



# SCIENCE

**Answer key for  
learner's book**

# Learner's book page 5

- Questions

- Q1) A ) The heart pumps blood around the body.  
B) To supply all parts of the body with food and oxygen and to remove waste products from different parts of the body.
- Q2) The heart muscle contracting as it pumps the blood.
- Q3) To pick up oxygen that is carried in the blood to the rest of the body

# Learner's book page 5

- **Q4) 1-to ensure that all parts of the body get food and oxygen**
- **2-Waste products are removed from different parts of the body.**
- 3-Arteries carry blood containing oxygen and food to all parts of the body.**
- 4-Veins carry blood from different parts of the body back to the heart.**
- 5-Capillaries bring oxygen and food to the body cells and take away waste.**

# Learner's book page 7

**Think like a scientist 1**

Time	Pulse rate in bpm
1	85
2	90
3	100

**Q4)**

Answers will vary because the number of heartbeats counted will probably vary slightly when the pulse is taken again.

# Learner's book page 8

## Think like a scientist 1

**Q1)** Heartbeat is the contraction of the heart muscle as it pumps blood. Pulse is caused by the pressure of the blood as it is pumped by the heart.

**Q2)** No. Learners may not have measured their pulse rates accurately.

# Learner's book page 8

**Think like a scientist 1**

**Q3)** Add the measured pulse rates together then divide the total by the number of measurements taken.

**Q4)** Observing over time

# Learner's book page 9

## Think like a scientist 2

**Q1)a-**Exercise will increase the pulse rate.

Because our bodies need more oxygen when we are active, which means the heart has to pump faster to supply the extra oxygen.

**B-**Measure pulse rate before and after exercise.

# Learner's book page 9

## **Q2)**

\*Variable to measure – pulse rate.

\*Variable to change – amount of exercise/body activity.

\*Variables to keep the same – the method and equipment used to measure pulse rate, the person whose pulse rate is measured.



# Learner's book page 9

**Think like a scientist 2**

**Q3)** Timer or stopwatch .

**Q4+5)** Results can be recorded in a table and presented in a bar graph.

# Learner's book page 14

- **Activity 1**

## Continued

### Questions

- 1 When you breathe in, does your chest get bigger or smaller?  
Why do you think this is so?
- 2 When you breathe out, does your chest get bigger or smaller?  
Why do you think this is so?
- 3 Explain how we are able to blow up a balloon.

- Q1) The chest gets bigger because the lungs fill with air.
- Q2) The chest gets smaller because the lungs push air out.
- Q3) Air leaves our body when we breathe out. The air fills the balloon and the balloon inflates/becomes blown up.

# Learner's book page 15

- **Think like a scientist 1**

- **Questions**

Q1)a Balloon inside the bottle

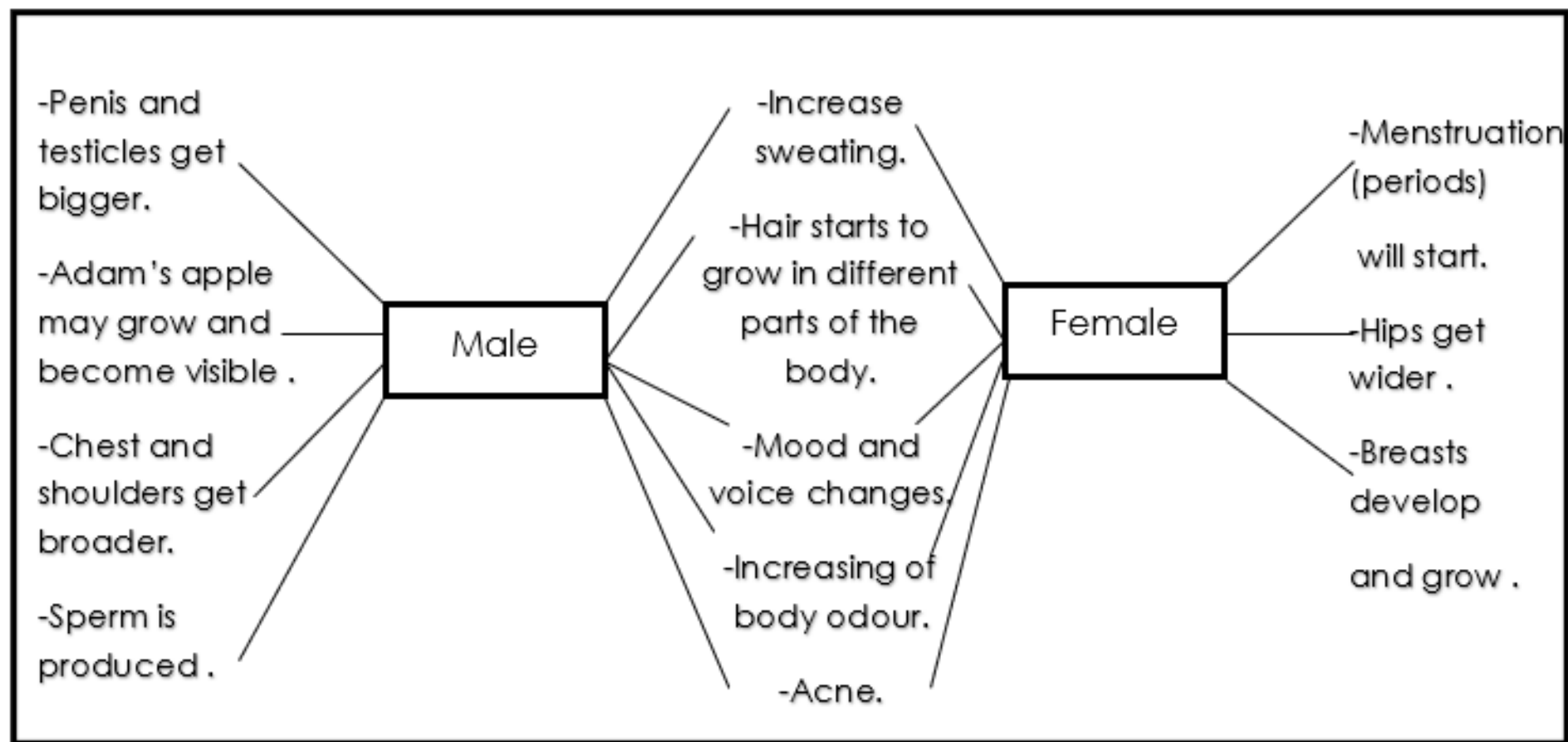
- b The bottle
- c The straw
- d The balloon around the cut-off base of the bottle

- Q2)The ribs

# Learner's book page 15

- Q3) When you pull down on the balloon diaphragm, air is pulled into the bottle. This makes the balloon inside the bottle inflate as it fills with air. This shows breathing in. When you let go, the balloon diaphragm moves upwards and air is pushed out of the balloon inside the bottle. This shows breathing out.
- Q4) The model lung is hollow and not spongy like a real lung.

## Comparing and contrasting between male and female body physical changes



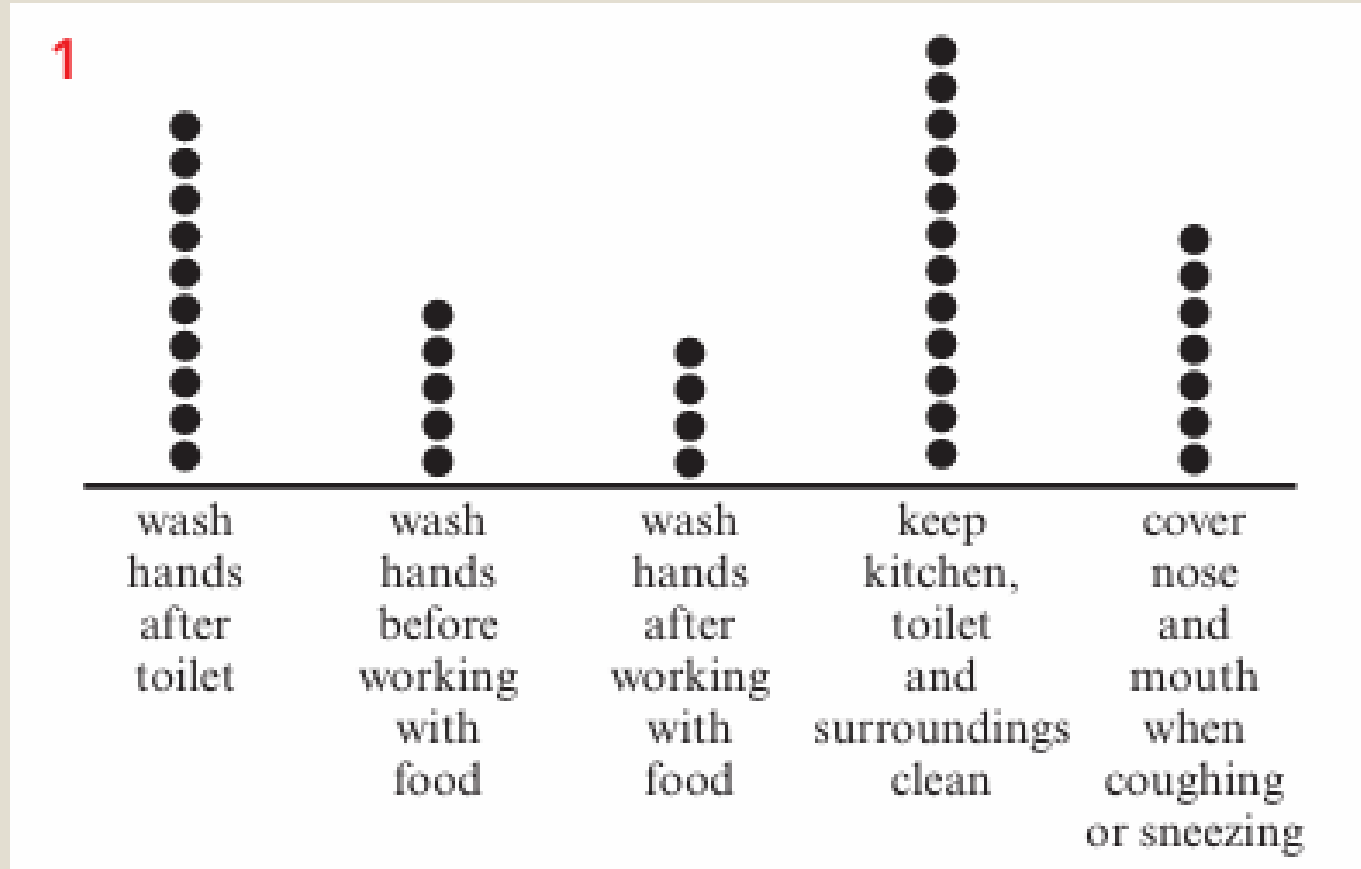
# Learner's book page 28

- **Activity #2**

How disease is spread	Methods to prevent spread of disease
In food	Wash your hands with soap and water. Do not leave food at room temperature. Keep the kitchen, toilet and surroundings clean. Wash raw unpeeled fruits and vegetable before eating them. Keep food covered. Wash knives and working surfaces in the kitchen with hot soapy water after using them.
In water	Only drink safe, clean water. Boil water from rivers or reservoirs, or treat it with bleach to kill germs. Do not use rivers or other bodies of water as a toilet.
In body fluids	Cover your nose and mouth when you cough or sneeze. Keep wounds covered with a plaster and do not touch other people's open wounds.

# Learner's book page 28

- Think like a scientist



# Learner's book page 28

- **Think like a scientist**
- 2-a-Keep the kitchen, toilet and surroundings clean.
  - b Wash hands after working with food.
- 3-The soap helps to kill germs.
- 4-So they don't spread germs.
- 5-To stop germs from our bodies spreading through the air to other people.
- 6-Germs live and grow better in moist conditions; a dirty towel may have germs on it which rub off onto our hands.



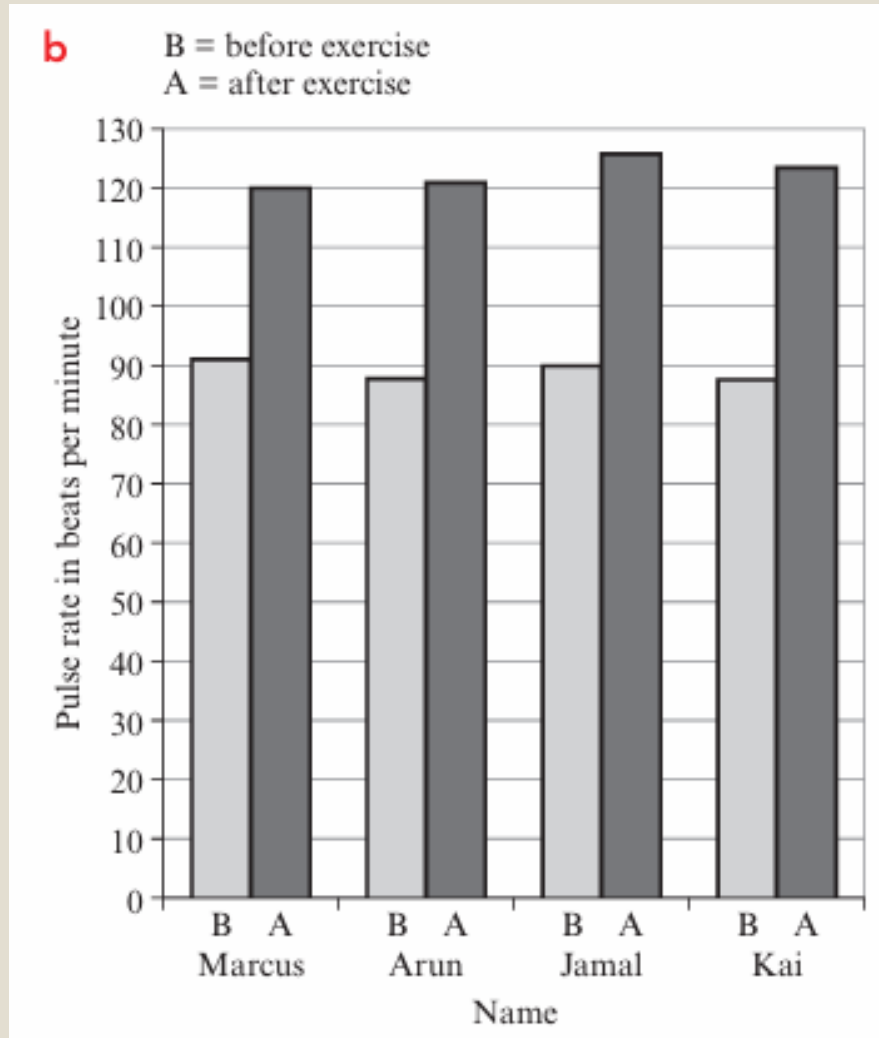
# Learner's book page 33+34

## Check your progress

- 1 **a** False – the heart pumps blood around the body
- b** True
- c** False – your pulse rate tells you how fast your heart is beating
- d** True
- e** False – arteries carry blood to all parts of the body OR veins carry blood from all parts of the body to the heart.

# Learner's book page 33+34

- Q2 ) a-pulse rate device , stopwatch
- b-



# Learner's book page 33+34

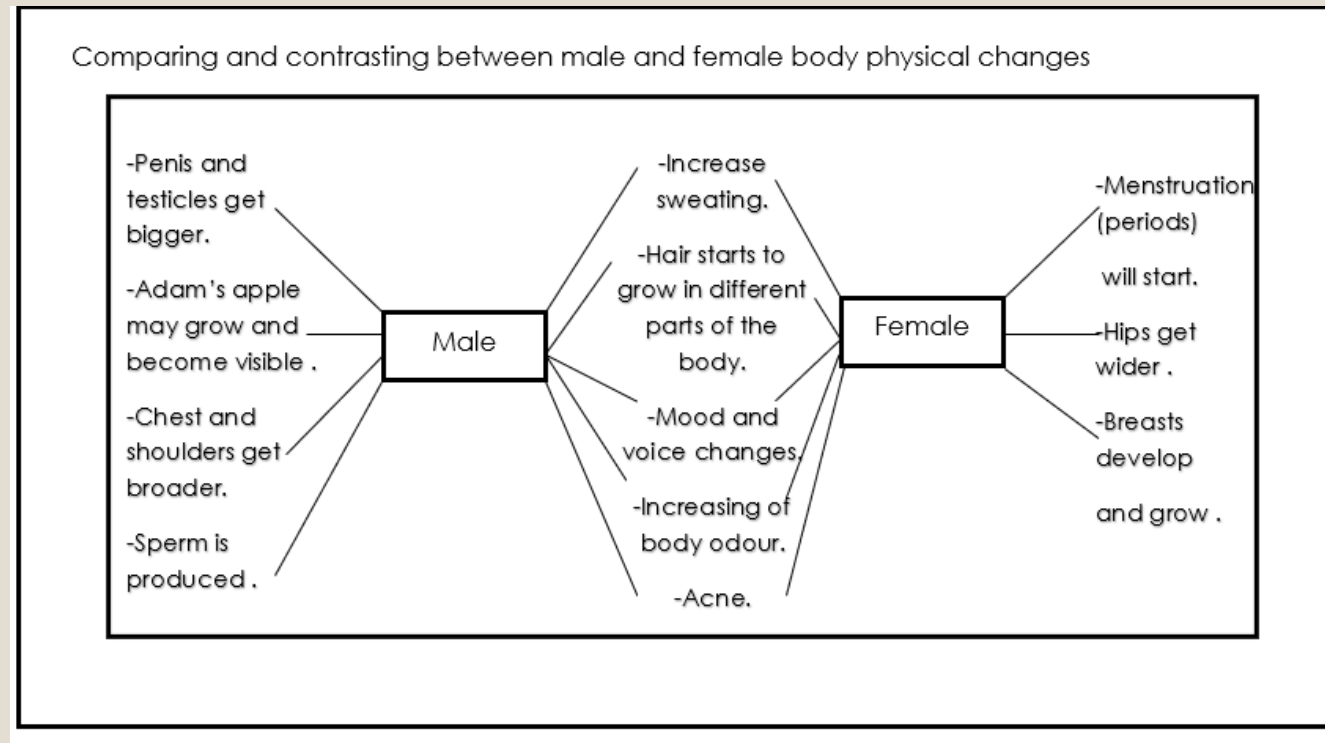
- C-When they exercise the pulse rate increase , because their body needs more oxygen .
- D-The pulse rate will decrease because the body will be inactive ( resting ).

◦ Q3)

<b>a</b> Lungs	<b>b</b> Oxygen
<b>c</b> Carbon dioxide	<b>d</b> Blood
<b>e</b> Diaphragm	<b>f</b> Ribs

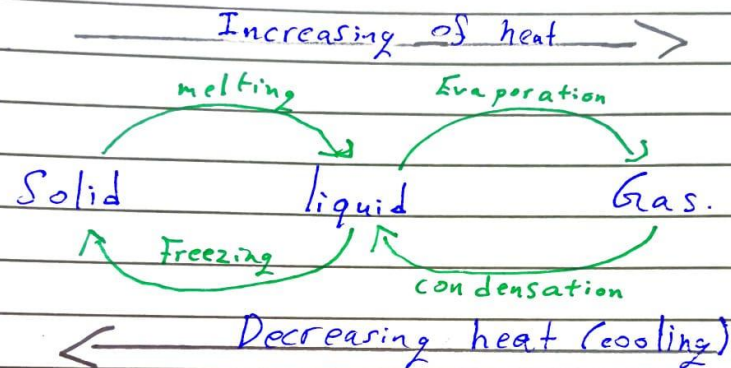
# Learner's book page 33+34

- Q4) a -Puberty is the age at which a person becomes able to reproduce.
- b -Any two from



Subject State of Matter Day Monday Date 10-Nov-2025

## State of Matter



\* Describe how we change solid to liquid? Increasing heat

\* Describe how we change liquid to gas? Increasing heat.

\* Describe how we change gas to liquid? Decreasing heat.

11/11/2025 Tuesday State of matter

## Properties of materials:

1- **Melting Point:** it's a temperature at which a solid becomes a liquid.

2- **Boiling Point:** it's a temperature at which liquid becomes a gas.

what happen to the particles when the temperature increase:

1- Particles have more energy.

2- Particles move faster.



13<sup>th</sup> Nov. 2025

Thursday

1 / 1 التاريخ

اليوم

موضوع الدرس

\* what do we call the process that is reversed from liquid to gas? **condensation**

\* what do we call the process that is reversed from solid to liquid? **Freezing**

Water

Boiling Point  $\rightarrow 100^{\circ}\text{C}$

Freezing Point  $\rightarrow 0^{\circ}\text{C}$

Melting Point  $\rightarrow 0^{\circ}\text{C}$  Ice

Sigma

1 / 1 التاريخ

اليوم

موضوع الدرس

**Activity Page 37**

Evaporation and Boiling.

Similarity: Both of them change liquid to gas.

- Differences:

Boiling	Evaporation
Occurs at fixed temperature	Occurs at fixed temperature.
Quick Process	Slow Process
Takes place within liquid	Takes place only on surface
Bubbles are formed.	No bubbles are formed.
	Seen.

ARARAL

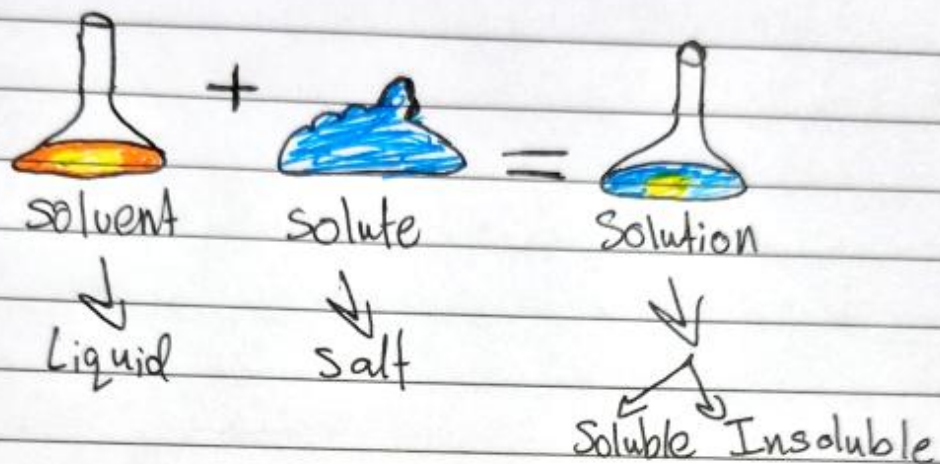
## Properties of gases?

1- Colour less

2- Odourless

3- It takes up space.

4- It has a mass



When solid dissolve in the liquid:

- 1- the particles of liquid will move faster.
- 2- the particles of solid is surrounded by water particles.

Subject Irreversible Day Monday Date 17<sup>th</sup> Nov. 2025  
changes

Reactant  $\rightarrow$  product

⊛ What are the <sup>observations</sup> evidences when the product is made?

1- colour changes

2- Gas / Bubbles or fizzes produced

3- Temperature change





# SCIENCE

**Answer key for  
Workbook**

# Workbook page 2

## Topic 1.1: The circulatory system

### Focus

- 1 Heart, blood and blood vessels (in any order)
- 2
  - a The heart pumps blood through the body.
  - b The left side of the heart pumps blood that contains oxygen.
  - c The right side of the heart pumps blood without oxygen to the lungs.
  - d Blood is carried in the blood vessels.
  - e Blood carries food and oxygen to all parts of the body and takes away waste products.

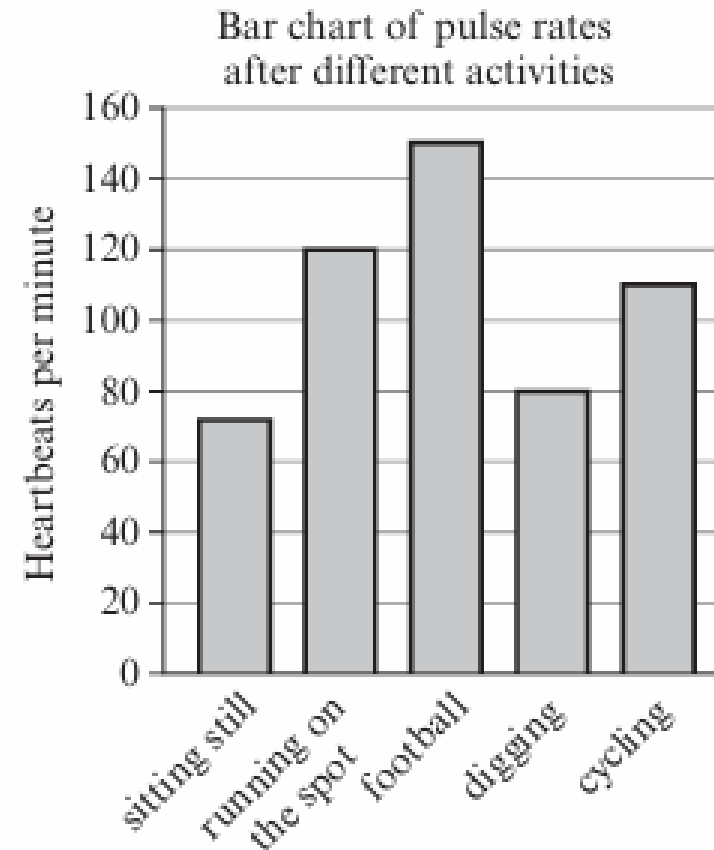
# Workbook page 3

## Practice

3	a	B	b	C	c	A
	d	B	e	C		

# Workbook page 4

4 a



# Workbook page 5

- B- Marcus's pulse rate was lowest when he was sitting still because the body needs less nutrients and oxygen when it is still or inactive,
- C- Playing football

# Workbook page 5

- D-Yes. The measurement for digging. The pulse rate measured is low although he is doing a physical activity
- E- He should do all the activities for the same length of time, then measure his pulse rate. He should also start each activity after sitting still to allow his heartbeat to return to normal.
- F-Body activity/exercise makes the pulse rate increase.

# Workbook page 6

- g -Marcus's pulse rate would increase. The more active you are, the more often your heart must beat to carry enough nutrients and oxygen from the blood to your muscles.

# Workbook page 6

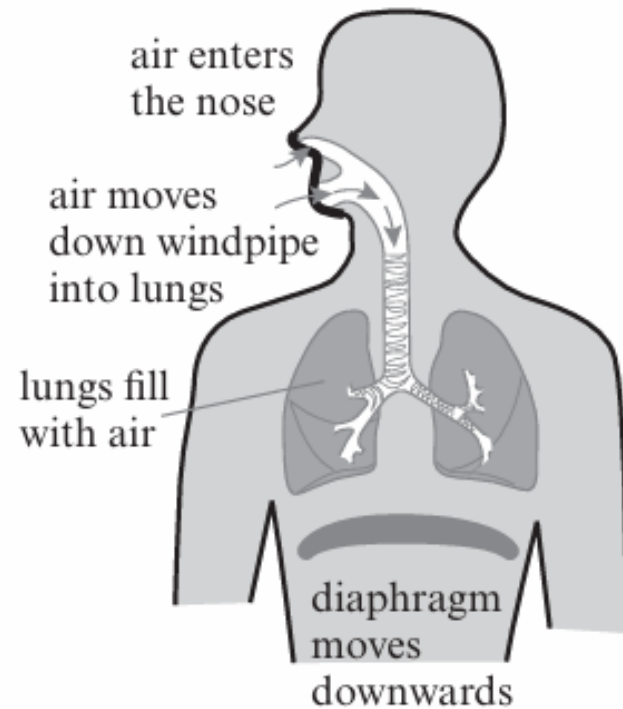
Q1) We breathe in air through our **nose or mouth**. The air we breathe in contains **oxygen** gas. The air moves down the **windpipe** and into our **lungs**. The **oxygen** in the air then moves from the **lungs** into the **blood**. We breathe out air that contains **carbon dioxide** gas. The **ribs** protect our respiratory system.



# Workbook page 7

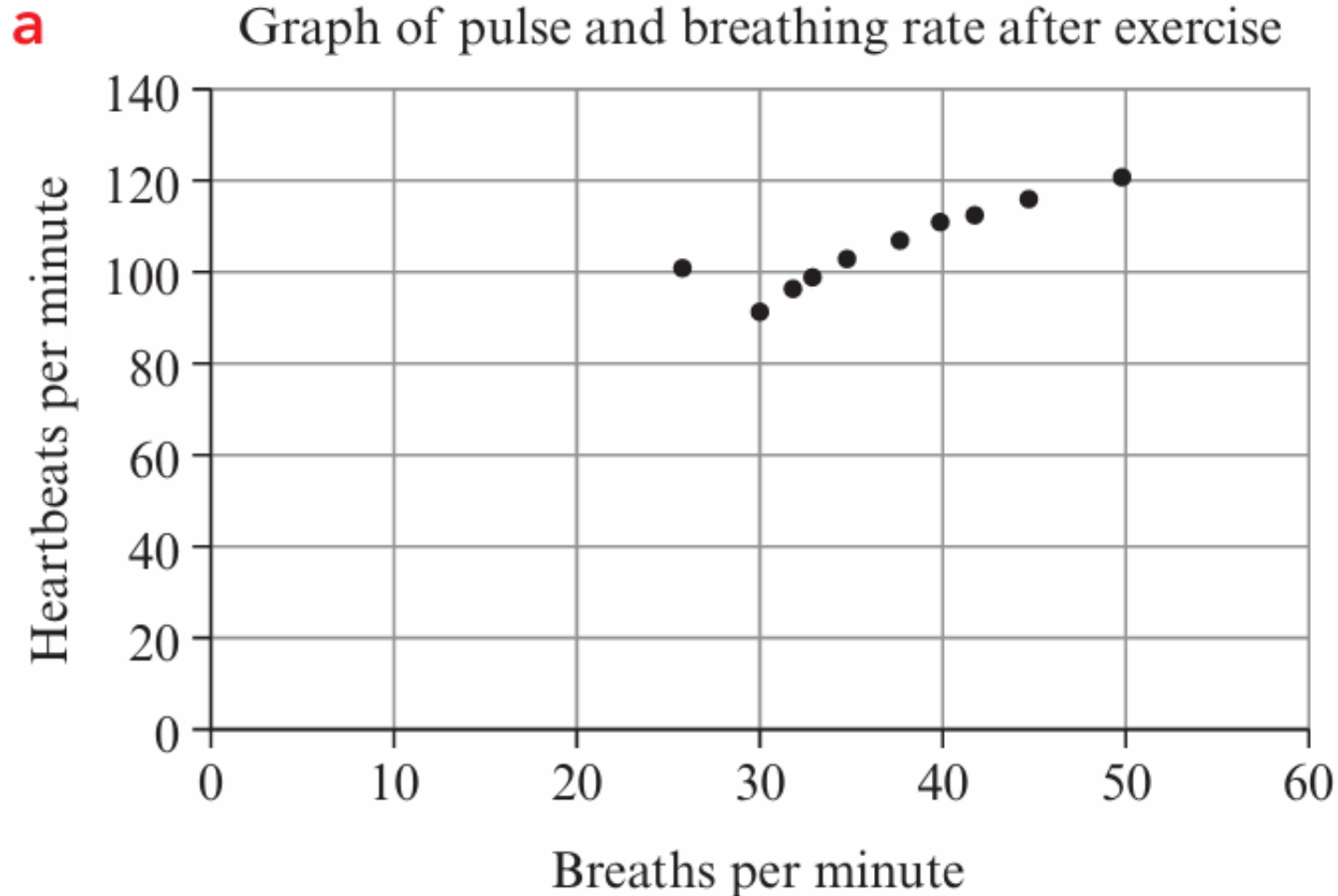
## Practice

2



3 Nose and mouth → windpipe → lungs → blood

# Workbook page 8+9



# Workbook page 9

- b -As the pulse rate increase, the breathing rate also increases during exercise.
- C-i -The person with a pulse rate of 100 heartbeats per minute and a breathing rate of 26 breaths per minute.
- li- the breathing rate was not accurately measured, or the person had a very large lung capacity.

# Workbook page 10

- D- Accept answers of between 116 and 124 heartbeats per minute.
- E- After jogging on the spot for three minutes, a person with a high breathing rate has a higher pulse rate than a person with a low breathing rate

# Workbook page 10

- 1 Reproduction – making more individuals of the same kind of living thing  
Puberty – the age at which a person becomes able to reproduce  
Ovum – female sex cell  
Fertilisation – joining of a male sex cell and female sex cell  
Uterus – the baby develops here  
Testis – male sex cells are made here  
Sperm – male sex cell  
Ovary – female sex cells are made here

# Learner's book page 11

## Practice

**2**   **a**   C;      **b**   B;      **c**   B;  
     **d**   A;      **e**   C

# Workbook page 12

- 3
- a- Any three from: period starts , breasts develop , hips get wider
- b-i 12 years
- ii 35
- C-i 11
- ii 7
- D- i Puberty starts when girls have an average mass of 45 to 47 kg.
- ii Body mass
- iii Types of food

# Workbook page 14

## > 1.4 Diseases

### Focus

1 Mark each one of these statements about diseases as true (✓) or false (X).

a All infectious diseases are caused by viruses.



b A parasite lives on or in the body of another living thing.



c Living things that spread diseases always get the disease themselves.



d Diseases can be spread when we cough or sneeze.



e Washing hands with soap and water will stop germs spreading.



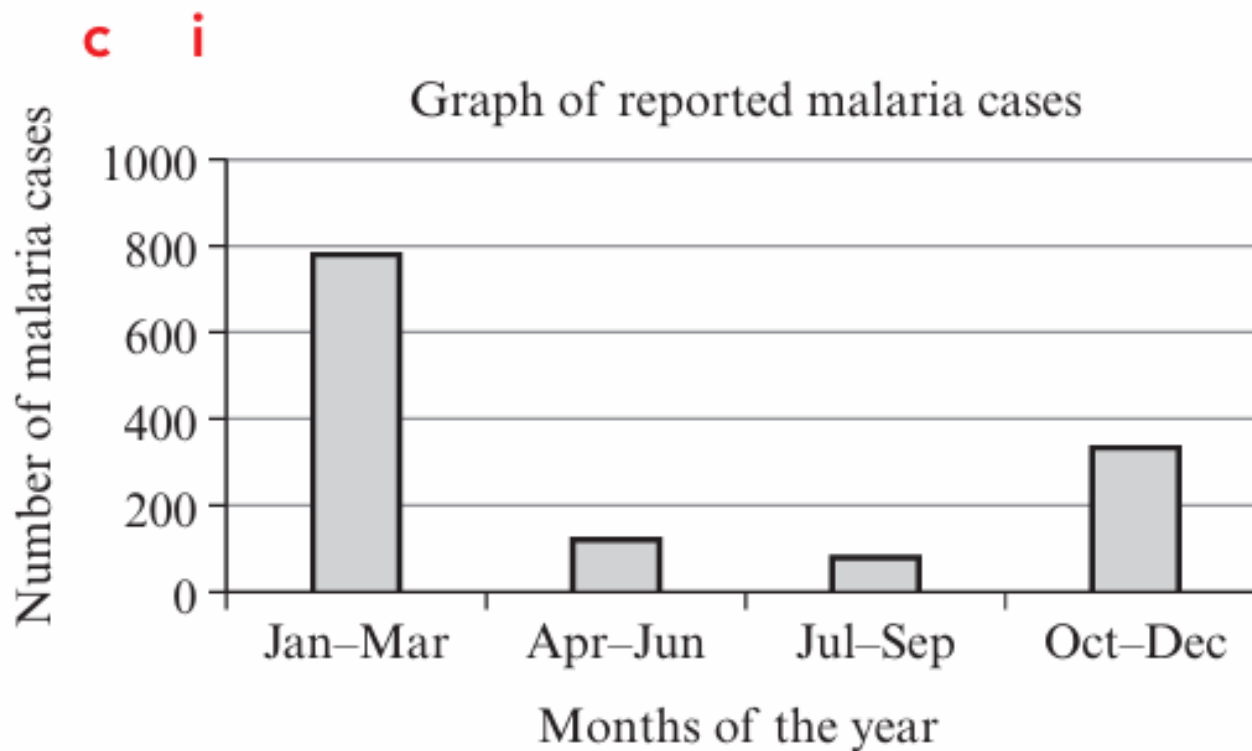
f Adding salt to water will make it safe to drink.





# Workbook page 16

- 3) a -By a parasite
- B- Mosquitoes spread the malaria parasite but do not cause the disease or get it themselves.



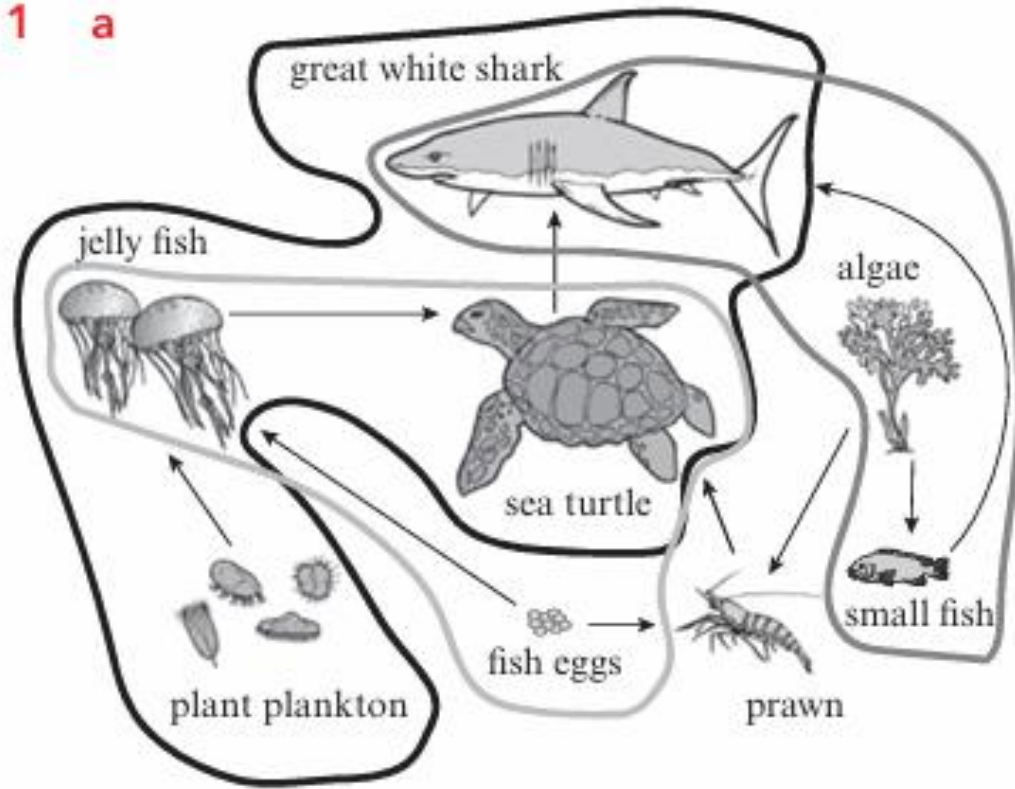
# Workbook page 17

- ii January to March
- iii July to September
- iv The fewest cases occurred in the dry season and the most cases in the wet season. Mosquitoes breed in the wet season.
- Any three from:
  - • sleep under bed nets
  - • wear long sleeves and long pants
  - • keep doors and windows closed at night when mosquitoes are active
  - • use insect repellents on their skin to keep insects away
  - • burn mosquito coils to keep insects away

# Workbook page 51

## Focus

1 a



## Practice

2 a

algae → prawn → sea turtle → great white shark

Small fish → prawn → sea turtle → great white shark

b- how energy flow from one living thing to another

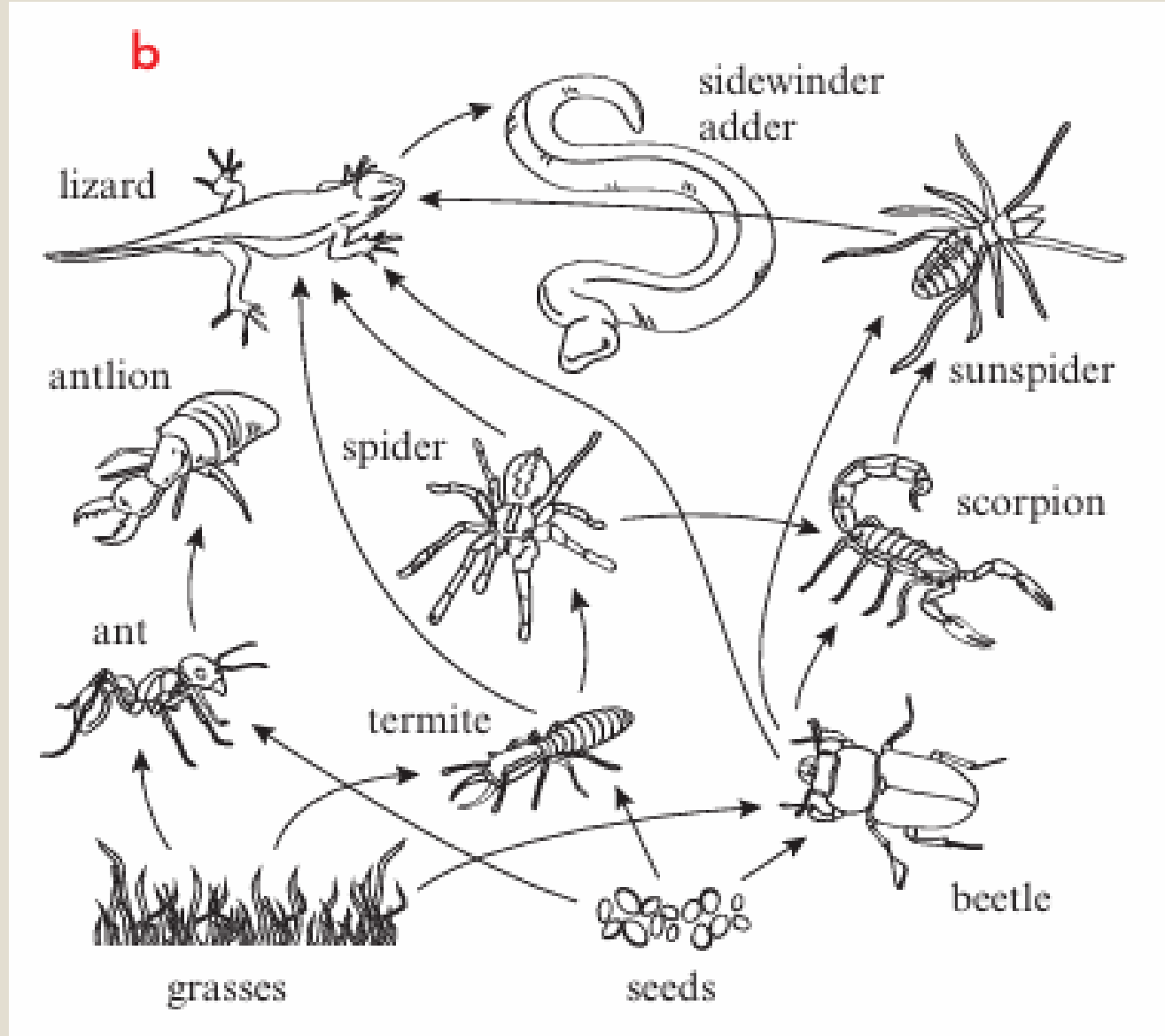
# Workbook page 52+53

- b** Plant plankton, algae
- c**
  - i** Small fish
  - ii** Jelly fish, prawn
  - iii** Sea turtle, great white shark
- d** The Sun
- e** Great white sharks are predators of the sea turtle. If there were no more of them, the numbers of sea turtles would increase because no other animals in the food web eat them.

# Workbook page 53+54

- grass/seeds → ant → ant lion
- grass/seeds → termite → spider
- grass/seeds → termite → lizard → sidewinder adder
- grass/seeds → termite → spider → lizard → sidewinder adder
- grass/seeds → termite → spider →  
→ scorpion → sun spider → lizard → sidewinder adder
- grass/seeds → beetle → lizard → sidewinder adder
- grass/seeds → beetle → sun spider → lizard → sidewinder adder
- grass/seeds → beetle → scorpion → sun spider → lizard → sidewinder adder

# Workbook page 54



# Workbook page 55

- C** Most consumers eat more than one kind of living thing. Producers are usually eaten by many different herbivores or omnivores. Most herbivores are eaten by more than one carnivore or omnivore. A food web shows all the possible food chains a living thing can be part of in its habitat.

# Workbook page 56+57

**2**   **a**   True

**b**   False

**c**   False

**d**   True



# Workbook page 56+57

## Practice

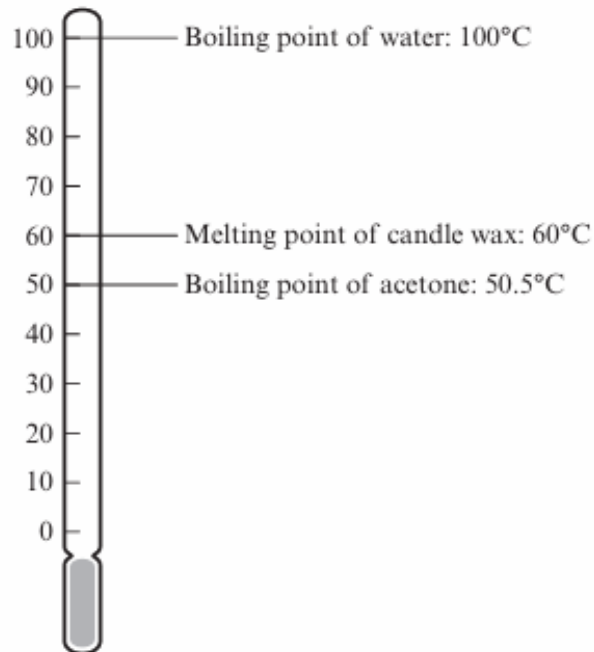
- 3**   **a**   it  
was released into the river by a factory or mine; it washed in from soil runoff from farmland sprayed with pesticides.
- b**   The heron
- c**   Sixty times more
- d**   **i**   The quantity of chemical X increases with each link in the food chain. This means that the higher the living thing is in the food chain, the greater the quantity of chemical X it has.

- ii**   Each living thing in the food chain eats more than one of the living things below it in the food chain. So, the greater the number of any kind of living thing eaten, the greater the quantity of chemical taken in. This is because the chemical stays in the bodies of the things that are eaten.

# Workbook page 18+19

## Focus

- 1 Boiling point is a property of a substance, so different substances will have different boiling points.
- 2 **a** Cooking oil      **b** Nail polish remover  
**c** About 130 °C      **d** Evaporation
- 3 Temperatures marked off at 50.5 °C, 60 °C, 100 °C.



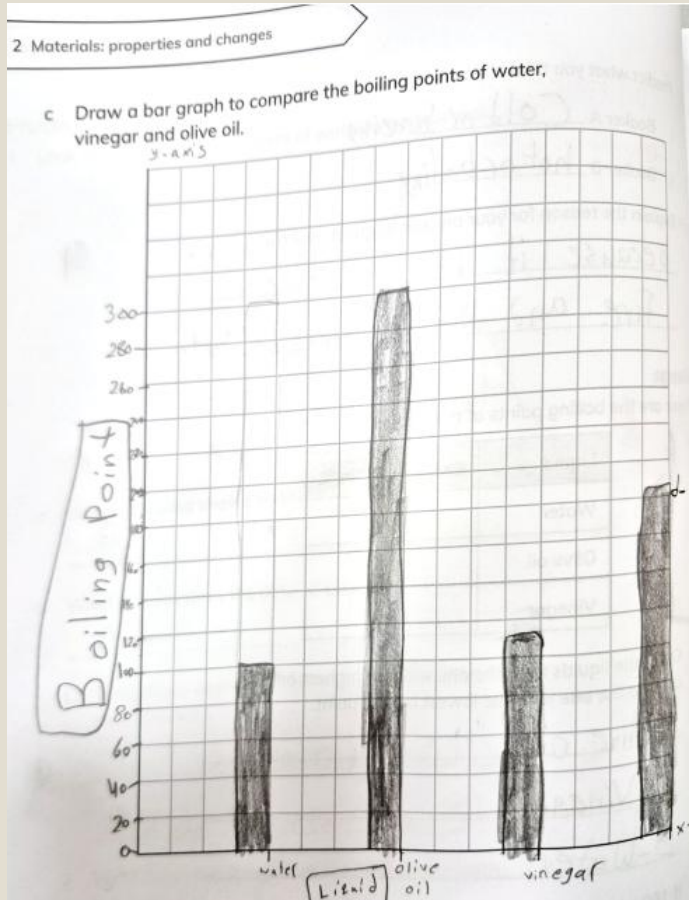
# Workbook page 20 +21

## Practice

- 4 a** Drawing B
- b** Evaporation
- c i** In both processes liquid water changes into water vapor gas.
- ii** Boiling happens when water is heated to 100 °C; evaporation happens at much lower temperatures; bubbles of gas form throughout the liquid in boiling, no bubbles form in evaporation.
- d i** Beaker A – any temperature in normal room temperature range of about 20–30 °C
- ii** Beaker B: 100 °C
- e** Boiling point is a property of a substance, and we know that water boils at around 100°C, or similar answer.

# Workbook page 21+22

- 5 a Olive oil, vinegar, water  
b Water



- d Bar with height at 184 °C added to graph
- e Cooking oils boil at a much higher temperature than water. So, a burn from boiling oil will be much worse and more dangerous than a burn from boiling water.

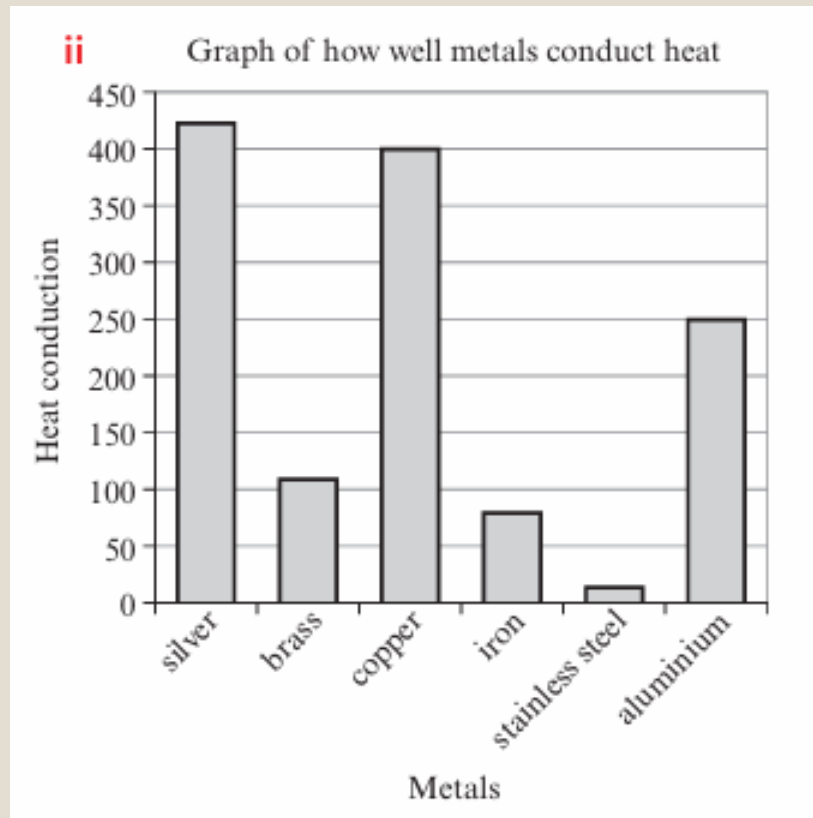
# Workbook page 23+24

- 1 a i- All the metal parts: filament, wires, base
- ii -The glass bulb
- b -Plastic is electrical insulator.
- . c i Metals are good thermal conductor .
- . ii wood is good thermal insulator.

# Workbook page 24+25

- 2 a i -Silver, copper, aluminium, brass, iron, stainless steel

◦

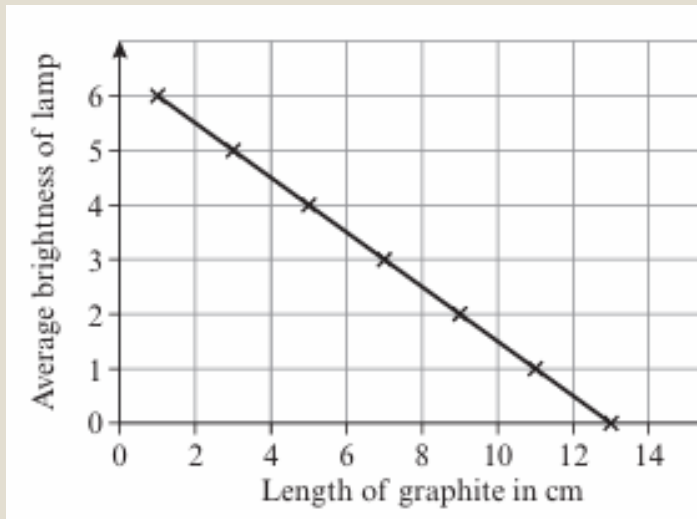


- b** Copper is a good heat conductor, so it transfers heat from the stove quickly to the food in the pot.
- c** Silver is much more expensive than copper, and copper is almost as good a heat conductor as silver.
- d** Copper and brass are good heat conductors, so they transfer heat away from the engine quickly to stop it overheating.

# Workbook page 26+27

- 4 a
- Dependent variable – brightness of lamp
- Independent variable – the length of the graphite
- Control variables – the circuit components

◦ B-



# Workbook page 27+28

- C-More reliable value for the graph.
- D-The brightness of the lamp increases as the length of graphite decreases.
- e- plot a brightness of 6 on the graph for a 1 cm length of graphite.
- f-Graphite is a conductor and a non conductor of electricity. The answer depends on the length of graphite used. Longer lengths will conduct little or no electricity.



# Workbook page 29

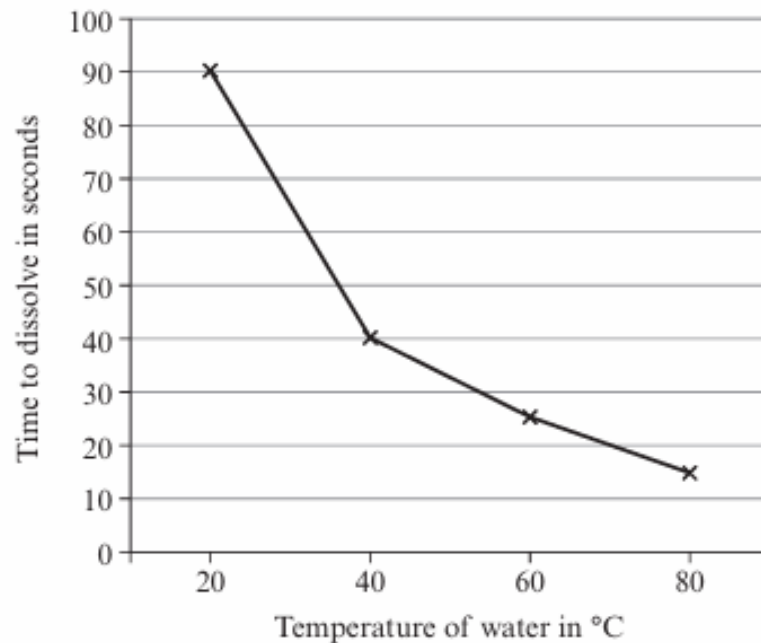
- 2**
- a** The quantity of solute, one beaker is heated and the other is not.
  - b** The quantity of water, the size and shape of the beaker, and the material that the beaker is made from.
  - c** The quantity of solute and whether or not the solvent and solute is stirred.
  - d** No. The quantity of solute in the two beakers is different. In a fair test all factors must be the same except the factor being tested.

# Workbook page 31+32

## Challenge

- 4 a i Time taken for sugar to dissolve  
ii Water temperature  
iii Quantity of sugar, quantity of water

b Graph of time taken for sugar to dissolve in water at different temperatures



- c The time taken for the sugar to dissolve decreases as the temperature of the water increases.
- d Increasing the temperature makes solutes dissolve faster/sugar dissolves faster as the water temperature increases (or similar conclusion).

# Workbook page 33+34

## Focus

- 1**   **a**   A new substance or product forms.
- b**   Sulfur, iron
- c**   Iron sulfide
- 2**   A gas is produced; there is a change of colour;  
      there is a change in temperature.

## Practice

- 3**   **a**   B                      **b**   B                      **c**   C
- d**   A                      **e**   A

# Workbook page 35+36

## Challenge

- 4**
- a**
    - i** Carbon dioxide, water
    - ii** Glucose sugar, oxygen
  - b**
    - i** Observe bubbles of gas forming.
    - ii** Count the number of bubbles formed over a period of time.
  - c** Carbon dioxide comes from the air, water comes from the soil.
  - d** Living things need oxygen gas to stay alive/for respiration; animals cannot make their own food, so they have to eat plants or other animals that eat plants in order to get their energy.
  - e**
    - i** Photosynthesis
    - ii** Sunlight, chlorophyll