Electricity everywhere

Questions and Study aids

Page 84

WHAT IS SCIENTIFIC INVESTIGATION?

Scientists use the **scientific method** to understand the world around us. It always starts with a question.

I wonder why / how ...?

How does ... work?





What would happen if ...?



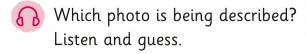


How are
the people
in the
photos using
science?





Look around you. Where is science being used?









Scientists then decide how to answer the question by thinking of an experiment. Before carrying out the experiment, they quess what will happen. This guess is called a prediction or a hypothesis.











During the experiment, scientists make careful **observations**. Then, they draw conclusions from these observations and the results of the experiments. These conclusions help us to understand the world we live in.

But they do not always get things right. Scientists often use trial and error to adjust the experiment or take a different approach and observe any changes to the results. Learning from these failures helps scientists to succeed.



WHAT DOES IT MEAN TO BE A LIVING THING?

Look and discuss...

Which kingdom is each organism from? Which kingdom is missing?

Life has done extremely well here on Earth. Scientists estimate several million species live on our planet!

I think this organism belongs to ...

Yes, I think so, too. / I'm not sure about that.

Where can we find these different organisms?



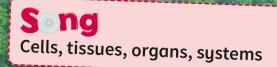


Plant 1, 7; Animal 2, 8, 6; Fungus 3, 5; Protist 4, 6; missing kingdom: Monera













Can you name the seven characteristics of living things?

Living or non-living?

Living things are fascinating!

Come with me and learn about:

- the parts of cells and how they work.
- how cells form the tissues, organs and systems that keep organisms alive.
- how scientists group and classify living things.



HOW DO CELLS WORK?

You are made of trillions of tiny cells!



All living things are made up of **cells**. Although we can only see them with a microscope, they are very important.





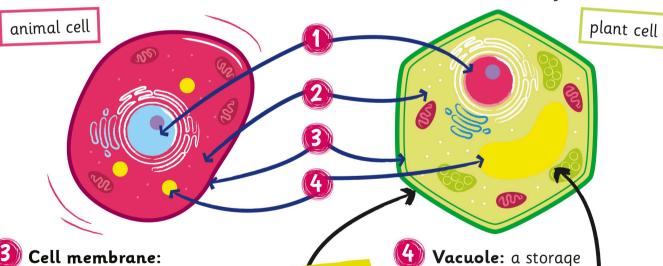
The cells on the far left are human cheek cells. Can you guess what type of organism these cells belong to?

Cells may look very different from one another, but they have got several similar characteristics and structures.

Nucleus: controls what happens inside the cell and contains all the genetic information.

Cytoplasm: jelly-like substance which helps give the cell shape and is where all the cell structures are found.

space for the cell.



Cell membrane:
controls the movement
of substances in and
out of cells.

Cell wall: gives structural support to the cell.

Chloroplasts: help the plant make food from sunlight and water.

Find out about other structures within a cell. What jobs do they do?