

Cambridge Primary Science Workbook 3 (2021)

Answers

Scientific enquiry activities



Workbook answers

Page 4 Scientific enquiry activities

- 1 A observe over time
 B research
 C fair test
 D pattern seeking
 E identify and classify

Unit 1 Life processes



Workbook answers

Page 5 Living and non-living things

- 1 a Learners should circle these mistakes in the *living* circle: toy, Sun, brick
 Learners should circle these mistakes in the *non-living* circle: tree, insect, bird

2 Accept reasonable answers.

Page 6 Life processes

- 1 a grow, move, eat, reproduce

b	Object	Does it move?	Does it grow?	Does it reproduce (have offspring)?	Does it eat and drink (nutrition)?
	human	✓	✓	✓	✓
	ice cube	✗	✗	✗	✗
	palm tree	✓	✓	✓	✓
	kettle	✗	✗	✗	✗
	shark	✓	✓	✓	✓
	mobile phone	✗	✗	✗	✗
	snake	✓	✓	✓	✓
	clock	✓	✗	✗	✗
	ant	✓	✓	✓	✓

- c Human, palm tree, shark, snake and ant because they all carry out life processes. (Check that learners understand that the ice cube, kettle, mobile phone and clock are non-living objects, because they do not carry out life processes.)

d Accept reasonable answers.



Workbook answers

Page 7 How do they move?

1 Examples of sorting criteria: walk and swim, land or water, and so on.

Page 8 Sorting criteria

1 a For example: move in the water – move on land or swim – walk

b Example headings: *Circle 1*: Moves on two legs – dove, human adult, duck, kangaroo, ostrich.

Circle 2: Moves on four legs – horse, mouse, tortoise, giraffe.

Outside the circles: Moves on no legs – shark, snail, snake, fish, whale.

c Add child to **1a** circle 2, **1b** circle 1; Add Jellyfish to **1a** circle **1b** space outside the circles;

Add Impala to **1a** circle 2, **1b** circle 2

2 Answers could include: to find food, water, a mate, shelter, and to avoid predators.



Workbook answers

Page 9 How have I grown?

1 The mind map could include the following points: changes in height/size; walk, talk or other signs of growth of intellect; changing foods – teeth changes; more independent.

2 Examples: water, food, air, shelter

Page 10 Nutrition

1 goat – grass and water; bird – seeds and water; human baby – milk and water (most babies only need milk to keep them hydrated)

2 to grow; to move

3 They would not survive.

4 Without food, humans and animals do not get any nutrition, so the body cannot grow, have energy to move, or repair itself, and would not survive.



Workbook answers

Page 11 Reproduction

1 a	Animals that have live young	Animals that lay eggs
	elephant rabbit giraffe mouse human	bird snake frog butterfly ant

b Examples: *animals that have live young*: monkey, goat, dog, sheep, tiger. *Animals that lay eggs*: penguin, fish, lizards, crocodiles

Page 12 Life cycles of animals

1 a eggs; caterpillar; larva; pupa; adult

b and c Accept any reasonable answers based on the diagrams.

Unit 2 Plants



Workbook answers

Page 14 What do you know about plants?

- 1 a A: Accept reasonable answers including, it is the largest, it has more leaves, it has flowers, more roots.
- b Accept reasonable answers, including information about number and size of leaves, flowers, number and length of roots, size of plants.
- 2 flower; stem; leaf; roots



Workbook answers

Page 15 Roots

1 a

Days	Length of roots (cm)	Number of leaves
10	30	2
20	50	3
30	70	9
40	100	10
50	120	17

- b No, the plant does not grow the same length every 10 days.
- c If the plant roots were damaged, the plant would die because it would not get enough water and nutrients. The plant would not be healthy, and it would have to grow new roots.
- d The plant would grow more slowly if there was a drought. If the drought lasted a long time, the plant would die.



Workbook answers

Page 16 Stems

- 1 Stems are important because they support the plant and help to transport nutrients and water around the plant.
- 2 The main stem of a plant helps to carry water and nutrients around the plant.
- 3 a Check that learners have correctly labelled parts of the plant.
- b Learners should use colour to show the path that water takes coming in through the roots and up the stem into the leaves and flowers.
- c The roots take in nutrients and water from the soil and help to anchor the plant. The stem transports water and nutrients around the plant and supports the leaves and flowers.

Unit 3 Animals



Workbook answers

Page 23 Sort living things

Use Activities 2 and 3 to create cross-curricular links with Carroll diagrams covered in the Mathematics curriculum framework.

1 Invertebrates on left; Vertebrates on right

	Fish	Not a fish
Vertebrate	clownfish great white shark seahorse	seal
Not a vertebrate		starfish cleaner shrimp

3 Example:

	Can swim	Cannot swim
Can live on land	seal	
Cannot live on land	clownfish great white shark seahorse cleaner shrimp	starfish



Workbook answers

Page 24 Classification

1 It has legs, tail, gills, skin and lays eggs; it does not have scales or fur.

The axolotl is an amphibian because it has legs. Fish do not have legs.

2 Share the information that learners have found out about these animals. A bat is unusual because it is the only mammal that can fly. A platypus is an unusual mammal because it has a bill and lays eggs. A whale is an unusual mammal because it lives underwater.

Page 25 Identification keys

1 Check that learners have identified the correct animals.

Does it lay eggs? NO – bear Does it have feathers? YES – eagle Does it have legs? YES – newt
Does it have fins? YES – fish; NO – snake

2 Example questions: Can it fly? YES – bluebird Does it have a shell? YES – turtle

Does it swim? YES – shark Does it lay eggs? YES – salamander; NO – elephant



Workbook answers

Page 26 Food chains

1 b The leaf is eaten by the caterpillar, which is eaten by the bird, which is eaten by the owl.

c The grass is eaten by the deer, which is eaten by the bear.

d The seaweed is eaten by the fish, which is eaten by the penguin, which is eaten by the seal, which is eaten by the orca whale.

e The grass is eaten by the grasshopper, which is eaten by the frog, which is eaten by the python.

2 The grass is the producer. The grasshopper, frog and python are consumers.

Page 27 Draw food chains

a leaf → caterpillar → frog → snake → owl

b zooplankton → shrimp → small fish → tuna fish → shark

c pondweed → larvae → insect → minnow → kingfisher

d grass → zebra → lion



Workbook answers

Page 28 Make food chains

- 1 a plant → caterpillar → bird
- b grass → locust → bird → fox
- c grass → mouse → owl
- d grass → rabbit → fox

Page 29 Mountain food chains

- b–d** Accept all logical food chains, for example:
- fruit → ant → orangutan → human
 - leaves → orangutan → leopard

Unit 4 The human body



Workbook answers

Page 31 Body organs

- 1 *Internal organs:* heart, intestines, stomach, lungs, brain.
External organs: nose, ears, skin.
- 2 a 1 True; 2 False; 3 False; 4 True; 5 True; 6 True; 7 False
- b neck; wrist

Page 32 Lung capacity

- 1 a subtract the exhale measurement from the inhale measurement
- b–d** Check learners' answers.
- e Accept reasonable responses, for example, they might be smaller than other learners in the class; they might be younger.
- f Measure my own chest before breathing in and after breathing out, then subtract the breathing out number from the breathing in number.
- g Check learners' calculations and their tables.

Page 33 Draw a bar chart

- 1 Check the bar chart that they have created against their table of results.
 - a centimetres (cm)
 - b–d** Check the scale that learners have used, for example, intervals of 5 or 10.
 - e Link capacity with the name, for example: This bar chart shows who has the biggest lung capacity.



Workbook answers

Page 34 The breakfast story

- 1 a Accept any reasonable answer, for example: The teeth in the mouth break up food into small pieces, which are swallowed and squeezed down a tube called the oesophagus into the stomach where it is broken down and goes into the intestines. Waste called faeces is what comes out when we go to the toilet.
- b and c** Check learners' responses to the peer-assessment.

Page 35 Protect the brain

- 1 a Accept reasonable answers, for example: If they fall off their bicycle they do not hurt their head and damage their brain; to protect their brain from injury.
- b Check learners' designs.
- c Accept any reasonable answer, for example: It covers the head, the material is strong or hard.

Unit 5 Solids, liquids and gases



Workbook answers

Page 37 What do you know about materials?

Check learners' mind maps. Ensure that they include key words about different materials and what they do.



Workbook answers

Page 38 States of matter

1 a False; b True; c False; d False; e True; f False

2	Solid	Liquid	Gas
	brick, sand, spoon, pencil, book, apple	puddle, rain, milk	air in balloon

Page 39 Solids alphabet; Liquids poster

- 1 Accept reasonable answers for solids beginning with each letter.
- 2 Encourage learners to discuss and share their ideas. Prompt with questions such as: *Which liquids do you eat and drink? What liquid do cars use? What liquids do people use when cooking? What liquids do you buy at the supermarket?*



Workbook answers

Page 40 Describe solids, liquids and gases

Accept reasonable answers.

Page 41 Which liquid is the runniest?

- 1 a Yes b The test showed that the cooking oil is the runniest liquid because it travelled the fastest.
c Cooking oil d treacle e 35 seconds f cooking oil, tomato ketchup, shampoo, treacle

Unit 6 Separating mixtures



Workbook answers

Page 43 Science enquiry activities

- 1 Example responses: *Research* is when you look in a book or the internet for the answer.
Fair test is when you do a test and you change something, measure something and keep some things the same.
Observe over time is when you use your senses to see what happens after a short or long time.
Identify and classify is when you name and sort things.
Pattern seeking is when you look for patterns in numbers.

2 Identify and classify; fair test

Page 44 Mixtures

- 1 Learners write mixture next to: A, C, E, F
- 2 Learners could draw a magnet picking up steel screws, or a sieve with holes large enough for the rice to go through.

**Workbook answers**

Page 45 How to separate mixtures

1 soil and stones: by hand or sieve oil and water: filter

2 A 3 B 2 C 1

Page 46 Muddy water

- 1 a Check that learners annotate their diagram, for example container, funnel, material / filter, muddy water
 b Filter paper because the liquid was very clear.
 c Yes, because the liquid is very clear, so all the soil was left behind.
 d Type of scientific enquiry activity: Fair test.

Unit 7 Forces**Workbook answers**

Page 48 Pushes and pulls

1 A push B pull C pull D push E push and pull F push and pull

2 Accept reasonable answers.

**Workbook answers**

Page 49 Measure forces

- b Check that learners can complete the table and check that their measurements are correct.
 c Check answers with results in their table.

**Workbook answers**

Page 50 The correct force meter

a	Object	Mass (weight)	Colour of force meter
	large book	498 g	green
	pencil case	35 g	blue
	child's chair	900 g	tan
	brick	1 kg	tan
	music case	210 g	blue
	lunchbox	450 g	green
	school bag (full)	850 g	tan
	shopping bag (full)	3 kg	yellow

- b The full shopping bag has the biggest force.
 c The pencil case has the smallest force.
 d Because it is for objects of up to 1 kg and the shopping bag is 3 kg.



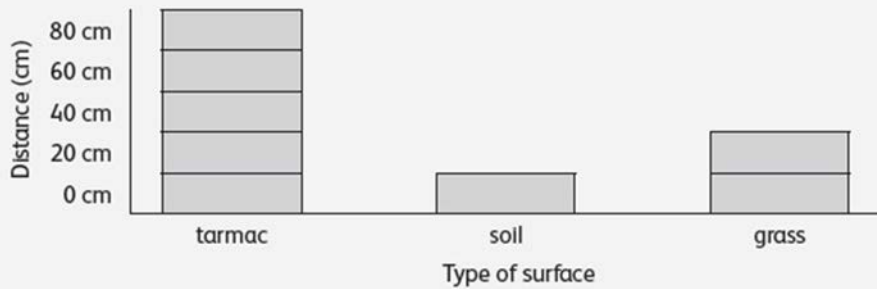
Workbook answers

Page 51 Start objects moving

- 1 a push by blowing or fanning a book b push by blowing air from a different direction
 c blow harder/softer – use more/less force d push by blowing upwards
 e push with their finger
- 2 The arrow should be pointing right and be labelled with the word *push*.
- 3 a true b false c true d true e false f true

Page 52 Stop objects moving

- a friction b soil because the car went the least distance, only 25 cm c tarmac
- d Example title: **A bar chart to show which surface has the most friction**



Workbook answers

Page 53 Friction of shoes

- 1 a low, because the material on the bottom is smooth
 b high, because the tread underneath is not smooth
 c high, because the boots have studs
 d high, because the underneath is not smooth
- 2 Example:
- a Which shoe moved at the highest/lowest height of the slope?
 b Which shoe had the best/worst grip? Which shoe had the highest/lowest friction?

Page 54 Low friction

- a Labels may include: smooth wheels, smooth frame, smooth clothes and helmet (also pointed), smooth chain, smooth seat
- b Example: Everything is smooth.
- c Check learners' examples and ensure they are appropriate, for example: competitive swimmers shave their arms and legs to reduce friction in the water; speed skaters keep their arms behind their backs to reduce friction.

Unit 8 Magnetism



Workbook answers

Page 56 Attracted to a magnet

1	Attracts	Does not attract
	steel safety pin iron screw nickel keyring stainless steel knife	plastic button seashell book wool scarf glass marble plastic toy brick leather shoe

- 2 Accept reasonable responses.
- 3 Magnetism is a non-contact force.



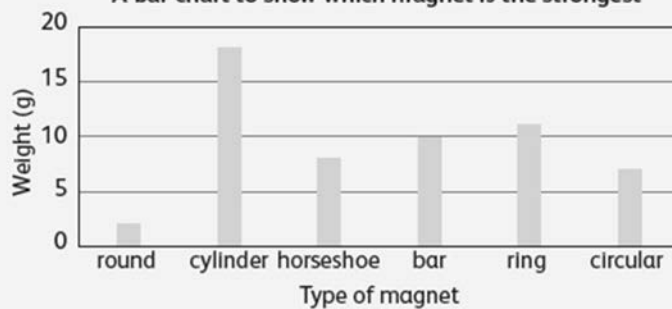
Workbook answers

Page 57 Is the metal magnetic or not?

- 1 *Magnetic* – steel screw, iron and steel hammer. *Non-magnetic* – aluminium drinks can, gold necklace, copper wire, aluminium foil, aluminium can of food

Page 58 The strongest magnet

- 1 **A bar chart to show which magnet is the strongest**



- 2
 - a The cylinder magnet because it picked up 18 g of paper clips.
 - b The round magnet.
 - c The round magnet because it only held 2 g of paper clips.
 - d Because weighing in g is using standard units. Paper clips are not standard units.
 - e Type of scientific enquiry activity: Fair test.

Page 59 Measure the strength of magnets

- 1
 - a They used paper clips that were different sizes/weights, or they might not have measured accurately or in the same way, or their magnets might be different because they might have lost some of their magnetism.
- 2
 - a bar b round
- 3
 - a Test 2 was the best because they only changed the magnet each time – they used the same paper clips and ruler. Using a ruler meant they were using standard measurements each time.
 - b Scientists measure in centimetres or grams because they are standard units and paper clips are not. Scientists all over the world use standard units so they know exactly what other scientists are observing, measuring and finding out.



Workbook answers

Page 60 North and south poles

1 a repel b attract c repel d attract

2 a Zak would have to make sure that the north poles on each magnet were close together (or both south poles), because like poles repel.

Page 61 Solve the puzzle

1 a There is a magnet inside and when the marbles get close to each other, the poles attract or repel each other.

b Accept reasonable answers. Inside, there is a small bar magnet.

Page 62 Useful magnets

1 There is a magnetic strip on the rack and the utensils are made from metal with iron/steel inside, so they are magnetic.

2 The archway magnetic detector has magnets inside that can detect if people have anything containing a metal that is magnetic on them.

3 The clamps have magnets in them and the buildings have metal on them.

Page 63 What would you invent?

Check learners' inventions to see if they have understood how magnets work.

Unit 9 Light



Workbook answers

Page 65 What do you know about light?

1 Learners write on the sticky notes what they know about light. Check for any misconceptions.

Page 66 Use models

1 a flashlight b travelled, straight, c rays

2 Accept reasonable answers, for example: It can help learners to understand how light travels because they can see where the light goes.



Workbook answers

Page 67 Transparent, translucent, opaque

1 *Transparent*: glass, vase, spectacles, window. *Translucent*: leaf, sunglasses, curtain. *Opaque*: coconut, football, brick, door

2 Check for reasonable answers.

3 a Transparent: a material you can see through

b Translucent: a material that lets some light through, but you cannot see clearly through it

c Opaque: a material you cannot see through



Workbook answers


Page 68 Shadows

1 flashlight, dark paper, comb/object, spaghetti

2 Check that diagrams show some rays of light going past the teddy bear and others being blocked by the teddy bear – with a shadow on the other side. Annotated with teddy bear, flashlight, rays of light, shadow.


3 a Shadows get bigger when an object is close to the light source and get smaller when an object is far away from the light source.


b If you move the flashlight closer to the object, the shadow gets bigger. If you move the flashlight away from the object, the shadow will get smaller.


 **Workbook answers**
Page 69 Word search

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

Unit 10 Earth's materials

 **Workbook answers**
Page 71 Earth fact file
Accept learners' responses as part of formative assessment. Encourage learners to check what they have written.

 **Workbook answers**
Page 72 Mining: the positive, minus and interesting
Accept reasonable answers. Encourage learners to refer to the information in the *Learner's Book* and Worksheet 16 (boost-learning.com) to help them with their ideas.
Positive: extract rocks that we need
Minus: damage the environment, pollute water, harm plants and animals
Interesting: metals from the ground are used to make things that we use every day
[See the cards on Worksheet 16 (boost-learning.com) for other possible answers.]

 **Workbook answers**
Page 73 Fabulous fossils

1 How cast fossils are formed:

- A A leaf falls on the sand. An imprint is left.
- B Layers of sand cover it. It hardens into rock.
- C The imprint becomes a fossil on the rock.

How mould fossils are formed:

- A A scorpion dies. Layers of mud cover it.
- B It rots away, and minerals fill the shape.
- C It hardens into a rock that is shaped/looks like a scorpion.

Workbook answers
 Page 77 Phases of the Moon

1

2 Answer depends on the night.

Workbook answers
 Page 78 Edible phases of the Moon
 Explain that the word edible means 'something that you can eat' – In this case, it is biscuits!

a Earth (in the centre); Sun (on the right)
 Labels anticlockwise from the top: first quarter, waxing gibbous, full Moon, waning gibbous, third quarter, waning crescent, new Moon, waxing crescent

b Check that the arrows are drawn anticlockwise from phase to phase.

Page 79 My own model of the phases of the Moon
 Learners design their own model of the phases of the Moon. Encourage them to think of materials other than paper plates or biscuits. Ask them to share their design ideas with other learners.