

# Answers to SCIENCE KEY STAGE TWO Pupil Worksheets



## LIFE PROCESSES AND LIVING THINGS

- Page 1:**
- a)** Grow, Reproduce, Sense things, Eat, Move.

**b)** Taste and Smell, Sight (seeing), Touch, Hearing.
  - CLUES:** 1. Down; Changing position from one place to another. 2 & 3 Down; Being aware of our surroundings. 4. Across; Increase in size. 5. Across; Making copies of the parents (having babies!). 6. Across; Taking in food. **ANSWERS:** 1. Down; Movement. 2. Down; Using. 3. Down; Senses. 4. Across; Growth. 5. Across; Reproduction. 6. Across; Nutrition.

- Page 2:**
- a)** To bite and cut food into more manageable pieces. To chew food into small pieces before swallowing. To grind food into a 'mush' before swallowing.

**b)** It has a sharp 'chisel-like' edge to cut through food. This cuts the food into more manageable pieces.

**c)** It has a broad, flat upper surface for grinding food into a 'mush' before swallowing.
  - The Sheep has no **CANINE** teeth. Dog has **CANINE** teeth. This is because the dog eats meat but the sheep only eats vegetation (e.g. grass). The sheep has teeth for snipping off grass and then lots of teeth for grinding the grass up. The dog has snipping, tearing, cutting and grinding teeth.
  - Various answers.

- Page 3:**
- a)** Steak, Fish, Cheese, Eggs, Chicken. **b)** Potatoes, Pasta, Beans, Bananas, Rice.

**c)** Butter, Cheese, Meat (red). **d)** Sweets, Chocolate, Some fruits.
  - a)** Bread, Bananas, Potatoes, Carrots. **b)** Milk, Fish, Eggs, Cheese, Ham, Butter. **c)** Ham, Cheese, Butter, Milk.
  - a)** It is bad for teeth. **b)** You might put on weight. You might get heart disease. **c)** Various answers.

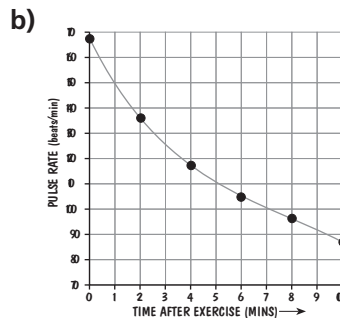
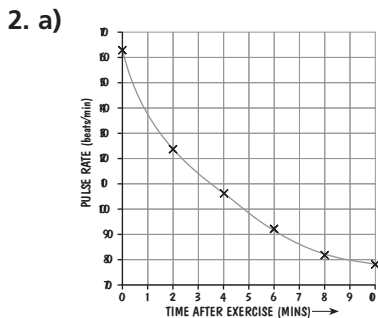
- Page 4:**
- a)** Blood Vessels. Away from. **b)** Towards. **c)** Oxygen. **d)** No oxygen. **e)** Lungs. **f)** Body.
  1. The Lungs. 2. Blood Vessel from the Lungs. 3. Heart. 4. Blood Vessel to the Body. 5. The Body. 6. Blood Vessel from the Body. 7. Heart. 8. Blood Vessel to Lungs.

- Page 5:**
- a)** 1. Poor diet. 2. He smokes. 3. He takes no exercise.

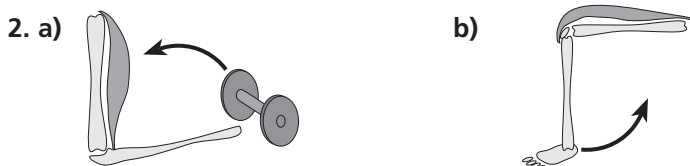
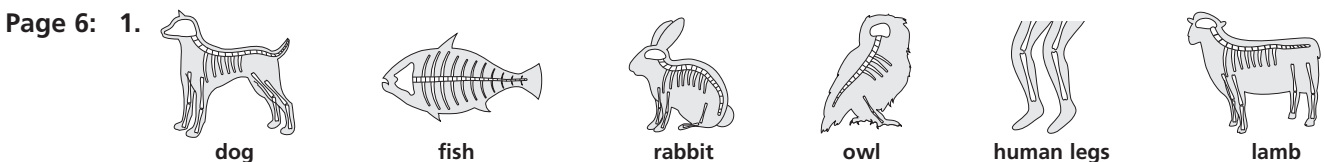
**b)** 1. Eat more fresh food, especially vegetables and fruit.

2. Cut down his smoking, or better still, give up completely.

3. Take some exercise (at least twice a week).



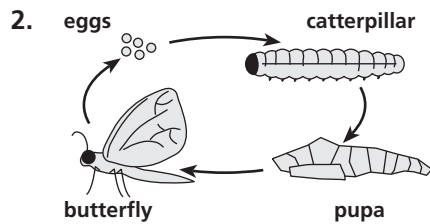
3. Jameel seems to be fitter since his pulse rate comes back down faster than James' pulse rate.



- a)** Your skull could protect your brain from injury. Your ribcage could protect your heart and lungs.

**b)** In an average person the strongest muscles are in the legs since these do the most work everyday, carrying our bodies around.

**Page 7:** 1. **FERTILISATION;** The sperm from the male meets the egg inside the female and joins with it to form one cell. **BIRTH;** After 9 months developing inside the mother the baby is born into the outside world. **GROWTH;** The baby then grows rapidly becoming a toddler, then a school pupil, then a teenager etc. **ADOLESCENCE;** Boys and girls change into men and women. Their bodies change as they become sexually mature. **ADULTHOOD;** People gradually become emotionally mature as well as sexually mature. They are now responsible enough to have their own children. **COURTSHIP;** Two people meet and like each other. their relationship grows and may result in them marrying and having children.



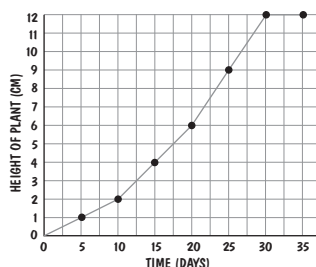
3. Mating between adults → Frog spawn → Tadpoles without legs → Tadpoles with legs but no tail → Frogs.

**Page 8:** 1. **a)** She may get out of breath more quickly after she has done a lot of running about. **b)** They could be breathing in her smoke (passive smoking). This means they could suffer from the same problems as an actual smoker! **c)** Liver and Brain.  
2. Chicken Pox, Measles, Flu, Colds, Mumps.  
3. **a)** 47 years old **b)** Bacteria can cause illnesses etc. **c)** Anti-biotic/Penicillin **d)** Fungus

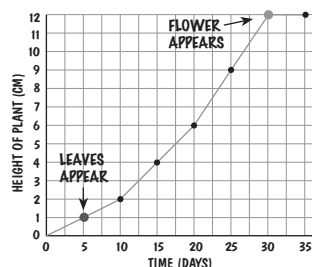
**Page 9:** 1. **a)** It has gone yellow. **b)** To act as a control experiment to test if it was the plastic that was causing the yellowing of the grass rather than the lack of light. **c)** Grass goes yellow when light is prevented from reaching it.  
2. The moss needs moisture and so grows better on the side of the statue facing away from the sun because it doesn't dry out. It's also wetter near the base of the statue.  
3. **(i)** The amount of water the cress is given. **(ii)** The amount of soil they are grown in. **(iii)** The quality of the soil should be the same. **(iv)** The amount of light they received.

**Page 10:** 1. A; Filament. B; Petal. C; Egg cell (ovum). D; Anther. E; Stigma F; Style. G; Ovule. H; Ovary. I; Stem.  
2. **STIGMA;** Part of the Carpel. **STAMEN;** Male part of the plant. **OVARY;** Contains egg cells. **PETALS;** Brightly coloured to attract insects. **STEM;** Supports the leaves and flowers.  
3. **a)** Leaves. **b)** Light. Water. Air (Carbon Dioxide).  
4. The roots in the sandy soil have grown much longer to 'search' for water which would drain through the sandy soil to the bottom of the container. The roots of the plant in peaty soil are shorter because the peaty soil holds water all through it.

**Page 11:** 1. Growth. Flower formation. Pollination and Fertilisation. Seed production. Seed dispersal.  
2. Brightly coloured leaves. Nice smell. Sugary nectar.  
3. **a)**



**b)**



**c)** It has reached its full height and is now putting its energy into producing flowers for reproduction.

**Page 12:** 1. **a)** From the east. **b)** 3.5 metres. **c)** Just over 2 metres (2m 10cm). **d)** Wallflower.  
**e)** They would have had to take their results on the same day so that the weather conditions would be the same.  
2. **a)** It will travel further on the wind because it will fall more slowly due to its 'wings.'  
**b)** Its hooks would make it stick to the fur of passing animals or people's clothes.  
3. By water e.g. the coconut. By being eaten by animals and passed through their gut e.g. tomato.

**Page 13:** 1. A; Lobster. B; Garden Spider. C; Honey Bee. D; Mussel. E; Leech.  
2. F; Mayfly Nymph. G; Water Beetle. H; Freshwater Snail. I; Waterlouse. J; Tubifex Worm.  
3. Various answers.

- Page 14:** 1. COMMON EARTHWORM; Long, thin, and flexible so that they can burrow through the soil.  
TROUT; Streamlined shape so that it can cut through the water.  
BARN OWL; Large eyes set in "wide sockets" to help it hunt at night.  
SEAL; Layer of fat to keep it warm. Streamlined shape.  
RABBIT; Eyes at side of head to watch forwards and backwards for danger.
2. a) In order to survive, to breed more successfully and pass on their characteristics to their offspring.  
b) Webbed feet in water birds are advantageous for feeding etc. and consequently these have evolved over many years to meet their purpose.  
c) Better adapted organisms are likely to breed more successfully since they can adapt themselves better than other organisms to any changes that may occur to their environment.

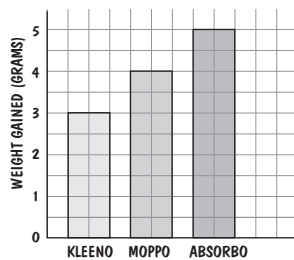
- Page 15:** 1. Various answers.  
2. a) The number of hawks would fall, maybe to zero!  
b) The number of mistle thrush would rise because there would be more slugs.

## MATERIALS AND THEIR PROPERTIES

- Page 16:** 1. STEEL FORK; Tough, hard, strong, hard wearing, is attracted to a magnet.  
PLASTIC PHONE; Tough, opaque, hard wearing.  
GLASS TUMBLER; Transparent, brittle, hard. RUBBER ERASER; Bendy, flexible.  
WOOLLY JUMPER; Fibrous, fluffy, hairy, thermal insulator. ELASTIC BAND; Bendy, elastic, stretchy, flexible.  
FIBREGLASS FISHING ROD; Bendy, flexible, springy. STONE STATUE; Brittle, natural material, hard.  
LEATHER BELT; Bendy, flexible, natural material, hard wearing.  
COPPER WIRE; Bendy, tough, hard, strong, hard wearing, good electrical conductor.

- Page 17:** 1. Various answers.

2. a)



- b) Absorbo.  
c) Each square should be the same size and thickness, or the same mass.

3. The increase in the length of each elastic band.

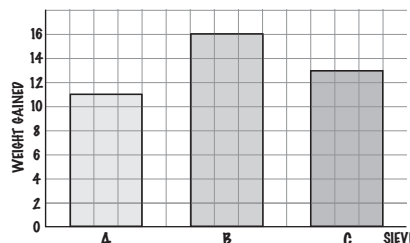
- Page 18:** 1. a) We would wear a woolly jumper which stops heat passing through it from our body.  
b) We would wrap a jacket around our hot water tank which stops heat passing through it from the hot water in the tank.  
c) We would wrap a tea cosy around the teapot which stops heat passing through it from the hot tea in the pot.  
d) We would place a blanket below and on top of the dog which stops heat passing through them from the dog.  
e) We would use a duvet (or blankets) which stops heat passing through it from our bodies.
2. They all trap air because they are 'fluffy'.
3. a) Copper. b) Glass. c) The amount of heat each rod received and the length of each rod.

- Page 19:** 1. CONDUCTORS; Car bonnet, Soft Drinks Can, Spanner, Pan.  
INSULATORS; Drumskin, Credit Card, Catapult, Pillar, Leather Belt, Loaf of Bread, Milk Bottle, Candle, Chocolate Bar.
2. CONDUCTORS; Pins, Wires. INSULATORS; Cable, Casing.
3. a) Iron, Toaster, Switches, Sockets, Food mixer, Kettle, Television, Video etc etc.  
b) Wet hands can allow electricity to flow through them.

- Page 20:** 1. 1. DOWN; Granite. 3. DOWN; Slate. 2. ACROSS; Marble.  
3. ACROSS; Sandstone. 4. ACROSS; Chalk.

3. a)

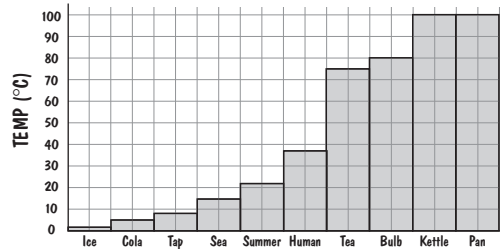
SIEVE	WEIGHT GAINED
A	11 grams
B	16 grams
C	13 grams



- b) A.  
c) Amount of soil, amount of water poured onto the soil, same sieves.

**Page 21:** 1. **a)** Solids. **b)** Liquids. **c)** Gases. **d)** Solids. **e)** Gases. **f)** Solids. **g)** Liquids. **h)** Gases. **i)** Solids. **j)** Liquids.  
 2. Various answers. 3. Because they are made up of very small particles which can move about freely.

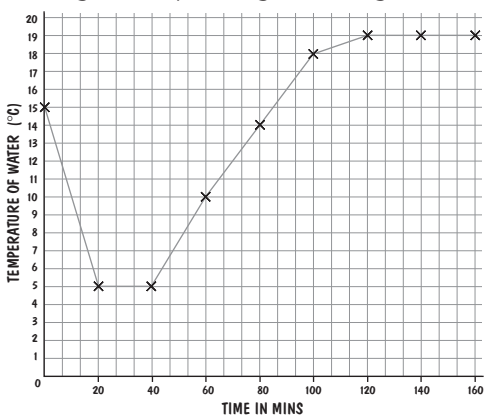
**Page 22:** 1. **a)** Thermometer. **b)** Degrees Celsius.  
**c)** Temperature, surroundings.  
 2. (Left to right)  
 75°C, 100°C, 80°C, 4°C, 100°C,  
 0°C, 15°C, 23°C, 8°C, 37°C.



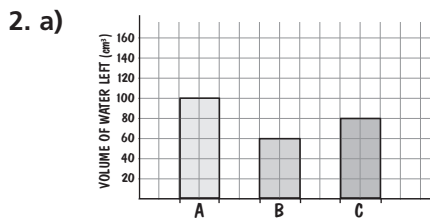
**Page 23:** 1. **a)** Irreversible. You cannot get back to the sand and cement.  
**b)** Irreversible. You cannot get back to the liquid superglue.  
**c)** Reversible. The air put into the balloon can be released.  
**d)** Reversible. The wax model can be heated up to give us liquid wax again.  
 2. A reversible change does not produce a new material and it is fairly easy to go back to the original material.  
 3. Dissolving salt in water, evaporate the water to leave behind the salt.

**Page 24:** 1. **a)** Reversible. The water can be evaporated to leave behind the concentrated orange squash.  
**b)** Irreversible. Once the wax has burned we cannot get it back.  
**c)** Reversible. The piece of steel will return to how it was when it cools.  
**d)** Irreversible. Once the chemicals inside the firework are burned we cannot get them back.  
 2. Irreversible changes often produce new materials. 3. Various answers e.g. Making glass from sand.

**Page 25:** 1. A; Melting. B; Evaporating or Boiling. C; Condensing. D; Freezing or Solidifying.

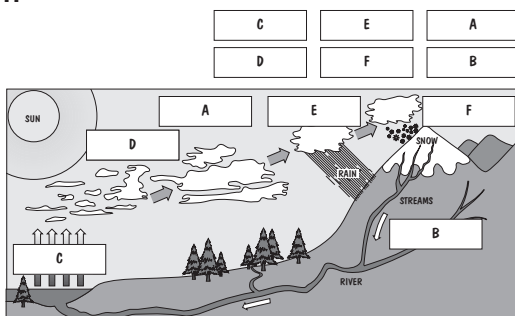
2. **a)**  **b)** 40 minutes.  
**c)** The temperature started to rise after the ice had melted.  
**d)** 19°C.

**Page 26:** 1. **a)** B, A, C.  
**b)** Evaporation is speeded up if the water is in a container with a larger surface area.  
**c)** Volume of water.



**b)** B.  
**c)** A.  
**d)** The greatest evaporation would take place in the hottest room which is beaker B and the least evaporation would take place in the coldest room which is beaker A.  
 3. Condensation.

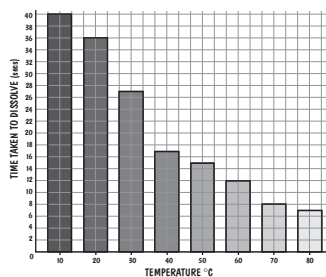
**Page 27:** 1.



2. **a)** Heat from the sun.  
**b)** Wind blowing over the land and sea.  
**c)** Water is spread over a large surface.  
 3. **a)** There was more burning of fuels which resulted in the release of more carbon dioxide into the atmosphere.  
**b)** Possible answers are: More droughts resulting in poor yields of grown crops. Melting of the polar ice caps etc.  
**c)** Possible answers are: Burn less fuels, Use less electricity (a lot of electricity is generated by the burning of fuels) etc.

**Page 28:** 1. WILL DISSOLVE IN WATER; Sugar, Salt, Bath Salts, Poster Paint, Sherbet. WON'T DISSOLVE IN WATER; Clay, Stones, Chalk, Pepper, Sand, Baking Powder, Wax.

2. a)



b) 1. Amount of sugar.

2. Amount of water in tea cup.

3. Same amount of stirring - or no stirring at all.

4. Sugar crystals would need to be the same size.

**Page 29:** 1. a) Use a sieve with holes just smaller than the larger sized dried bean. The 3 other sizes of dried bean will pass through, the largest doesn't. Repeat with other sizes of sieve to remove the other beans.

b) Pass the mixture through a filter funnel with filter paper outside. The water passes through to leave the chalk powder in the filter paper.

c) Add the mixture to a beaker of water and stir. The sugar dissolves but the chalk doesn't. Filter as in part (b) to leave the chalk in the filter paper. Evaporate the sugar solution which has passed through to leave behind the sugar.

d) Evaporate the sugar solution, the water evaporates to leave behind the sugar.

e) Use a sieve with holes just smaller than a smartie. The sand will pass through the sieve to leave behind the smarties.

2. Take an empty container and weigh it. Add a certain volume of pond water. Evaporate it to dryness and weigh the container again. The difference between the two readings would be due to the dissolved solids plus suitable diagram(s).

**Page 30:** 1. CORRECT ORDER: (i) Sieve the mixture. (ii) Remove the gravel. (iii) Put the sand and salt into water and stir well.

(iv) When no more seems to be dissolving, filter the liquid through the filter paper. (v) Remove the sand trapped by the filter paper. (vi) Evaporate the solution that passes through the filter paper until it's completely dry. (vii) You will be left with salt.

2. To make sure that all the salt dissolves otherwise the salt is trapped by the filter paper.

## PHYSICAL PROCESSES

**Page 31:** 1. a) Light. b) Movement. c) Heat. d) Heat. e) Movement. Heat. f) Sound. Light. g) Sound. Light. h) Movement. Sound.

2.

	a)	b)	c)	d)	e)	
WHAT IT LOOKS LIKE						
WHAT IT IS	Bulb	Switch	Buzzer	Wires	Motor	Battery
WHAT IT DOES	Produces Light	Switches the circuit 'ON' or 'OFF'	Produces Sound	Electricity flows along these to the devices	Produces Movement	Supplies the Electricity

3. a) b) c) d) e)

**Page 32:** 1. Break. Electricity. Switch. Complete. Break. On. Off.

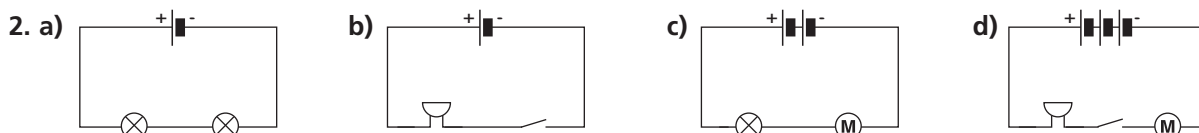
2. a) (i) Wire missing, so circuit is broken. (ii) Need to connect a wire from the battery to the bulb.

b) (i) The two wires are both connected to one end of the bulb. (ii) Disconnect the wire on the right and connect it to the right hand end of the bulb.

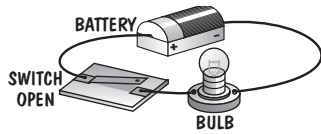
c) (i) Gap in wire, so circuit is broken. (ii) Replace wire with new wire, or connect the two pieces of wire together.

d) (i) The battery on the right is facing the wrong direction. (ii) Turn the battery on the right around to face the other way.

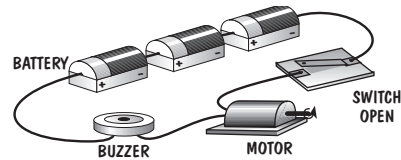
**Page 33:** 1. a) b) c) d) e) f)



Page 33: 3. a)



b)



Page 34: 1. Current. Bulb. Current. Brighter.

2. a) Number of batteries. Thickness of wire. Number of bulbs. Power of battery. Type of bulb.

b) (i) Two batteries in the circuit instead of one.

(ii) Wire is thicker than it should be.

(iii) Different type of bulb.

(iv) Wire is thinner than it should be.

(v) Two bulbs in the circuit instead of one.

(vi) 'Power' of the battery is now different.

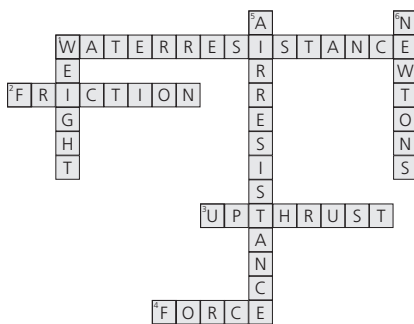
3. a) 60cm; Bright. 100cm; Very dim. 40cm; Very bright. 120cm; Very, very dim. 20cm; Very, very bright.

b) As you increase the length of wire in the circuit the brightness of the bulb decreases i.e. becomes dimmer and dimmer.

Page 35: 1. Push, Straight, Arrowhead, End, Direction, Newtons, Water resistance, Friction, Air resistance (last 3 in any order)

2. DIAGRAM D. Direction of force which the elastic exerts is opposite the direction the hands are moving.

3.

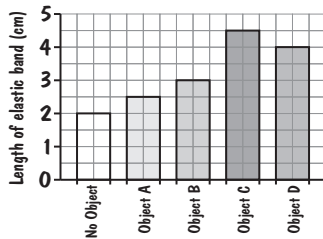


4. Weight and Upthrust.

Page 36: 1. a) Any 3 suitable e.g. Keeps the Earth in orbit around the Sun, Keeps all objects on Earth etc.

b) Any 3 suitable e.g. Walking uphill against gravity, objects falling down can cause damage or injury etc.

2. a)



b) Object D because object B stretches the band by 1cm and object D stretches the band by 2cm.

c) Object C because object A stretches the band 0.5cm and object E stretches the band by 2.5cm.

d) 6cm

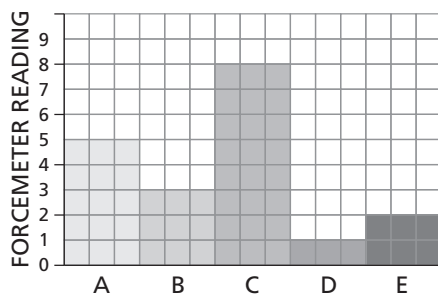
Page 37: 1. (i) → Large (ii) ← Large

2. (i) ← Large (ii) ↓ Large

3. a) She will use the same block of wood.

She will use the same forcemeter.

b)



(iii) ↗ Small

(iii) ↑ Small

c) C.D.

d) The oil acts to 'smooth out' the rough surfaces of the moving parts of a car engine. This reduces the amount of friction created.

Page 38: 1. (i) ← Small (ii) ↓ Large (iii) ↑ Large

2. a) Timer (a stopclock or a watch).

b) The time it takes for the plasticine to fall to the bottom of the container.

c) She must use the same mass of plasticine.

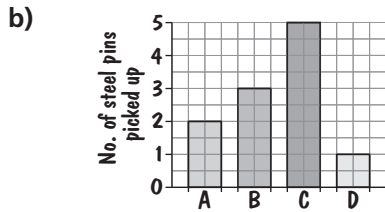
3. a) Forcemeter 3 is correct.

b) The water pushes up on the ball which causes the reading on the forcemeter to go down.

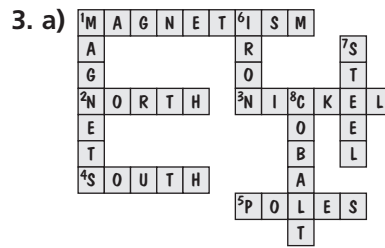
c) Forcemeter 4. Weight of the ball acting downwards is balanced by the force acting upwards.

**Page 39:** 1. ATTRACTED; Steel paper clips, Iron ring. NOT ATTRACTED; Plastic spoons, Wooden toothpicks, Polystyrene balls, Piece of Coal.

2. a) All the pins should be the same size and shape.



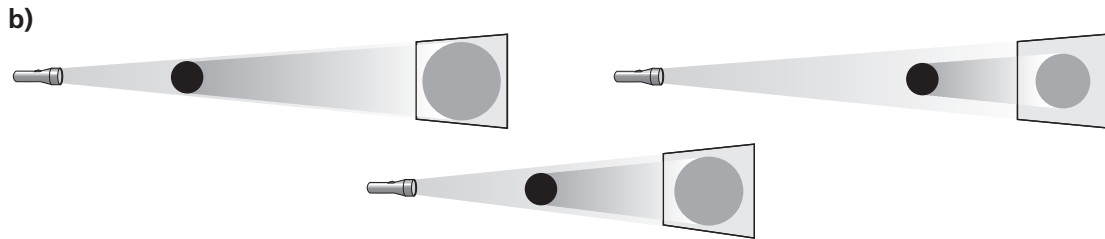
c) C.



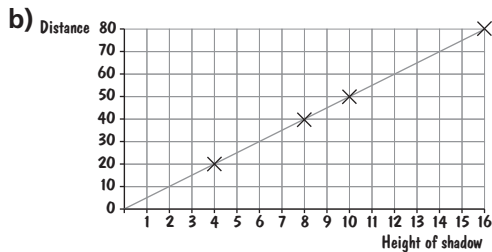
b) Suitable clues

**Page 40:** 1. Star, Torch, Sun.

2. a) A shadow is formed when light travelling from a source is blocked by an object.



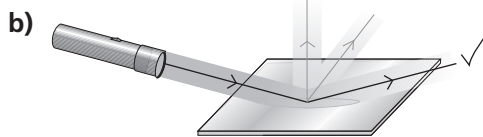
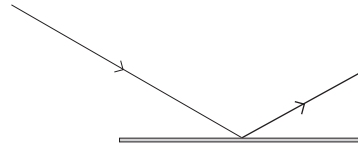
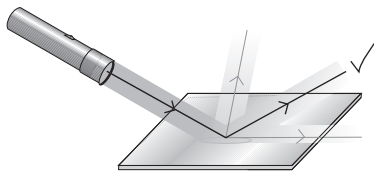
3. a) Size of object. Size of light source. Distance from source to object.



c) 12cm. 15cm.

d) As the distance from the object to the screen is increased the height of the shadow formed is also increased.

**Page 41:** 1. a)



2. a) A periscope enables us to see objects over a high barrier e.g. a wall.

b) CORRECT BOX: (iv).

(i) The arrows on the rays of light are going the wrong way.

(ii) The two mirrors are sloping in the wrong direction.

(iii) The middle ray of light is missing.

3. a) Light from the sun enters our eyes.

b) Light from the sun is reflected off the moon and enters our eyes.

c) The mirror reflects light from an object into our eyes.

**Page 42:** 1. a) Wings. b) Vocal chords. c) Lips. d) Speaker. e) Floor. f) Window.

2. a) Soft.

b) Too much sound can damage our hearing.

c) VERY GOOD AT MUFFLING SOUND: Carpets. Curtains. Bed linen. Clothes. Mattress etc. etc.

NOT VERY GOOD AT MUFFLING SOUND: Glass window. Furniture. Door. Walls. Bed head etc. etc.

3. ACROSS: 1. Sound. 5. Vibrating. 7. Hard. 8. Soft. DOWN: 1. Stone. 2. Noisy. 3. Earmuffs. 4. Air. 6. Tap. 7. Hit.

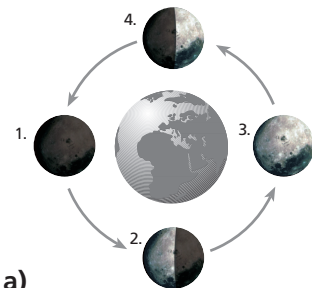
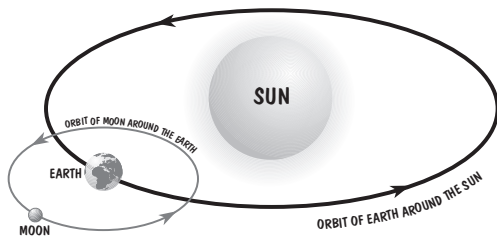
**Page 43:** 1. a) B, because it has the shortest arms.

b) E, because it has the longest arms.

- Page 43: 2. a)** Loudness is a measure of how large a sound is.  
**b)** You would have to tap the tuning fork harder.  
**3. a)** Plucking the ruler harder makes the sound louder and plucking the ruler more gently makes the sound quieter.  
**b)** C, because it is the shortest and is plucked gently.  
**c)** D, because it is the longest and is plucked the hardest.

- Page 44: 1. a)** She would make sure that (i) the thickness of the string is not changed (ii) the string is put under the same tension.  
**b)** 10cm; Very high. 70cm; Low. 90cm; Very low. 30cm; High.  
**c)** Add more weights to put the string under more tension.  
**d)** She could pluck the string harder.  
**2. a)** F.  
**b)** C.  
**c)** B and E because they both have the same amount of water in them.  
**3. a)** E, because it is the largest drum.  
**b)** By tightening the skin on drum E or loosening the skin on drum A.

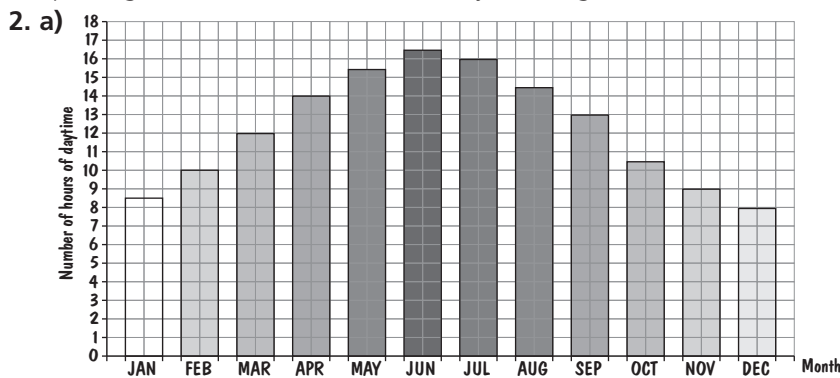
**Page 45: 1.**



- 2. a)** 365 days (1 year).  
**b)** 28 days.  
**c)**  $365 \div 28 = 13$  orbits (to the nearest whole number)  
**3. a)**  
**b)** 14 days.  
**c)** 21 days.

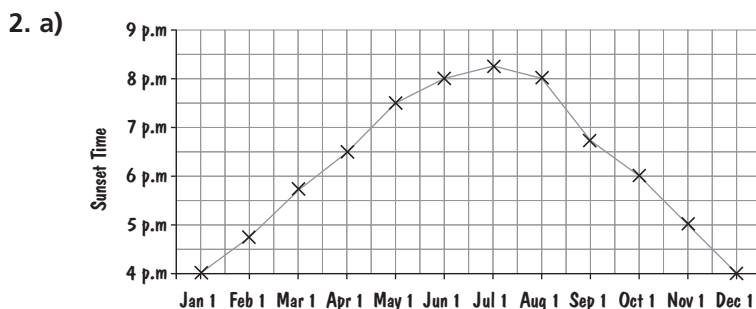
- Page 46: 1.** Tony is correct because the Earth is round. If you look at a boat that sails out to sea then as the boat goes further and further away it starts to disappear. This can only happen if the surface of the Earth is curved, in other words the Earth is spherical plus suitable diagram.  
**2. a) (i)** 4m. **(ii)** 400m.  
**b) (i)** If your height is 1.4m for example, the width of the sun is 140m. **(ii)** 0.35m or 35cm.  
**3.** Various answers.

**Page 47: 1.** Spinning. Axis. Rotation. 24 hours. Daytime. Night-time



- b)** June.  
**c)** December.  
**d)** March.  
**e)** November.  
**3.** December 21st.

**Page 48: 1.** The sunrise time becomes earlier and earlier.



- 3. a)** Light from the sun is blocked by the tree.  
**b)** Because the sun is at its highest position in the sky and the shadow formed is at its shortest.  
**c)** About 5.1m/5.2m.
- b)** They go in the opposite direction. As one gets earlier the other gets later.