Cambridge Primary Science Workbook 5 (2021) Answers

Unit 1 Plant parts

Workbook answers

Page 4 Dissecting a flower

1 Example answers:

anther – the part of the stamen (male part) that makes (and stores) pollen.

petal – the parts of the flower that attracts animals such as insects and birds, which can be brightly coloured and scented.

stigma – part of the carpel where the pollen is received.

ovary – part of the flower (carpel) where seeds are found.

2 a The pattern is that the sepals and petals are the same number, the stamens are double the number of sepals/petals, and the final number is always 1.

b Petals: 4, Stamens: 8, Ovary: 1

Page 5 Flower parts

1

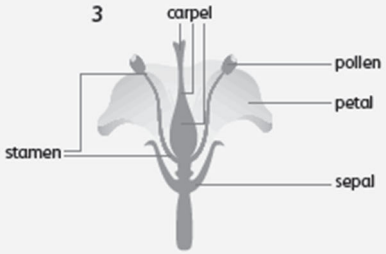
Flower part	Information
sepals	the male part of the flower
petals	the female part of the flower
stamen	a powder produced by the male part of the flower
pollen	parts on the outside of the flower
carpel	may be large, brightly coloured, with a pleasant scent (smell)

2 a stamen

b stigma

c protects the flower

3

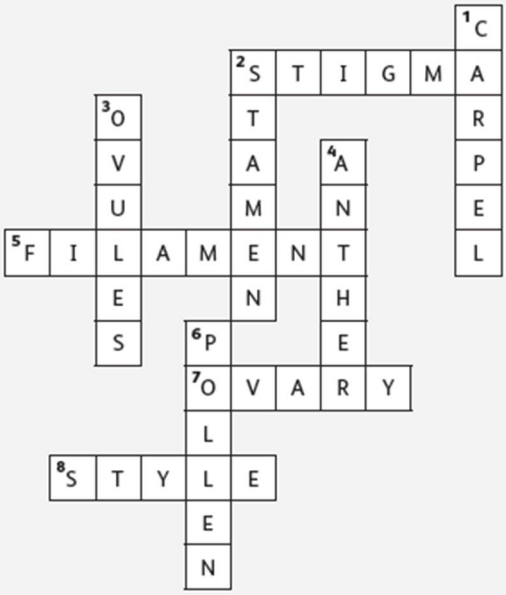


Workbook answers

Page 6 Working like a botanist

a anther
b ovary
c petals

Page 7 Male and female flower parts



Page 8 Flowering and non-flowering plants

1 a Botanists sort plants into two groups: flowering and non-flowering.
b Some plants, like lilies, have flowers so they are flowering plants.
c Mosses do not have flowers so they are non-flowering plants.

2 a horsetail
b fern
c cycad

3 Give learners the opportunity to share information they have gathered about horsetails and cycads to extend their understanding of these non-flowering plants.

Unit 2 The life cycle of a flowering plant

Workbook answers

Page 10 Plant reproduction: flower parts

carpel – the female part of a flower
anther – produces pollen
filament – holds up the anther
style – holds up the stigma and transports the pollen to the ovary
stigma – a female part of the flower that is sticky and collects pollen

Page 11 Sketching parts of a flower

Answers will depend on the flower that learners decide to sketch and research. Check learners' sketches and annotations.

Page 12 Pollination

1 a Pollinated by the wind: wheat, ragweed, saw-tooth oak.
  b Pollinated by animals: orchid, gerbera, jacaranda.
2 Flowers that are pollinated by the wind have small petals. Flowers that are pollinated by animals have large petals.
3 Check learners' drawings and labels.

Page 13 Surveying plants

1 Accept any or all of the following: Observe over time. Pattern seeking. Identify and classify.
2 a Lily
  b Lily because it attracted the most pollinators.
  c Because it was not in flower yet.
  d Accept – It could be because it did not have a scent, only colour in the flowers.

Workbook answers

Page 14 Fertilisation and fruits

The answers will depend on which plants the learners have access to at school or in their own gardens. They should bring their sketches back to class to share. Check that learners have identified the plants, their fruits and how the flower was pollinated. The aim is to begin to draw together the different parts of the life cycle of a plant.

Workbook answers

Page 15 Seed dispersal: wind

1 glider – sycamore seeds – stiff wings
parachute – thistle seeds – light fluffy parts
shaker – poppy seeds – openings at the top

2 a A: 273 cm B: 384 cm C: 369 cm D: 291 cm

b B because the average distance travelled was 384 cm, which is further than all of the other seeds.

c Example answers: changed the seed, kept how they measured the same, how they let the seed go the same, repeated readings and calculated averages

Page 16 Methods of seed dispersal

1 Example answers:

Method of seed dispersal	Fruit	What is the evidence?
wind	*dandelion*	*has a parachute*
animals (eaten)	kei apple strawberry	the seeds are in the flesh which animals eat
animals (fur)	cleaver	the seed has hooks to hook onto animal fur
explosion	geranium	it has a spike at the end; when touched, the seed pod explodes
drop and roll	acorns	could drop and roll
water	water lily	the seeds drop into the water

2 They disperse seeds away from the parent plant so that the seed has enough room, light, water and nutrients to grow, so it is not competing with the parent plant or other seedlings.

Workbook answers

Page 17 Germination 1

1 Check that learners have labelled the diagram correctly.

2 Seed B because it has water and warmth.

Page 18 Germination 2

1 a Days 12 and 13

b From day 6 to 16

c Example: This is a graph to show the number of seeds that germinated over time.

2 a Example answers:
They changed the amount of light for each set of seeds.
They kept the type of seed, amount of soil and volume of water the same.
They measured the number of seeds that germinated.

b Accept learners' responses. Some might say that they expected seeds to germinate in light, others might say they expected that seeds would germinate in no light.

c Seeds do not need light to germinate – they need air, warmth and water, so it is not surprising that seeds germinated in the dark.

Unit 3 Adaptation

Workbook answers

Page 20 Adaptations

1 a An adaptation is a special feature or way of behaving that help plants and animals to survive by adjusting to new environments or changes in their current environment. For example: camouflage and pack hunting.

b Physical adaptations is an adaptation made to the body of an animal to ensure its survival. For example, a polar bear's thick layer of fat and a lion's retractable claws.

c Behaviour adaptations is an adaptation to the way an animal behaves. For example, pack hunting and ambush.

2 a Red caterpillars because they are not well camouflaged and the colour sticks out.

b Green caterpillars because they are well camouflaged.

c Because the colour red is easily seen so most of these caterpillars would have been found quickly.

d Gradually the eyes would accustom to looking for the different colours and the green would begin to be seen.

e The best camouflaged was the green and the worst camouflaged was the red. The least amount of green was found and the most amount of red was found.

f Because the caterpillar uses the colour to warn predators that they are unpleasant/dangerous/poisonous to eat.

Workbook answers

Page 21 Plant adaptations

1 a Example: The giant water lily has a flat shape so it floats on the surface of the water and it is big so it gets lots of light.

b Example: The giant water lily has spines on the bottom of the leaves to protect itself from fish and other predators that might want to eat it.

2 a

Habitat	Plant	Adaptation
Desert	2	A
Arctic	3	B
Savannah	1	C

Page 22 Fish adaptations

1 Example: To make it harder for predators to eat the fish.

2 Example: So that they can move through water more quickly to catch prey, or to avoid predators.

3 Example: To scare away and confuse predators.

4 Check learners' answers.

Page 23 Work out why

1 Everyone in the mob participates in gathering food, keeping a look out for predators and taking care of the babies, so they all benefit.

2 So that they can survive low temperatures.

3 They do not drink water because they have adapted to be able to survive in deserts where there is little or no water for long periods of time.

4 So that the mother can call her calf without other animals hearing it and alerting them to the baby okapi which would put it in danger of being found by a predator.

Workbook answers

Page 24 Predator adaptations

1 Example answer: To be successful hunters and ensure they have food to eat.

2 a Stalking: polar bears, lions, great white sharks, Komodo dragons

b Hunting in a pack (group): wolves, lions, dolphins, spotted hyenas

c Teeth and claws: hawks, eagles, cats

3 Cats have retractable claws to use when hunting. They use them to grip the ground, climb trees and catch prey. Then they retract the claws to protect them against wear and tear, and to keep them sharp.

Workbook answers

Page 25 Prey adaptations

1 Rattlesnake – D
2 Whitetailed deer – C
3 Skunk – A
4 Praying mantis – H
5 Beaver – B
6 Porcupine – E
7 Pronghorn – F
8 Japanese tit – G

Workbook answers

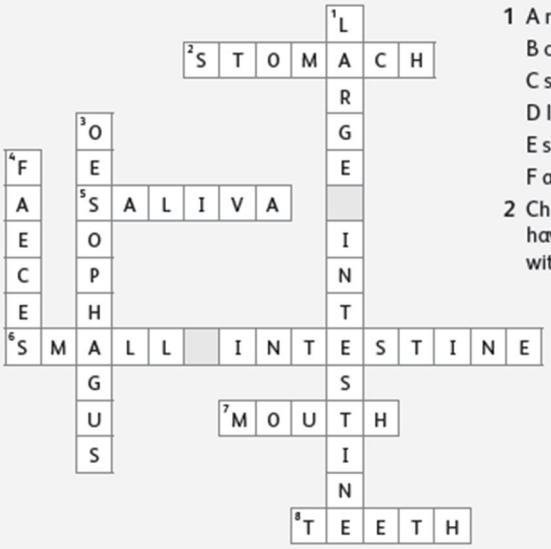
Page 26 Beaky Island bird adaptations

1 a The chopstick beak because it ate the most amount of spiders.
b Clothespin because it ate the least amount of insects.
c worms: tweezers; greenfly: spoon
d The spoon beak bird might become extinct because it was not able to pick up many worms (less than 5), but the tweezer beak bird would be very successful as its numbers were the highest for worms (over 25).
e Scissors and tweezers because their beaks caught the least spiders.
f The tweezer because worms are a similar shape to caterpillars.
g Accept reasonable answers. Example: *Tweezer because it was able to catch some of each insect*. Some learners might say that the chopstick might not survive because it could only catch mainly spiders.

Unit 4 The digestive system

Workbook answers

Page 29 The digestive system



Page 30 The digestive system diagram

1 A mouth
B oesophagus
C stomach
D large intestine
E small intestine
F anus
2 Check the additional information learners have researched and give them time to share with others in the class.

Workbook answers

Page 31 Modelling the digestive system

a Food enters the stomach.
b Drink enters the stomach.
c Food is being digested in the stomach.
d Partly digested food in the small intestine and nutrients passing through the intestine wall into the bloodstream.
e Digested food waste in large intestine and then going to the toilet.

Workbook answers

Page 32 The balanced food plate

1 Check learners' drawings.

2 Clockwise the labels are: carbohydrates, proteins, high in fats and sugars, dairy, fresh fruit and vegetables

3 a Accept appropriate responses. Ideally food from each group but in proportion, except foods high in sugar. The body needs food from each group to stay healthy, hence the term balanced.
b Foods high in sugars, they can lead to tooth decay, diabetes and obesity.

Page 33 Tips for a healthy diet

1 a False b True c True d False e True

2 Accept appropriate responses that indicate learners understand the food groups and a balanced diet, check by asking learners to explain their choices.

Workbook answers

Page 34 How much sugar?

This activity creates cross-curricular links to addition in the Mathematics curriculum.

1

1 day	24	72	48
1 week	168	504	336
1 month (31 days)	744	2 232	1 488
1 year	8 928	26 784	17 856

2 Type 2 diabetes, tooth decay, obesity

3 a 276 g
b They would be drinking more than the recommended amount each day, which could lead to health problems, including tooth decay.
c water, diluted sugar-free fruit juices

Unit 5 States of matter

Workbook answers

Page 36 States of matter

1 a Everything you see around you is matter.
b All matter weighs something (has mass).
c All matter takes up space (has volume).
d Matter exists in one of three states.
e Solids have a fixed shape and can be held.
f Liquids feel wet, can be poured and take the shape of their container.
g Gases move around, fill up spaces and are usually invisible.

2 a Solids: ice, unmelted chocolate, paper wrapper.
Liquids: cola, melted chocolate.
Gases: carbon dioxide.
b Check learners' answers.

Page 37 Particles in solids, liquids and gases

1 a Check learners' diagrams.

b Example answers:
This is a solid because the particles are close together and fixed and do not move.
This is a liquid because the particles are close together but they can move.
This is a gas because the particles are further apart and can move freely.

Page 38 Gas facts

1 a nitrous oxide b nitrogen c propane d carbon dioxide e argon

2 Check learners' questions and answers.

Workbook answers

Page 39 Investigating freezing

a and **b** Check learners' plans for the investigation. Ensure that learners have given a clear prediction and drawn a labelled diagram showing what they plan to do in their investigation. They should say what they will observe or measure, and how they will make sure that these observations or measurements are reliable. Learners should also identify any potential problems, and explain how these could be avoided.

c Water is different. When it freezes, the particles link together in a way that means there are spaces between them. This means they take up even more space as a solid than they do as a liquid. Water expands when it freezes. Instead of getting smaller when it freezes, water gets bigger.

d Normal solid: A; Frozen state: B

Workbook answers

Page 40 Evaporation

1 a The liquid in the puddle is being heated by the Sun.
b The particles have more energy so they move into the air.
c When this happens, the particles of water change state from a liquid to a gas.
d This process is called evaporation.

2 Example answer: When a liquid changes to a gas, it is called evaporation.
Examples of evaporation: clothes on a washing line; wet floor drying; drying hair with a hairdryer; water evaporating from a puddle; evaporating salt water to leave salt; sweat from our bodies evaporating.

3 Check learners' diagrams.

Page 41 Boiling and condensation

1 a Heat the water to 100 °C.
b Water vapour
c Tiny droplets of water – condensed water
d 100 °C
e No

2 a Condensation happens when a **gas** is cooled and changes state into a **liquid**.
b water
c Example: water condensed from the air
d Example: in a steamy bathroom on a cold bathroom mirror

Page 42 Change of state clues

1 a heating **b** melting
c cooling **d** boiling
e freezing **f** evaporation

2 a–e Check learners' definitions/clues. Their partner could also carry out a peer assessment using the dictionary at the back of the *Learner's Book*.

Workbook answers

Page 43 Dissolving and solutions

1

	Soluble materials	Insoluble materials
what they do when mixed with water	dissolve	do not dissolve
what the mixture looks like	clear	cloudy
what the mixture is called	solution	suspension
how to separate the mixture	evaporation	filtering

2 a Example: salt, sugar, coffee **b** Example: sand, soil, pasta, flour **c** Suspension
d Solution **e i** The water will evaporate **ii** The solute – sugar

Page 44 Stir it up

1 Accept reasonable answers. Stirring sugar (a solute) into a solvent (water) speeds up the rate of dissolving because it helps distribute the solute (sugar) particles throughout the solvent (water).

2 a Use the same amount of water for each cup, use the same amount of sugar, stir for the same amount of time.
b Repeat readings and take an average, this helps to see if the readings for each sugar solution are roughly the same, if not, then a reading can be taken again.

3 a Example: Yes because they repeated their readings. No, they should have taken five readings, or they could have tested different sugars as well.
b The answer will be individual to the learner, check their answers.

Page 45 Word search

D	I	S	S	O	L	V	E	A	E
I	C	X	C	V	B	B	R	S	V
S	O	L	U	T	I	O	N	Q	A
S	N	G	H	J	K	I	L	Z	P
O	D	F	V	C	X	L	B	X	O
L	E	Q	R	D	C	I	M	C	R
V	N	W	V	E	D	N	F	N	A
I	S	E	R	Y	E	G	H	J	I
N	A	R	U	H	E	Z	U	K	I
G	T	T	O	B	D	H	E	L	O
M	I	Y	P	S	W	J	M	P	N
J	O	U	A	Q	W	A	B	O	I
U	N	I	V	E	R	T	I	J	T
Q	W	E	R	T	Y	U	G	E	Y
B	O	I	L	V	B	N	M	H	R

Unit 6 Forces

Workbook answers

Page 47 Force arrows

1 a

b

c

d

2 For example: pushing a door open, pulling on socks.

Workbook answers

Page 48 Friction in everyday life

1 Friction is the force between two surfaces that are moving across one another.
Friction always works in the opposite direction to the direction in which the object is moving.

2 a more friction – so tyres grip on uneven or muddy land
b more friction – so trainers grip the road
c less friction – so skateboard wheels can move along the surface easily
d less friction – so that the fidget spinner can go fast
e more friction – so the rock climber can grip more easily

Workbook answers

Page 49 Air resistance

1 a Lorry A has a flat front and Lorry B is shaped in a curve on the top.
b Lorry B
c Lorry B because it is designed to reduce air resistance so the lorry does not have to use more fuel working against air resistance.
d Less fuel means that the lorry gives out fewer gases (emissions).

2 a Train B is the Japanese bullet train because the front is shaped like a bullet, it reduces friction (it is aerodynamic).
b The front is shaped like a bullet, it reduces friction (it is aerodynamic).
c Train B the Japanese bullet train, it is aerodynamic in shape, which means it can travel faster.
d Train B the Japanese bullet train because it will use less fuel as it is shaped to reduce air resistance.

Page 50 Parachutes (1)

1 Air resistance is a force that acts on an object as it moves through the air.

Air resistance acts in the opposite direction to the direction an object is moving.

This means that as a parachute falls to the ground, the air resistance pushes up on the parachute slowing it down.

2 This activity creates a cross-curricular link with Mathematics.

a Cotton 3.57 Denim 2.38 Nylon 3.88 Plastic bag 5.10

b Check that learners' bar charts correctly display the data, the *x* and *y* axis are correct and the title is 'This is a bar chart to show which material makes the best parachute.' (Learners should draw a draft of their bar chart in the *Workbook* and redraw a neat version on a sheet of graph paper.)

c The best material is the plastic bag because it took 5.10 seconds, which was the slowest descent.

Page 51 Parachutes (2)

1 This activity creates a cross-curricular link with Mathematics.

a 25 cm² – 1.50 seconds 100 cm² – 2.25 seconds 225 cm² – 2.47 seconds
400 cm² – 4.22 seconds 625 cm² – 5.32 seconds

b Check learners' line graphs. Make sure they label the *x*-axis and the *y*-axis (check scale used on both axes). Line graph title should be 'This is a graph to show how the area of the canopy affects how long it takes for the parachute to descend.' (Learners should draw a draft of their line graph in the *Workbook* and redraw a neat version on a sheet of graph paper.)

2 a To make their data more reliable.

b The area of the canopy was increased and the time the parachute took to descend increased, so the parachute with the largest area was the slowest to descend.

c The greater the area of the parachute, the more air resistance.

d Check learners' diagrams.

Workbook answers

Page 52 Weight in water

1 a

Object	A	B	C	D	E	F
Weight in air (N)	25 N	19 N	9 N	10 N	28 N	34 N
Weight in water (N)	5 N	4 N	2 N	3 N	7 N	9 N

b Check learners' bar charts. (Learners should draw a draft of their bar chart in the *Workbook* and redraw a neat version on a sheet of graph paper.)

2 In the air the objects weigh more than when they are placed in the water.

3 This is because of the upthrust of the water.

Unit 7 Sound

Workbook answers

Page 54 Sounds around us

1 Accept appropriate answers.

2 a The further away from the source of the sound, the quieter the sound.
b The closer you are to the source of the sound, the louder the sound.

Page 55 Testing how sounds are made

a The rice bounces on the cling film when the tin is hit.
b When the tin vibrates, it vibrates the air around it, which then vibrates the cling film, which makes the rice bounce.
c Hit the tin harder to make bigger vibrations.
d The harder the spoon hits the tin, the bigger the vibration and the higher the rice bounces. The softer the spoon hits the tin, the smaller the vibration so the rice does not bounce as high.
e No, stones are heavier than rice, so it would need a very big vibration to make the stones move.

Page 56 Measuring sound

1 a Space rocket launching at 180 dB.
b Ear mufflers/ear defenders to prevent their hearing from being damaged.

2 a Check that learners have correctly labelled the bars with the sources of sound.
b Children were in the canteen having lunch, sound of plates, cutlery, children talking and moving about.
c Car horn and noise in the canteen.
d Examples: Yes, because the same things happen every day. No, because different things happen each day so the sound might be louder or quieter.

Workbook answers

Page 57 Changing the pitch of the sound of a cereal packet guitar

1 a The pitch of the sound got higher.
b At 1
c At 5
d The thicker the elastic band, the lower the pitch of the sound. The thinner the elastic band, the higher the pitch of the sound.
e The tighter the elastic band, the higher the pitch of the sound.
f Pluck the strings harder; this would make bigger vibrations and a louder sound.
g Pluck the strings more gently; this would make smaller vibrations and a quieter sound.

Page 58 Water xylophone

1 a The water
b The bottle with the least water had the highest pitch. The bottle with the most water had the lowest pitch.

2 a The column of air in the bottle.
b The bottle with the shortest column of air had the highest pitch. The bottle with the longest column of air had the lowest pitch.
c Check learners' responses.

3 Add more water so that the column of air becomes shorter and the pitch will become higher.

4 The column of air in the pipes vibrates. The pitch is changed by changing the length of the pipe (and so the column of air). The volume is changed by blowing more softly (quieter) or harder (louder).

Workbook answers

Page 59 Changing sounds

1 a Sounds can be loud or soft. This is called volume.
b Elastic bands can make sounds. You can change the volume of the sound by changing how hard you pull the elastic bands.
c When you change the thickness of the elastic bands, you change how high or low the sound is.
d Changing sounds to make them lower or higher is called changing the pitch of a sound.
e The volume of a sound is how loud or how soft the sound is.

2 a Pluck the strings harder.
b Pluck the strings more gently.
c Change the thickness of the elastic bands, for example, thinner or thicker or a mixture.
d Change the length of the elastic bands or how taut (tight) they are.

Page 60 What vibrates?

1 a In a drum, the skin vibrates to make a sound.
b In a guitar, the string vibrates to make a sound.
c In pan pipes, the air vibrates to make a sound.

2 a Check that the shortest straw is labelled.
b Check that the longest straw is labelled.
c Blow harder over the pipes so that the air vibrates more.
d Blow softly over the pipes so that the air vibrates gently.
e Blow hard over a short pipe with a short column of air.
f Blow gently over a long pipe with a long column of air.

Page 61 Spoon gong

1 a The sound of the spoon vibrating against the table, but it might sound different.
b The spoon hits the table, the spoon vibrates, and the vibration travels along the string and into the ears where the sound is heard.
c Hit the spoon harder on the table to make a bigger vibration that will increase the volume of the sound.

Unit 8 Magnetism

Workbook answers

Page 63 Do magnets attract all metals?

1 Magnetic: tin can, steel hammer, iron and steel screw
Non-magnetic: aluminium drinks can, gold necklace, copper wire
2 Check that learners use a magnetic object for the maze.
3 A magnet can repel and attract another magnet. A magnetic object can only attract a magnet.

Workbook answers

Page 64 Magnetic field

1 a The force field is strongest at each end of the bar magnet.
b There are lots of iron filings at each end.
c The force field is weakest at the middle of the bar magnet.
d There are not as many iron filings.

2 a Magnet A
b It has the most iron filings.

Page 65 What does a magnet's magnetic field work through?

1 Check learners' predictions and their test design.
2 Check learners' predictions and their test design, challenging them to include measurements.

Workbook answers

Page 66 Which is the strongest magnet?

1 Check learners' bar charts. (Learners should draw a draft of their bar chart in the *Workbook* and redraw a neat version on a sheet of graph paper.)

2 a No, because the bar magnet picked up paper clips with a mass of 32 g but the cylinder picked up more (42 g).

b They weighed the paper clips to make sure that they were using standard measurements so their test could be repeated and so that other scientists understood the measurements.

c Type of paper clip, height the magnet was held over the paper clips.

d Type of magnet.

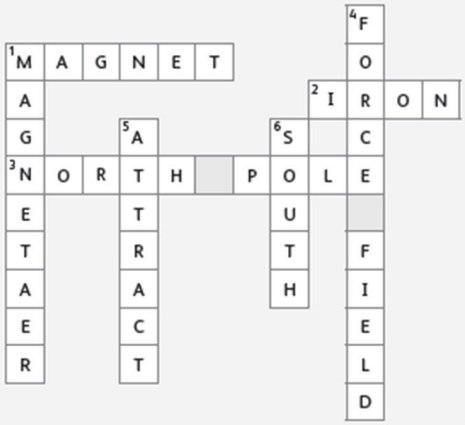
Workbook answers

Page 67 North and south poles

1 Check the saying that learners have created.

2 To make the magnet move he would have to use another magnet and make sure that the same poles are brought together. This is because the same poles repel, so the magnet would move about on top of the ball.

Page 68 Magnetism crossword



Unit 9 Planet Earth

Workbook answers

Page 70 The atmosphere

1 oxygen nitrogen carbon dioxide

2 a False b True c False d True e True f False g True

3 Example: The Earth would get hotter because the temperature would rise. It could get so hot that water would boil causing the water to disappear off the Earth and the Earth would dry out.

Workbook answers

Page 71 Water on Earth

1 Examples: salt; soil; pollution

2 This provides an opportunity for learners to apply knowledge from Unit 5 States of matter where learners evaporated water from a salt solution to leave the salt behind. Check that learners understand the process through the explanation of their prediction.

Page 72 The water cycle

1 precipitation, condensation, evaporation, collection

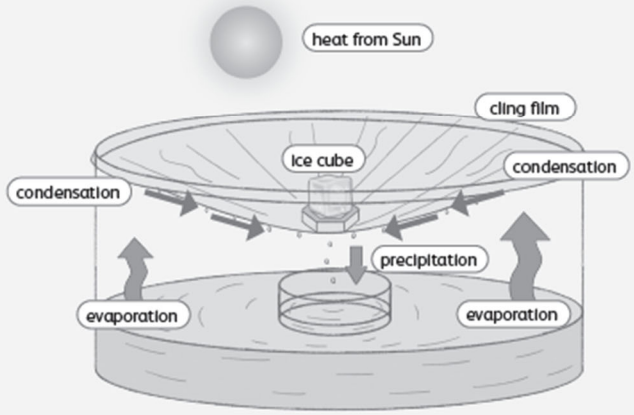
2 rain, snow, sleet, hail

3 The puddle forms part of the water cycle because it will evaporate, then condense as clouds. As the water droplets get heavier, they fall as rain creating new puddles that will evaporate and the cycle continues.

4 The water I drank today came from the tap. Before that, it could have come from a reservoir. The water in the reservoir could have come from rain from the clouds. The clouds are condensed water that might have evaporated from the sea.

Page 73 Modelling the water cycle

1



2 The water is heated by the Sun and evaporates from the bottom of the container. When the water vapour meets the colder cling film and the ice, it condenses and runs.

3 There is no known water on the Moon, therefore there is no water cycle.

Workbook answers

Page 74 Pollution

1 Check learners' mind maps.

Unit 10 The Earth in space

Workbook answers

Page 76 How many did you get right?

1 c	2 c	3 d	4 a
5 a False	b False	c False	d True
6 a True	b False	c False	
7 a False	b True		

Workbook answers

Page 77 Seasons on Earth

1 elliptical

2 a 2 – summer b 4 – winter c 1 – spring d 3 – autumn

3 Because the Sun strikes the Earth at the equator at the same angle every day.

4 The seasons would reverse.

Workbook answers

Page 78 Satellites

1 Natural satellites are not made by humans; artificial satellites are.

2 helping car Sat Navs to work
helping to predict the weather
photographing the Earth
tracking storms
tracking pollution

3 1950s

4 There are more and more being sent up to space so space is becoming cluttered. Humans leave bits of equipment and old satellites that no longer work in space. This becomes a hazard because they can crash into working satellites, the ISS and rockets, causing damage.

5 Collect and share learners' ideas.

Page 79 Space junk

Learners can use this page to plan their poster (page 135 in the *Learner's Book*).