

# 6

# Cells and Microbes

## Subject Area

The World of Science & Technology

## Topics & Curriculum Links

types of cells and microbes (Science)

inside animal cells and plant cells (Science)

how cells work; respiration and diffusion (Science)

how cells fight infections; keeping clean (Science; Civics)

cell reproduction (Science)

food and healthy eating (Science; Civics)

plants and animals (Science)

parts of the body (Science)

photosynthesis (Science)

dates and events (History)

## Vocabulary

animals; parts of the body; plant parts; food; fuel; places; dates; numbers; measurements

## Grammar

present simple; past simple; past continuous; past perfect; question forms; imperative; passive; adjectives; prepositions; adverbs

## Teaching Ideas

See also [pages 6–7](#) for general ideas that you can adapt. Or go to [www.oup.com/elt/teacher/readanddiscover](http://www.oup.com/elt/teacher/readanddiscover)



### A New Microbe Presentation

After completing Project 1, students present their new microbe to the rest of the class. Posters can then be displayed together, and students vote for the most convincing new microbe.



### A Cells Quiz

Ask the class quiz questions, using facts from the Reader. Ask true/false questions, or questions starting with *What*, *Where*, *When*, etc., or give a definition and ask students to provide the answer. Students can work in pairs or small groups. Then in pairs or small groups, students can ask their own questions.

### A Photosynthesis Experiment

Ask students to grow three small plants at home, with the help of an adult. They grow each plant in a different condition: 1 light and water; 2 light only; 3 water only. Students record their findings every day for a few weeks.

## Activities Answers

**Page 36–37** 1 1 microscope 2 cell 3 microbe 4 tissue 5 organ 6 scientist 2 1 smallest 2 microscope 3 million 4 cell 5 amoeba 3 1 tissues 2 bark 3 eye 4 roots 4 1 There are different types of cell in plant and animal bodies. 2 Tissues are the same cells that work together. 3 Cells that work together do the same job. 4 Different tissues that work together make an organ. 5 **Example answers** 1 Because they look like little rooms called cells. 2 They can get energy from food, move, grow, and reproduce. 3 free answers

**Page 38–39** 1 1 cytoplasm 2 nucleus 3 cell membrane 2 1 The cell membrane holds the cells together. 2 The nucleus controls what happens inside the cell. 3 The cytoplasm is where chemical reactions happen. 3 1 different 2 oxygen 3 round 4 vessels 5 five 4 1 The cell membrane lets substances move inside and out of the cell. 2 Some chemical reactions in the cytoplasm make new substances for the cell. 3 Inside the nucleus there's a chemical code called DNA. 4 DNA controls how the cell grows, moves, and reproduces. 5 **Example answers** 1 all around an animal's body 2 They have long fibers. 3 by using their fibers 4 They help us to stay safe.

**Page 40–41** 1 1 cell wall 2 cell membrane 3 vacuole 4 chloroplast 5 nucleus 6 cytoplasm 2 1 false 2 true 3 true 4 false 5 true 3 1 nucleus 2 outside 3 cellulose 4 shape 5 strongest 6 paper 4 1 Chloroplasts give leaves and stems their green color. 2 Chloroplasts catch and store energy from sunlight. 3 Plants take in water through their roots. 4 Leaves take in carbon dioxide through holes called stomata. 5 Plant cells use carbon dioxide and water to make food. 6 Sugar is a type of food for the plant.

**Page 42–43** 1 1 diatom 2 amoeba 3 bacteria 4 slime mold 2 1 There are a few many different types of microbe. 2 Microbes live in a few many different places. 3 An amoeba is bigger smaller than a grain of salt. 4 Amoebas eat microbes that are bigger smaller than they are. 5 An amoeba quickly slowly digests its food. 3 1 The cell wall of a diatom looks like thin glass. 2 Bacteria were some of the first living things on Earth. 3 Some bacteria eat the food between people's teeth. 4 Some bacteria survive where other living things can't. 4 1 By making their body into a circle shape around the food. 2 They use sunlight to make food by photosynthesis. 3 almost anything 4 They join together in a group. 5 Because they make half of all the oxygen in the air.

**Page 44–45** 1 1 mitochondria 2 oxygen 3 respiration 4 energy 5 breathing 6 diffusion 7 waste 8 cells 9 lungs 10 blood 2 1 inside 2 food 3 oxygen 4 a lot of 3 1 What part of a cell controls what goes in and out? The cell membrane controls what goes in and out. 2 What do all chemical reactions in a cell make? All chemical reactions make waste. 3 What type of waste do cells make during respiration? They make carbon dioxide waste. 4 What does the cell membrane do with waste? It lets it leave the cell. 4 1 diffusion 2 more, less 3 Oxygen 4 Carbon dioxide

**Page 46–47** 1 1 false 2 true 3 true 4 false 5 false 6 false 2 1 two 2 smaller 3 grow 4 divide 5 the same as 3 1 reproduce 2 eggs 3 identical 4 sperm 5 DNA 6 cell 7 complete 8 children 4 1 by dividing in half 2 new skin tissue 3 So that plants and animals can grow, or to replace old or dead cells.

**Page 48–49** 1 1 An infection is when bacteria or viruses make an animal sick. 2 Ear infections give you earache. 3 Bacteria get into a body on food, air, or broken skin. 4 Some white blood cells hunt, catch, and eat bacteria. 5 Some white blood cells make bacteria weak and easier to catch. 2 1 Which microbes does dirt on your fingers have in it? Bacteria 2 How do bacteria get into your mouth? When you touch your mouth. 3 What can some bacteria do if they get inside you? They can make you sick. 4 How can you stop bacteria in dirt getting inside your body? By washing your hands before you eat food. 3 1 false 2 false 3 true 4 true 4 1 microbes 2 diseases 3 sneezes 4 breathe 5 Antibiotics 6 chemicals 7 invaders: free answers 8 vaccination: free answers

**Page 50–51** 1 1 Foods that give us useful bacteria: fruit, vegetables, brown bread, brown pasta; Foods that don't give us useful bacteria: ice cream, chocolate, French fries 2 1 They break down your food into sugar. 2 energy 3 By eating fruit, vegetables, brown bread, and brown pasta. 4 By stopping infections from bad bacteria. 3 1 bad 2 sugar 3 lactic acid 4 cabbage 4 1 fuel 2 waste 3 biodigested 4 methane 5 oil 6 nutrients 5 free answers