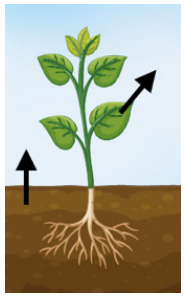
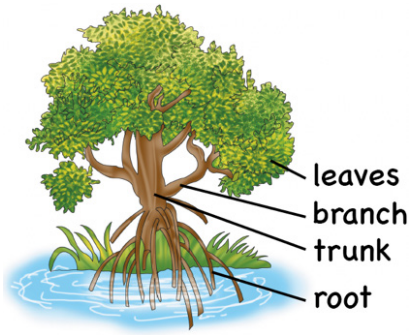
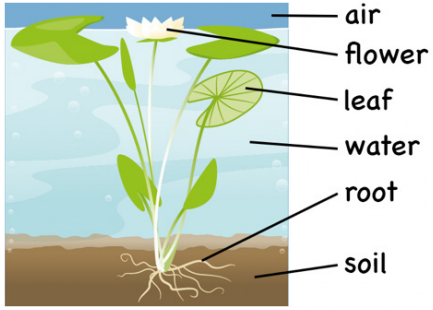
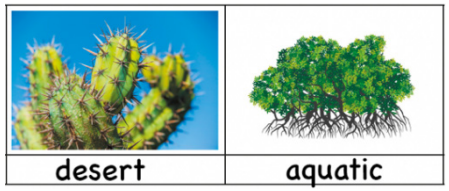
Year 5

Topic 1: Plant adaptations

Habitats around the world	
1. a)	Accept an appropriate description of each habitat, reworded from information in the textbook.
b)	Accept **one** appropriate new fact about each habitat, based on the learner's own research.
2.	Accept an appropriate description of one other named habitat, based on the learner's own research.
Microhabitats	
1. a)	the place where animals and plants live
b)	microhabitat(s)
2.	soil water
3.	it will get more light
4.	cool shady
5. a)	Accept any appropriate observation.
b) (i)	light meter
b) (ii)	thermometer
c) (i)	Accept an appropriately completed table with measurements and observations.
c) (ii)	Accept an appropriately named habitat written as the title of the table.
Plants need water	
1. a)	cactus/cacti
b)	hot dry
c)	to reduce water loss
2. a)	trunk
b)	roots

3.		Arrows drawn from soil and from a leaf: 
4.	**a)**	desert
	b)	Accept an appropriate drawing showing long roots, with at least some reaching from the base of the trunk down to the underground water.
5.		wide roots take in water before it evaporates or drains down into the sandy soil
Plants need oxygen		
1.	**a)**	Accept **one** circle around: nose, mouth
	b) (i)	oxygen
	b) (ii)	respiration
	b) (iii)	muscles or any other correctly named organ / tissue
2.		to take air in and out / for air to enter and leave
3.	**a)**	died
	b)	roots
	c)	no space for air
4.	**a)**	mangrove
	b)	
	c)	so that air can enter the roots that are above the water

Plants need light		
1.	**a)**	C
	b)	light meter
	c)	electric lights
	d)	turning leaves to face sunlight / growing towards light
2.		producers
3.		1. sunlight – not just 'Sun' 2. air 3. water
4.	**a)**	the leaves overlap / are close together, which blocks sunlight (from reaching ground)
	b)	big spaces between groups of leaves lets (more) sunlight through
Freshwater plants		
1.	**a)**	
	b)	aquatic freshwater
	c)	it already has lots of water
2.	**a)**	to make food (for the plant)
	b)	sunlight reaches more of each leaf / more leaves can absorb sunlight / larger surface to absorb light
3.		to attract insects / to be pollinated, for reproduction
4.	**a)**	herbivore
	b)	cannot make enough food and so it will die
Plants need minerals		
1.	**a)**	roots
	b)	water
2.	**a)**	catches / traps / digests insects
	b)	(it / the soil) does not have many minerals

3.	**a) (i)**	turning yellow / losing its green colour
	a) (ii)	(leaf) edges are turning brown
	b)	gives plants extra minerals
	c)	plants used up last year's fertiliser / plants used the fertiliser to grow
4.		attracts out smooth / slippery liquid body minerals
Comparing habitats		
		Accept an appropriate comparison of two habitats, based on research and/or visiting them.
Predicting habitats		
1.		Accept appropriate drawings of the leaves of named plants.
2.		Accept appropriate drawings of the stems of named plants.
What have I learned?		
1.		wet warm
2.		(water lily) roots are in the soil at the bottom of the pond roots are small (mesquite tree) roots are deep underground it has lots of roots
3.		oxygen
4.		(own) food
5.		spines instead of leaves, to reduce water loss store water in stems
6.		Accept appropriate drawings of a pond plant and a succulent.
7.		

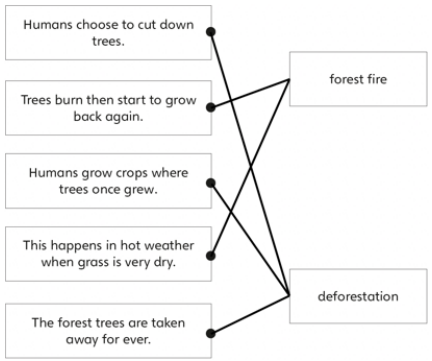
Topic 2: Living things in danger

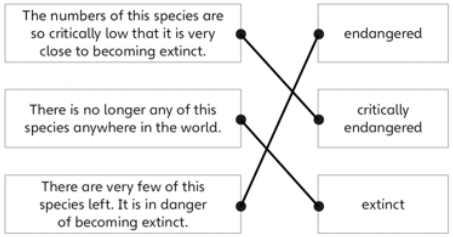
Deforestation

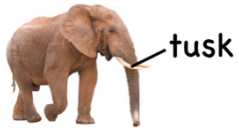
1.	**a)**	humans are cutting down and removing trees from a forest
	b)	trees have been chopped down and burned / the area has been cleared of trees and fires started
	c)	deforestation
2.	**a)**	lose their nests / habitat lose (some of) their food sources
	b)	Accept **two** of the following: • they will die when they cannot find food • they will be killed when they cannot hide from predators • they may move away to other places • they will have nowhere to lay eggs / have baby birds / reproduce
	c)	Accept an appropriate suggestion of an animal that might be affected by the loss of trees.
3.	**a)**	to sell the trees / wood to make space to grow crops
	b) (i)	crops or a named crop, e.g. maize
	b) (ii)	more deforestation in another part of the forest
4.	**a)**	Accept any appropriate research.
	b)	Accept an appropriately reasoned opinion.

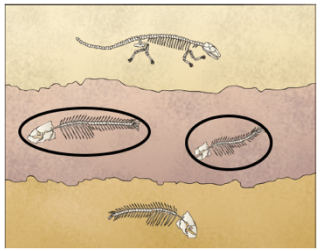
Forest fires

1.	**a)**	
	b)	grass / bushes
	c)	bushfire(s)
2.	**a)**	shelter food / leaves to eat
	b) (i)	causes breathing problems / koala is unable to breathe well
	b) (ii)	will burn / injure / kill koala

3.	
4.	Accept any appropriate research, e.g. do not have barbecues or campfires in dry areas, or do not throw away matches/hot ashes, etc. on dry ground.
Problems with water	
1. a)	Accept an appropriate drawing of a prediction showing a higher water level.
b)	(small mammals) may drown in the water may lose shelter / habitat may lose food sources (birds) may lose shelter / habitat / nesting place may lose food sources may fly away to live elsewhere
2. a)	it will block their route to the water
b) (i)	they may be hit / run over by vehicles on the road
b) (ii)	deer can run so can cross the road quickly tortoise is slow so will take a long time / longer to cross
c)	to lay their eggs
Helping animals to survive	
1.	water or named water, e.g. pond

2.	**a)**	
	b)	so they don't have to cross the road
	c)	wildlife corridor(s)
3.		First image: walk through the tunnel under the road Second image: swim or walk through the tunnel under the road
4.		a human-made bridge / a bridge made of rope and wood
Why protect living things?		
1.		cutting down a tree
2.	**a) (i)**	1114
	a) (ii)	1974–1977
	a) (iii)	living in their usual habitat
	b) (i)	living in a place such as a zoo
	b) (ii)	increased a lot / more than doubled / increased by 212
	c)	Accept an appropriate opinion with a matching justification, e.g. yes – panda numbers have increased since 2003, or no – there are still low numbers in the wild.
3.		Accept **three** valid predictions, e.g.: • birds / animals lose shelter / habitat / nesting place • less food for birds from trees / fewer berries for birds • less food for herbivores from trees / fewer leaves for herbivores • herbivores may die so carnivores / predators have less / no food • more light, so animals more easily seen by predators
Endangered species		
1.		

2.		Accept an appropriate drawing of a Pinta giant tortoise. Accept appropriate research of why this giant tortoise became extinct.
3.	**a)**	Accept an appropriate drawing or picture of the chosen extinct bird.
	b)	Accept appropriate research about why this bird became extinct and when.
Which species need our help most?		
1.		Accept appropriate research about each of the four animals.
Conservation		
1.		reserve parks conservation
2.	**a) (i)**	poachers
	a) (ii)	horn(s)
	b)	keeping rhinos in nature reserves or national parks protects them from poachers
3.	**a)**	
	b)	ivory
	c)	not allowing ivory to be bought or sold / catching poachers
4.		Accept an appropriate fact sheet.
Animals from long ago		
1.		2.7 to 2.8 cm **or** 27 to 28 mm
2.	**a)**	none are left anywhere on Earth
	b)	they became extinct before the first humans / a very long time ago
3.	**a)**	(A) rib / rib cage (B) backbone / vertebra (C) tooth (D) claw – accept talon
	b)	soft parts, such as eyes, will have decayed

4.	**a) (i)**	sea / ocean
	a) (ii)	Accept either flipper circled: 
	b)	sharp / pointed teeth
Evidence from fossils		
1.	**a)**	sedimentary
	b)	the sea / water
	c) (i)	3
	c) (ii)	
	c) (iii)	some of the fossils are of fish / some do not have legs and so probably swam
2.	**a)**	(Picture 1) When the fish dies, it falls to the bottom of the sea bed and is buried in mud or sand. (Picture 2) Soft parts decay or are eaten. The hard parts of the fish are covered by layers of sediment.
	b)	Accept an appropriate drawing of a fossil fish in the third (purple) layer down on the left-hand side of the diagram.
Other evidence from fossils		
1.	**a)**	leaf
	b)	vertebrates have more hard parts than plants
2.	**a)**	head backbone
	b) (i)	scales / scaly skin
	b) (ii)	could walk / live / breathe on land, or idea that eyes are on top of head
	b) (iii)	has a fish-like tail / no proper legs / long, thin body with fins

3. a)	A
b)	Accept an appropriate drawing of either fossil from level E of the diagram.
c)	D
d)	different ammonite species lived at different times in the past / we can date other fossils by the type of ammonite with them
What have I learned?	
1.	animals lose their shelter / cannot hide from predators animals may get burned / injured / harmed by smoke / cannot breathe well small mammals may drown / have no food or shelter / be washed away
2.	(a place where) animals and plants are protected (a place where) animals can cross a road safely
3.	tusks skin horn
4.	Accept **two** of the following: • keeping animals in nature reserves / national parks • not buying or selling animal parts • breeding the animals in captivity • catching poachers
5.	very few of that species are left (on Earth) none of the species is left anywhere on Earth
6.	Learner can show evidence from the workbook, page 45.
7.	tree ferns T. rex or humans animals / meat

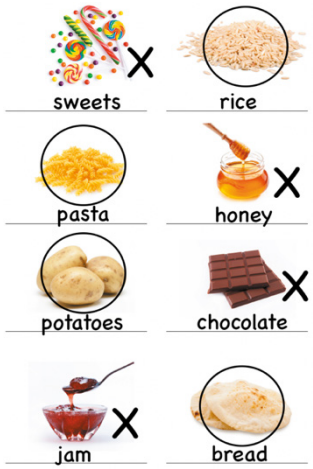
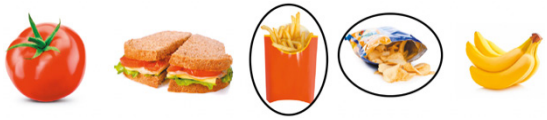
Topic 3: Diet and digestion

Balanced diet

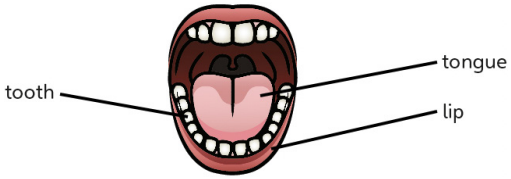
1.	**a)**	the correct amounts of all the different food types
	b)	protein carbohydrate fat vitamins minerals fibre water
2.	**a)**	Accept appropriate drawings of two different plates of food that could be eaten regularly as part of a balanced diet.
	b)	Accept an appropriate drawing of a plate of less healthy food that could be eaten sometimes but not regularly.

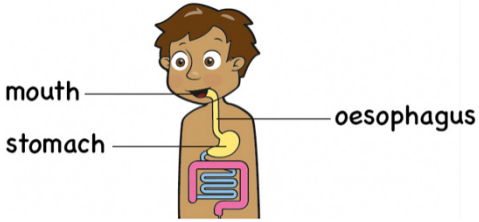
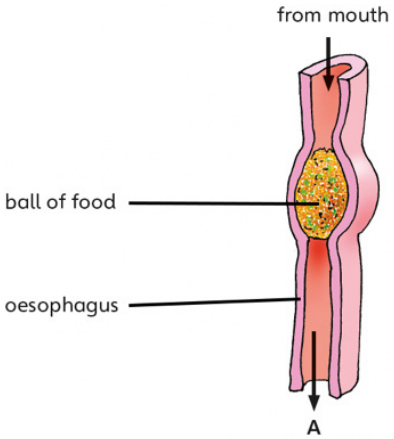
Protein

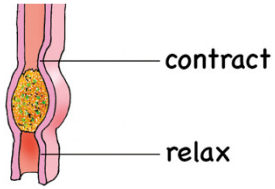
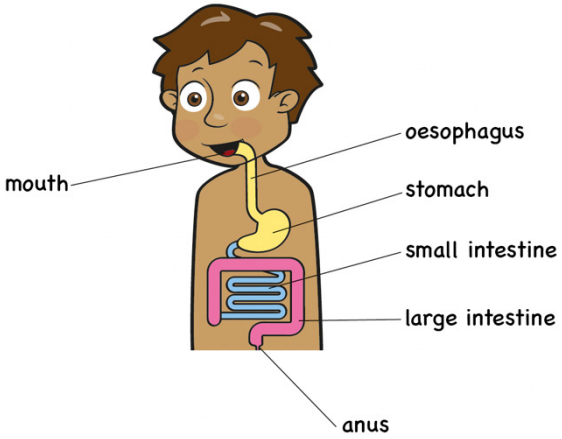
1.	**a)**	Accept **two** of the following: eggs, milk, cheese, peas, beans, seeds, nuts Accept any other named food from which people with a vegetarian diet can get protein.
	b)	Accept **four** of the following: meat, fish, chicken / poultry, any from those listed in a) not already given Accept any other named food that contains a lot of protein.
	c)	making / growing muscles making / growing hair and nails making new skin / repairing injured skin carrying oxygen around our bodies
	d)	our bodies cannot store protein
2.	**a) (i)**	Accept any appropriate response.
	a) (ii)	Accept an appropriately completed tally chart.
	b) (i)	Accept an appropriately completed bar chart with: • all bars same width • all bars neatly drawn with top level not wavy • all bars correct heights.
	b) (ii)	no bar / bar will have zero height
	c)	Accept any appropriate response.

Carbohydrate		
1.	**a)**	sources of carbohydrate named correctly
	b)	starchy carbohydrates circled / sugary carbohydrates crossed 
2.	**a)**	(Sugary) gives us energy quickly (Starchy) gives us energy more slowly / slower release of energy
	b)	can cause tooth decay
3.	**a)**	Accept an appropriate drawing showing a 'necklace' of the 'sugar beads'.
	b)	must break starch down into sugars first, before the body can use it
Fat		
1.	**a)**	butter
	b)	
	c)	
2.		as a food store / to give us energy very slowly / as an energy store for insulation / stored under skin to prevent heat loss helps us to absorb some vitamins helps to protect organs

3.	Accept an appropriate drawing of four more sources of fats and oils shown in the picture on page 59 of the textbook.
Minerals	
1. a)	to keep healthy / for healthy growth
b)	to keep healthy, especially when growing
2. a)	for strong teeth and bones
b)	Accept **one** of the following: beans and greens, canned fish
c)	Accept **two** of the following: beans and greens (if not used in b)), canned fish (if not used in b)), milk, cheese, yoghurt, cream Accept any other named source of calcium.
3. a)	to make blood / to help transport oxygen in blood
b)	Accept **one** of the following: red meat (or named red meat), liver, beans, lentils, dried fruit / apricots, green leafy vegetables (or named vegetable, such as broccoli or spinach)
c)	Accept **two** of the following: • eggs • red meat (or named red meat) – if not used in b) • liver – if not used in b) • beans – if not used in b) • lentils – if not used in b) • dried fruit / apricots – if not used in b) • green leafy vegetables (or named vegetable such as broccoli or spinach) – if not used in b)
4. a)	11 to 18 (years)
b)	450 mg
c)	milk
d) (i)	Accept any appropriate response.
d) (ii)	Accept any appropriate calculation.
Vitamins	
1. a)	to keep healthy / for healthy growth
b)	small amount(s)
2. a)	for healthy skin and gums
b)	Accept **three** of the vitamin C foods shown in the picture on page 62 of the textbook. Accept any other food that is a good source of vitamin C.
3. a)	Accept **one** of the following: help our sense of sight, protect us from illness
b)	Accept **two** of the vitamin A foods shown in the picture on page 63 of the textbook. Accept any other food that is a good source of vitamin A.
4. a)	calcium
b)	Accept **one** of the vitamin D foods shown in the picture on page 63 of the textbook. Accept any other food that is a good source of vitamin D.

5.	**a)**	(to try to get) more **reliable** results / repeating improves **reliability**
	b) (i)	whether there is milk in the diet or not
	b) (ii)	the weight of the rat(s)
	c)	Group B ticked because milk is needed for growth / they will grow better with milk
	d)	(vitamin) D (mineral) calcium
Fibre and water		
1.		nutrients moving plants break down waste
2.		First image: whole grain carbohydrates, such as brown bread and brown rice, are one source of fibre Second image: fresh fruit and vegetables also give us fibre
3.	**a)**	Accept **two** of the following: blood, brain, bones, muscles
	b)	feeling thirsty
	c)	cool down
	d) (i)	water
	d) (ii)	helps us to think and work well
4.	**a)**	Accept an appropriately completed table.
	b)	Accept any appropriate response.
Healthy lifestyle		
1.	**a)**	Accept an appropriate description of ways to have a healthy lifestyle, based on the section headings.
	b)	Accept any appropriate response.
Ingestion		
1.	**a)**	
	b)	physically break down food
	c)	moves food around the mouth / makes food into a ball

	d) (i)	saliva
	d) (ii)	makes food softer chemically breaks down some of the starch into sugar
	e)	ingestion
	f)	swallowing
2.	**a)**	A
	b)	to break down the food we eat so that we can use it to give us energy to do things
	c) (i)	Accept an appropriate drawing of the 'necklace' broken down into 'beads'.
	c) (ii)	sugar
Swallowing		
1.		ingesting swallowing
2.	**a)**	in the mouth
	b)	teeth chew and make the pieces of food smaller tongue moves the food around inside the mouth saliva wets and softens the food before it is swallowed
	c)	
3.	**a)**	

b)	stomach
c) (i)	
c) (ii)	moving food / pushing food / squeezing food down the oesophagus to the stomach
Parts of the digestive system	
1.	
2.	stomach: • adds digestive juices containing acid to the food • churns the food using muscles small intestine: • adds more digestive juices • starch / sugars / protein / fat are broken down here • useful materials are absorbed into the blood large intestine and anus: • water is absorbed from food • waste is egested from the anus • waste comes from fibre in our diet

A model of the digestive system

1.

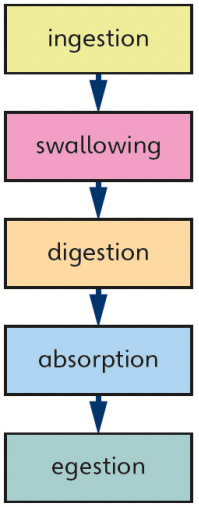
physical digestion in the mouth saliva
stomach digestive (chemical) digestion
churning digestive
stomach small
absorption blood
small large
absorbed intestine
fibre egested

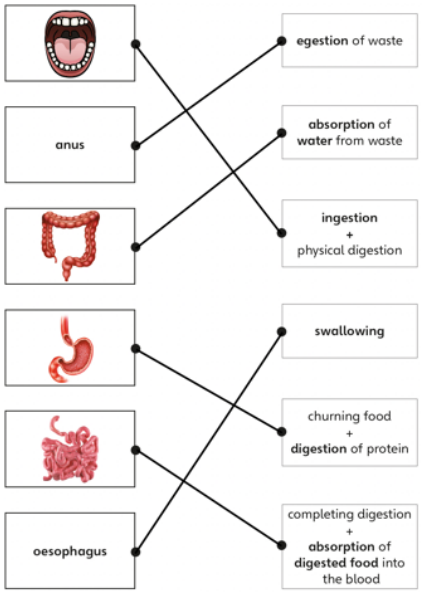
2. Accept an appropriate suggested improvement to the learner's model.

Making a sequence

1. a) a set of things that have an order or pattern

b)

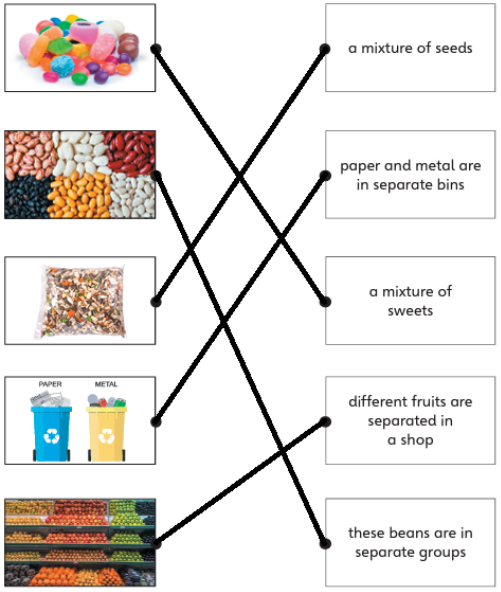


2.	
What have I learned?	
1.	Accept appropriate examples of carbohydrate, protein, fat, vitamins, minerals and fibre, with functions based on pages 54–65 of the textbook.
2.	Accept completed workbook, pages 66 and 67.
3.	swallowing: 2; egestion: 5; absorption: 4; ingestion: 1; digestion: 3
4.	Accept completed workbook, page 73.

Topic 4: Mixing and separating materials

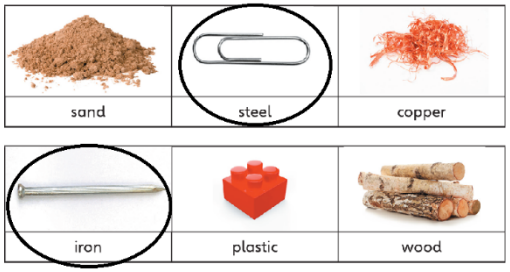
Mixtures

1.



2. a) bar magnet

b)



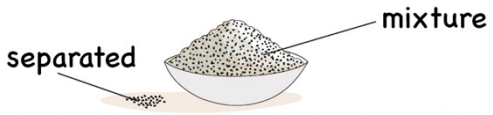
c) the small pieces of iron are attracted to the magnet
the sand is not attracted

d)

salt and copper	☐	flour and rice	☐
copper and steel	☑	steel and iron	☐

Sieving

1. a)



b) (i)

b) (ii) flour

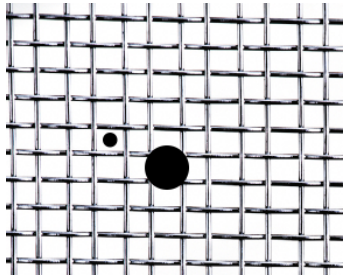
c)

flour and raisins	☑
sugar and flour	☐
sand and sugar	☐
sugar and dried pasta	☑
nuts and flour	☑

2.

smaller / larger
larger / smaller
larger
similar
size

3. a)



b)

Accept **one** of the following:

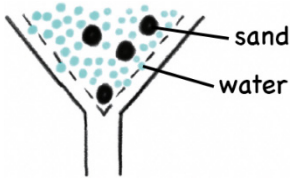
- there are two holes in the sieve larger than the mesh
- some stones may be small enough to go through the sieve
- some lumps of soil may be too big to go through the sieve

Filtration

1. a) beaker
b) (i) liquid
b) (ii) solid

2. a) (i) filter funnel
a) (ii) filter paper
b) solid
see

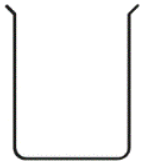
3. a) (i) sand
a) (ii) Accept an appropriate drawing of a beaker or flask **underneath** the filter funnel.
b) (i)



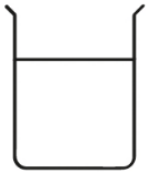
b) (ii) filter paper has very tiny holes in it
sand will stay in the filter paper
water will fit through the holes

Drawing equipment

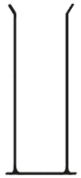
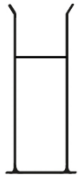
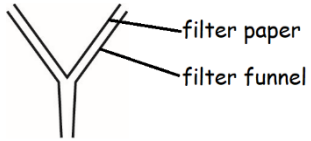
1. a) beaker
b) (i) Accept an appropriate drawing of a beaker as a scientific diagram:



b) (ii) Accept an appropriate drawing of a flat liquid level line on the beaker diagram:



Credit drawing with meniscus but only if remaining liquid level is flat.

2.	**a)**	measuring cylinder
	b) (i)	Accept an appropriate drawing of a measuring cylinder as a scientific diagram: 
	b) (ii)	Accept an appropriate drawing of a flat liquid level line on the measuring cylinder diagram:  Credit drawing with meniscus but only if remaining liquid level is flat.
3.	**a)**	Accept an appropriate drawing of filter paper in a filter funnel as a scientific diagram: 
	b)	Accept appropriate name labels / lines on the diagram of the filter paper and filter funnel: 
4.		Accept an appropriate drawing of a prediction of how to draw a conical flask as a scientific diagram.
Dissolving		
1.	**a)**	it has dissolved
	b)	sea water has salt dissolved in it

2. a)

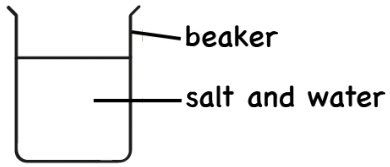
Accept separate labels to salt and water if both point to liquid.

b) filtration
c) (i) filter paper
c) (ii) filter funnel
d) (i) sand
d) (ii) salt and water OR salt solution
e)

iron and gravel	sugar and water
flour and sand	soil and water

Finding the dissolved salt

1. a) dissolved
b)

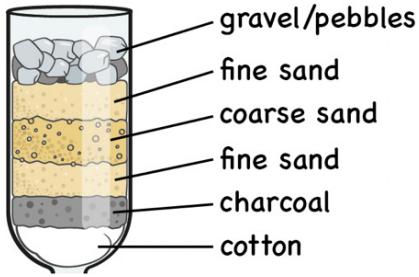


c) (i) evaporating dish
c) (ii) Accept **one** of the following: on a sunny windowsill, in an airing cupboard, by a radiator
Accept any other appropriately named warm place.

2. a) (i)

a) (ii) the liquid in the beaker that was poured into the evaporating dish / the salt solution
b) (the water has) evaporated

c)	copper and gravel sugar and water salt and sugar flour and sand
Dissolving faster	
1.	Accept an appropriate scientific question, based on investigation A, B or C.
2. a)	Accept an appropriate response, based on the learner's choice of investigation.
b)	time it takes for sugar to dissolve
3.	Accept an appropriate list of equipment.
4. a)	Accept any appropriate response.
b)	measuring cylinder Accept any other piece of equipment that could be used to measure volume.
5. a)	when all the sugar has dissolved / can no longer see any sugar
b)	Accept at least two of the following answers. same person observing observing from same distance observing at same height / angle observing with same / constant background
6.	Accept an appropriately labelled scientific diagram of each of the beakers.
7. a)	Accept an appropriate column heading, based on the leaner's choice of investigation.
b)	Accept an appropriately completed table of results from their investigation.
8.	Accept an appropriate conclusion that answers the learner's scientific question.
9.	Accept an appropriate suggested improvement for the investigation.
Making a water filter	
1.	Accept an appropriately labelled scientific diagram of the beaker of dirty water.

2.	**a)**	
	b)	Accept any appropriate response.
3.	**a)**	Accept an appropriate description of the appearance of the water, after using the water filter.
	b)	Accept any appropriate response.
	c)	gravel / pebbles
	d) (i)	Accept any appropriate response.
	d) (ii)	Accept any appropriate response.
	e)	put some filtered water into an evaporating dish put in a warm place the water will evaporate any salt will be left in the dish
	f)	Accept an appropriate suggested improvement(s) to the learner's water filter.
Presenting results		
1.	**a)**	the factor you change
	b)	the factor you measure
	c)	in the column headings only
	d) (i)	A
	d) (ii)	B
2.	**a)**	horizontal axis: named with unit, 'Water temperature in °C' vertical axis: named with unit, 'Time it takes for a sugar cube to dissolve in seconds' plots: all four points plotted correctly with clear, appropriately sized crosses
	b)	repeat the readings / investigation
Choosing a method of separating mixtures		
1.		magnet sieve solid filtration evaporation

2. a)	magnet
b)	filtration
c)	magnet
d)	sieve
e)	evaporation
f)	sieve
What have I learned?	
1.	Accept **one** of the following: flour (and) seeds, flour (and) raisins, dried pasta (and) sugar, dried pasta (and) flour, soil (and) gravel, nuts (and) flour, sand (and) gravel Accept any other valid combination of solids with different grain sizes that can be separated by sieving.
2.	sand (and) water Accept any other valid combination of a solid in a liquid where the solid has not dissolved and they can be separated by filtration.
3.	Accept **one** of the following: salt (and) water, sugar (and) water Accept any other valid combination of a solid and liquid in solution that cannot be separated by filtration.
4.	smaller grains of salt hotter water more stirring of the mixture
5.	Accept **one** of the following: salt (and) water, sugar (and) water Accept any other valid combination of a solid and liquid in solution that can be separated by evaporation.
6.	Accept any valid mixtures that can be separated using the methods listed, using examples from above.

Topic 5: Earth and space

Our Solar System

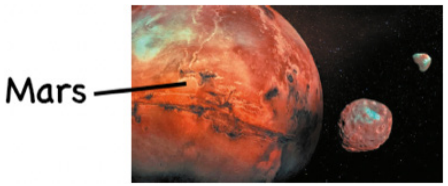
1.	**a)**	a star
	b)	a planet
2.	**a)**	(solar) describes things about the Sun (system) means things that work together
	b) (i)	Earth
	b) (ii)	the Sun
	b) (iii)	the Moon
3.	**a)**	the Sun
	b)	the Sun
4.	**a) (i)**	Accept an appropriate description of the Sun, using the textbook and the learner's own research.
	a) (ii)	(it is) very bright (it) can damage eyes / eyesight
	b)	light heat

Earth, Sun and Moon

1.	**a)**	the Solar System
	b)	1
2.	**a)**	sea / ocean land cloud
	b)	a large object in space that orbits a star
	c)	stars
3.	**a)**	to travel round
	b)	the Sun
	c)	the Moon
4.	**a)**	

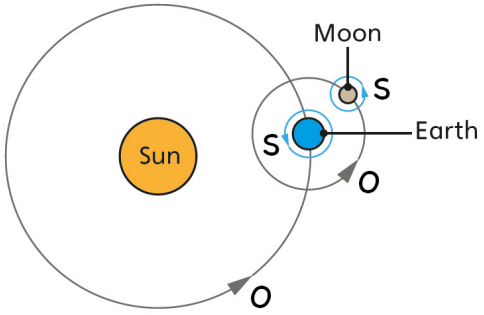
	b)	where something comes from (in this case, light)
	c)	light from the Sun reflects off the Moon
5.		Accept any appropriate research about the Moon that does not repeat any answer given above.

Many moons

1.	**a)**	1
	b)	Ganymede
	c) (i)	
	c) (ii)	Phobos Deimos Mars Sun
2.	**a)**	<table><tr><th>Planet</th><th>Number of moons</th></tr><tr><td>Mercury</td><td>0</td></tr><tr><td>Venus</td><td>0</td></tr><tr><td>Earth</td><td>1</td></tr><tr><td>Mars</td><td>2</td></tr><tr><td>Jupiter</td><td>79</td></tr></table>
	b)	Accept an appropriately completed bar chart with: • horizontal axis named ‘Planet’ and bars labelled with planet names • vertical axis scale numbering completed and linear • vertical axis named ‘Number of moons’ • all bars same width • all bars neatly drawn with top level not wavy • all bars correct heights.

Orbits and spins

1. a)



b) planets
c) (i) Earth
c) (ii) the Earth's axis

2. a) (about) 365 days / 1 year
b) (i) 1 day
b) (ii) 24 (hours)

3. a) Jupiter
b) Mercury
Venus
c) (i) longer
c) (ii) 10756
Accept any number greater than 4333, as this is a prediction only.

The inner planets

1. a) 8
b) Mercury
Venus
Earth
Mars

c)

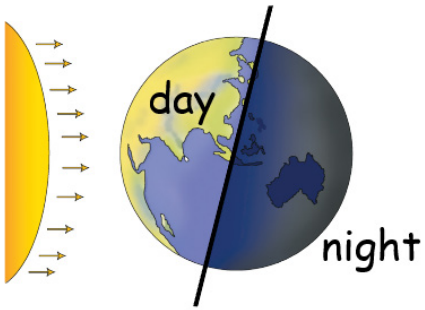
rocky	☑
solid	☑
bigger than outer planets	☐
no rings	☑

2.	**a)**	Planet pictures named in correct sequence: Mercury Venus Earth Mars
	b) (i)	Accept any appropriate facts assimilated from the textbook, pages 114–115.
	b) (ii)	Accept any appropriate facts that are not in the textbook.
The outer planets		
1.	**a)**	Accept any appropriate mnemonic.
2.	**a)**	Planet pictures named in correct sequence: • Jupiter • Saturn • Uranus • Neptune
	b) (i)	Accept any appropriate facts assimilated from the textbook, pages 116–117.
	b) (ii)	Accept any appropriate facts that are not in the textbook.
Ideas about the Solar System		
1.	**a)**	a scientist who studies stars and planets
	b)	Accept **four** of the following: Ptolemy, Galileo, Copernicus, Kepler, Hubble, Kuiper, Huygens Accept any other scientist famous for astronomy.
2.	**a)**	Earth
	b)	orbiting Earth
	c)	they had not been discovered / observed
3.	**a)**	Model 2
	b)	Earth is at the centre Sun is at the centre OR Sun orbits Earth Earth orbits Sun OR Uranus and Neptune are not shown Uranus and Neptune are shown
	c)	telescope

Day and night

1.

2. a) light
b) correct labelling of day and night
c) correct marking of Earth's axis

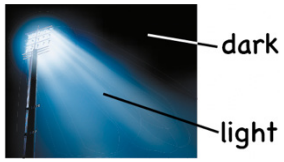


3. a) (i) 1 day / 24 hours
a) (ii) 24 hours / 1 day
b) 365

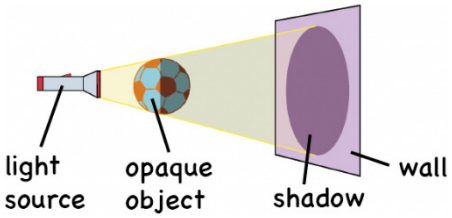
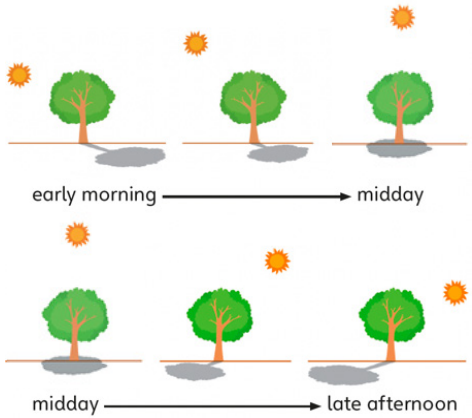
4. a) day
b) (i) butterfly drawn on the surface of the model Earth in bottom-left of image, diametrically opposed to its starting position
b) (ii) night

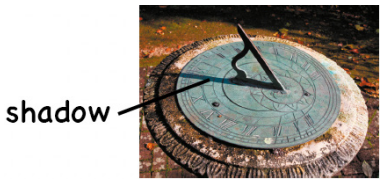
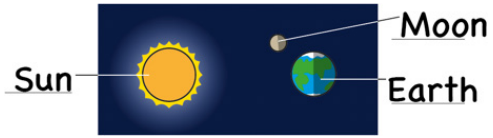
Shadow patterns

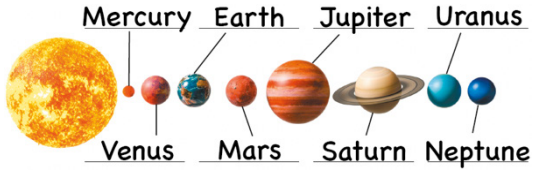
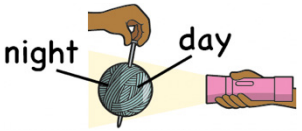
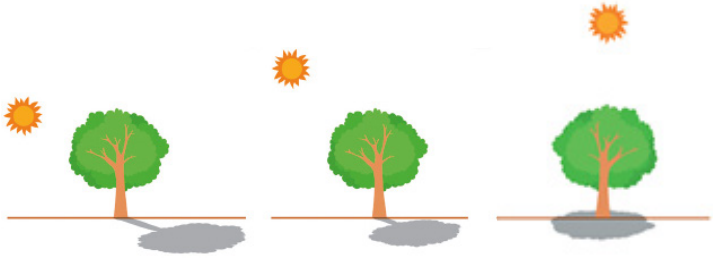
1. a)



b) see
light

2.	**a)**	
	b)	the football is an opaque object it blocks the light from the light source the shadow on the wall is the same shape as the football
3.	**a)**	How does the time of day affect the length of a shadow?
	b) (i)	time of day
	b) (ii)	length of shadow
	c)	Accept an appropriately completed results table.
	d)	Accept an appropriate description of the pattern in the results.
	e)	the Sun appears to change position as Earth rotates
Why do shadows change?		
1.	**a)**	torch
	b)	block(ing)
	c) (i)	lower down / behind (the box)
	c) (ii)	longer
	d)	shorter
2.	**a)**	the Sun
	b)	

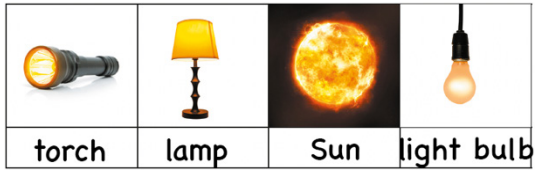
c)	Earth is rotating so we see the Sun from a different angle
d)	shorter lower longer
Sundials	
1. a)	(quite) long / about as long as his height
b)	(quite) low (in the sky)
2. a)	uses the Sun to tell the time
b)	
3. a)	
b)	Accept any appropriate suggested improvement to the sundial, e.g. straighter stick.
4. a)	Accept an appropriate drawing or photograph of the learner's sundial.
b)	Accept an appropriate description of how the learner used their sundial.
c)	Accept an appropriate suggested improvement for making the sundial.
What have I learned?	
1.	

2.	Jupiter Mars 
3.	orbits Sun Earth
4.	
5.	

Topic 6: Seeing and reflecting

Light in straight lines

1. a)



b) eye(s)

c) (i) source
eye(s)

c) (ii) straight
bend / turn / travel

2. a) (i) a circle of light

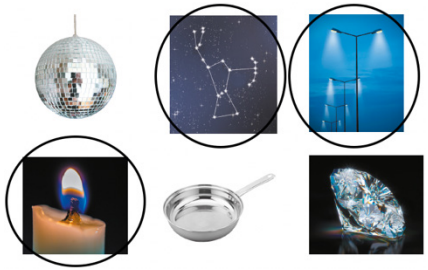
a) (ii) light from the torch travels in straight lines through the holes onto the book
the cards are opaque so the rest of the book is dark

b) Accept an appropriate response, based on carrying out the investigation.

3. the opaque object blocks the light from the torch
light cannot bend round the object
there is darkness on the wall in the shape of the object

Shiny surfaces

1. a)

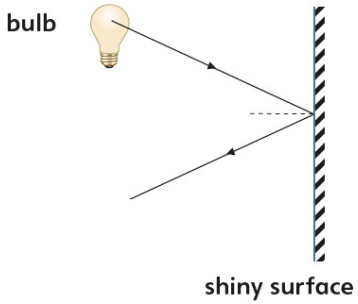
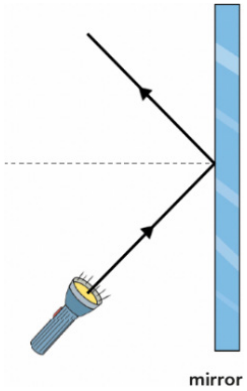


b) shiny

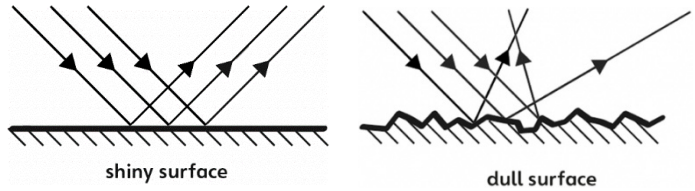
c) (i) reflecting light from the Sun

c) (ii) reflected light from the Moon is reflected off the surface of the water

2. lines
direction

3.	a)	
	b)	light travels in straight lines
4.		

Reflecting light

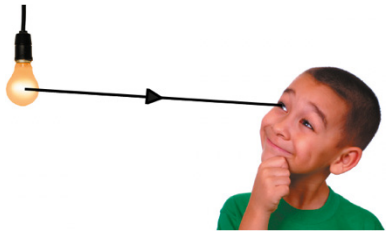
1.		Accept an appropriately categorised list of shiny objects, dull objects, or both.
2.	a)	light angle light scattered
	b)	

How do we see objects?

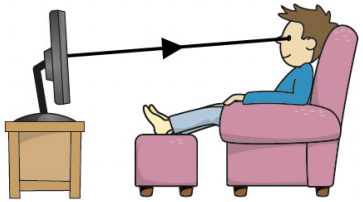
1.

source
eyes
source
object
object
eyes

2. a)



b)

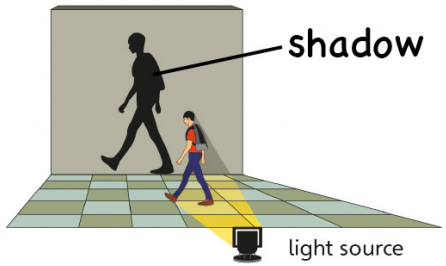


3.

4.

Shadow or reflection?

1. a) (i)



a) (ii) person

b) light from source travels in straight lines
person is opaque
light cannot bend round the person
a shadow is made on the wall where the light cannot reach

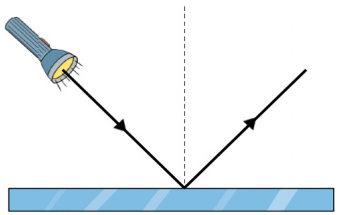
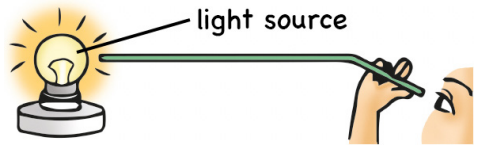
c)

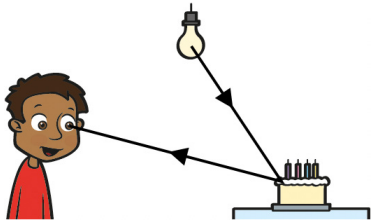
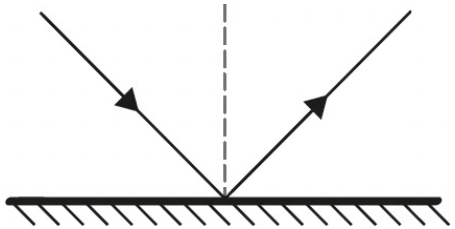
A shadow is always the same **shape** as the opaque object.	☑
Light bends around an opaque object to make a shadow.	☐
A shadow is always the same **size** as the opaque object.	☐
Light rays do not travel through opaque objects.	☑
A shadow is always **larger** than the opaque object.	☐

2. a) shiny
smooth

b) Accept an appropriately completed table of objects that reflect light well and others that do not.

c) light is reflected off the surface at the same angle as it hits it

d)	
Investigating safety clothing	
1. a)	Accept any appropriate response.
b)	A bright colour is easy to see in daylight B stripes reflect light from a light source when it is dark
2. a)	the bright red / orange colour
b) (i)	Accept **two** of the following: (vehicle) headlights, road / street lights, reflected light from the Moon Accept any other valid light source that may be on a road at night.
b) (ii)	the white / silver stripe reflects light from a light source
3. a)	Which is the best safety clothing to wear at night?
b) (i)	safety clothing / fabric(s) used
b) (ii)	the one that reflects light best / the one that can still be seen when it is darkest
c)	Accept any appropriate response.
d)	e.g. darkness of surroundings, brightness / proximity of light source
e)	Accept an appropriate results table with correct columns and headings.
f)	Accept an appropriate conclusion to the scientific question.
What have I learned?	
1.	 light travels in straight lines light cannot bend round corners light will not reach the end of the straw for the learner to see the light source

2.	
3.	
4.	Accept appropriately completed ray diagrams on page 137 of the workbook.
5.	opaque blocks direction

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