SCIENCE

Answer key for learner's book

Learner's book page 5

- **<u>Questions</u>**

- **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	
2	
3	

Step1-4

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

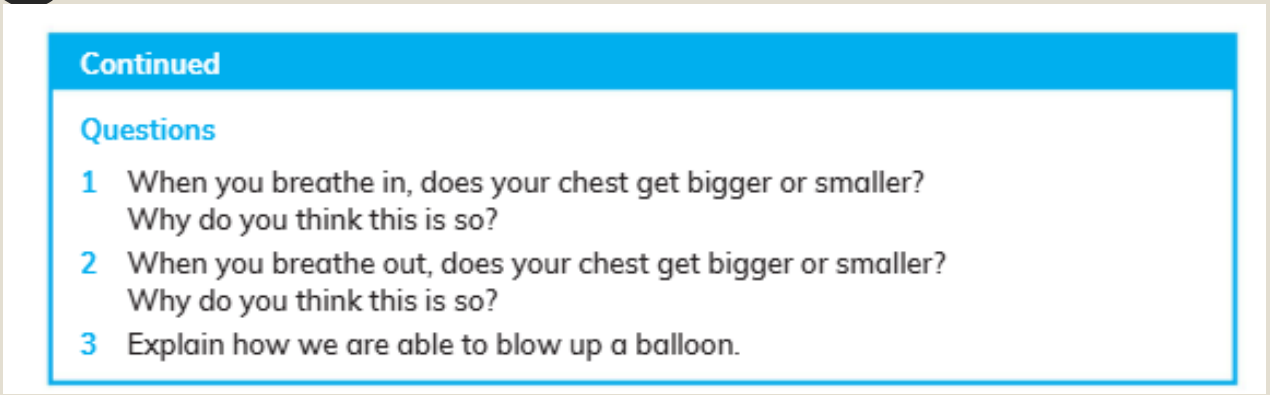
Think like a scientist 2

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

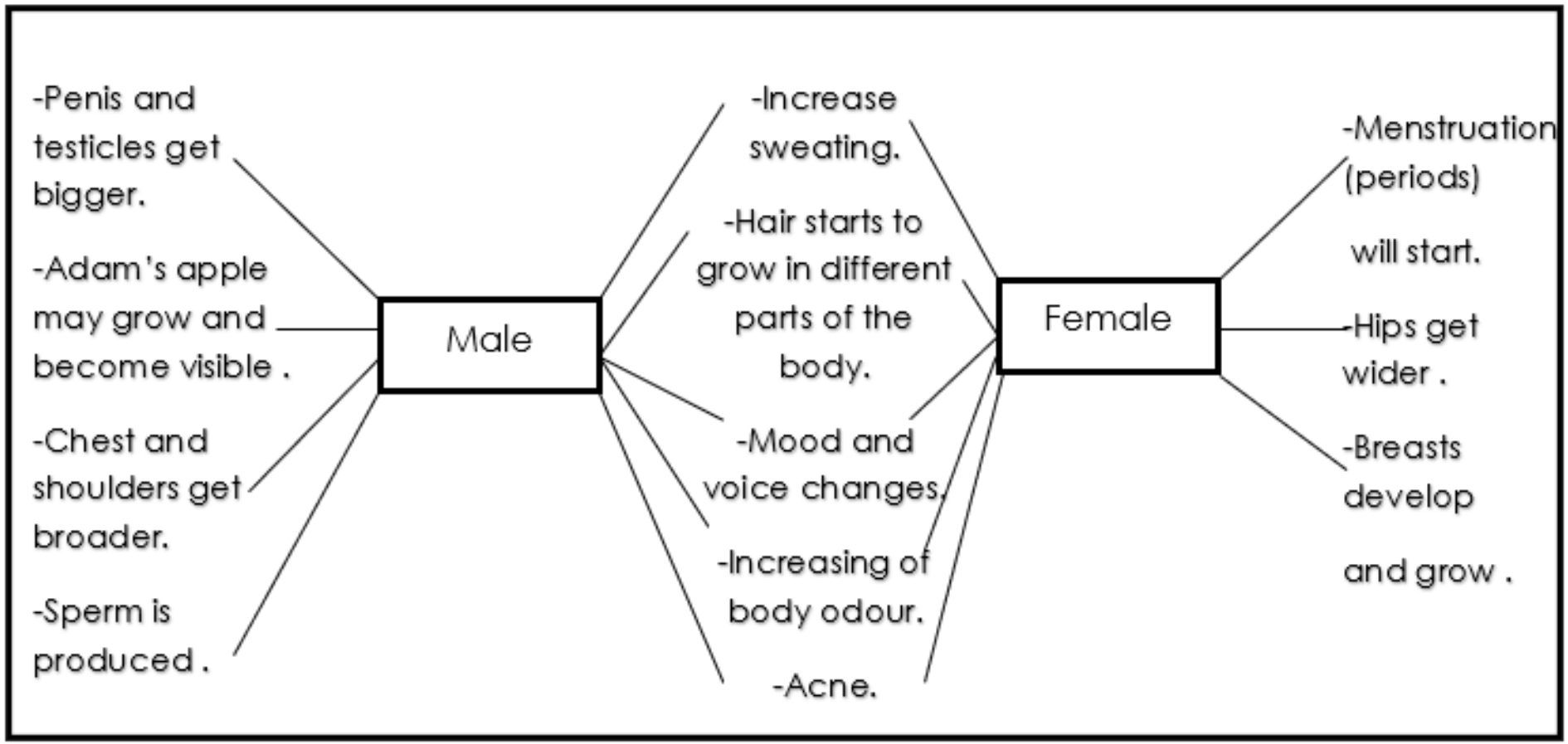
- Q2)The ribs

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 f ills 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



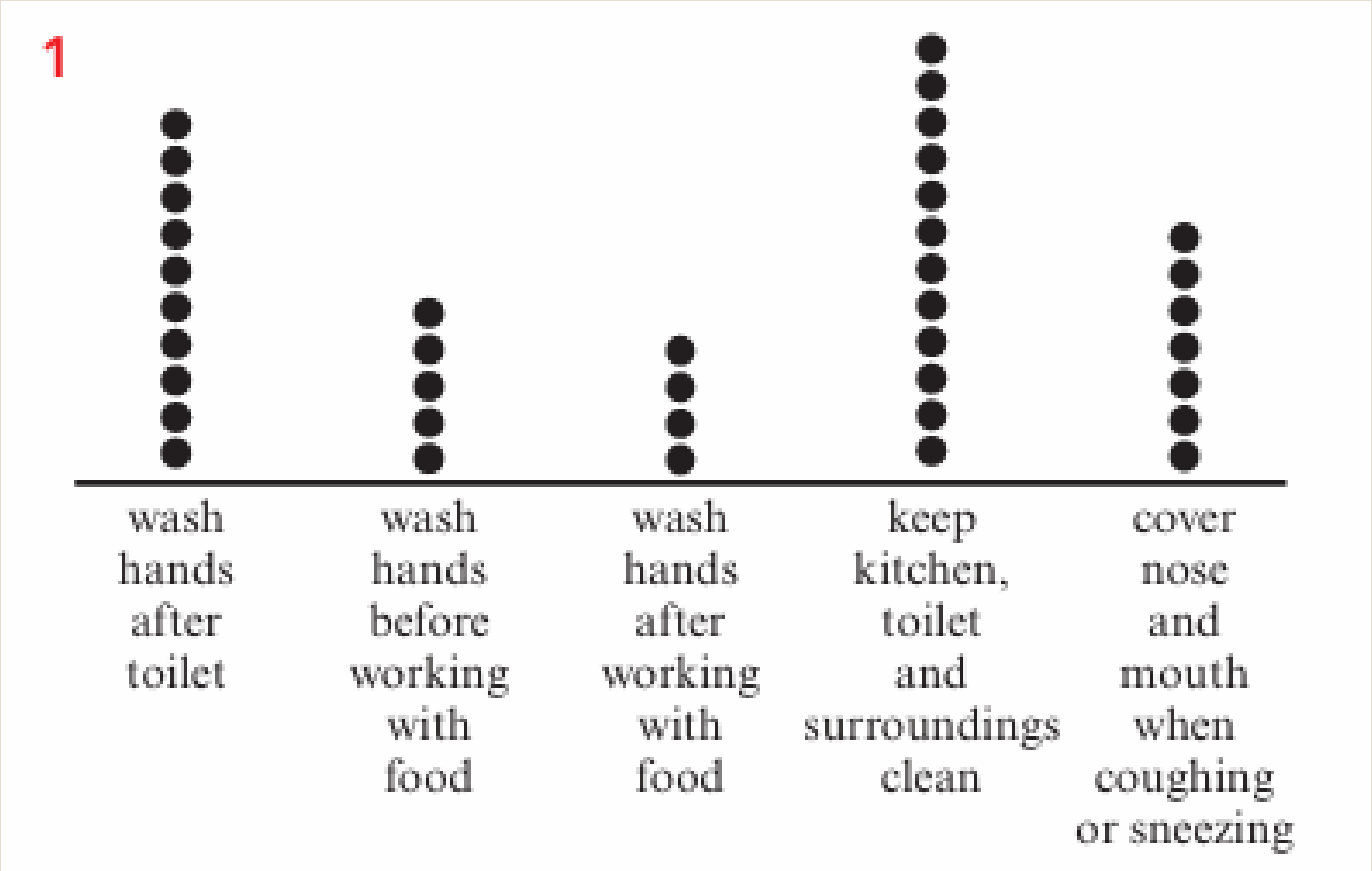
Learner's book page 28

- **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.

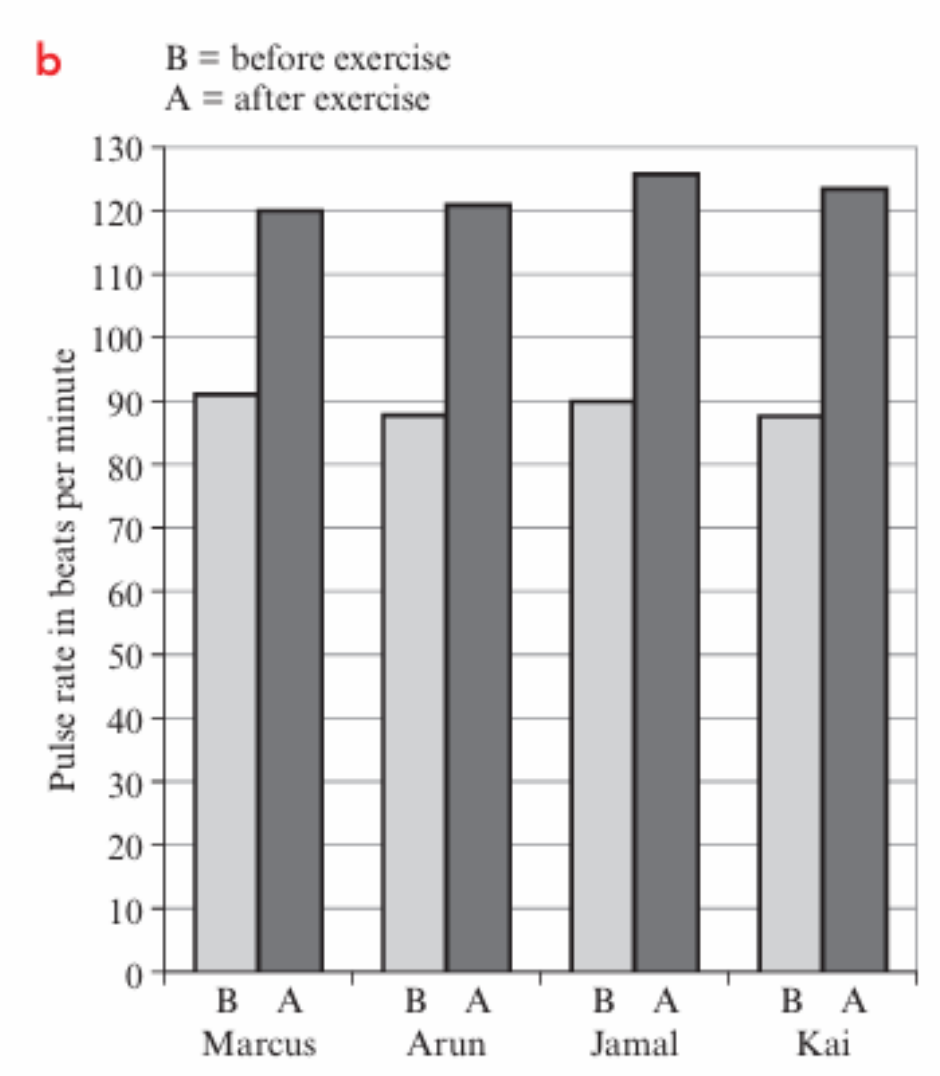
- 5-To stop germs from our bodies spreading through the air to other people.

- 6-Germs live and grow better in moist conditions; a dirty towel may have germs on it which rub off onto our hands.

Check your progress page 33+34

- 1 a False – the heart pumps blood around the body
- b True
- c False – your pulse rate tells you how fast your blood pressure
- 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

- Q2) a- pulse rate device / timer
- B-



- 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 .

- Q3) a Lungs / Tubes / Diaphragm
- b Oxygen
- c Carbon dioxide
- d Blood
- e Diaphragm
- f Ribs

- Q4) a-Puberty is the age at which a person becomes able to reproduce.
- B- Acne / increase sweating

- Q5) Tears – contain a chemical substance that kills some bacteria
- Mucus – traps germs
- Stomach acid – kills bacteria in food we have eaten
- Skin – stops bacteria entering the body

- B- stops germs entering the body

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

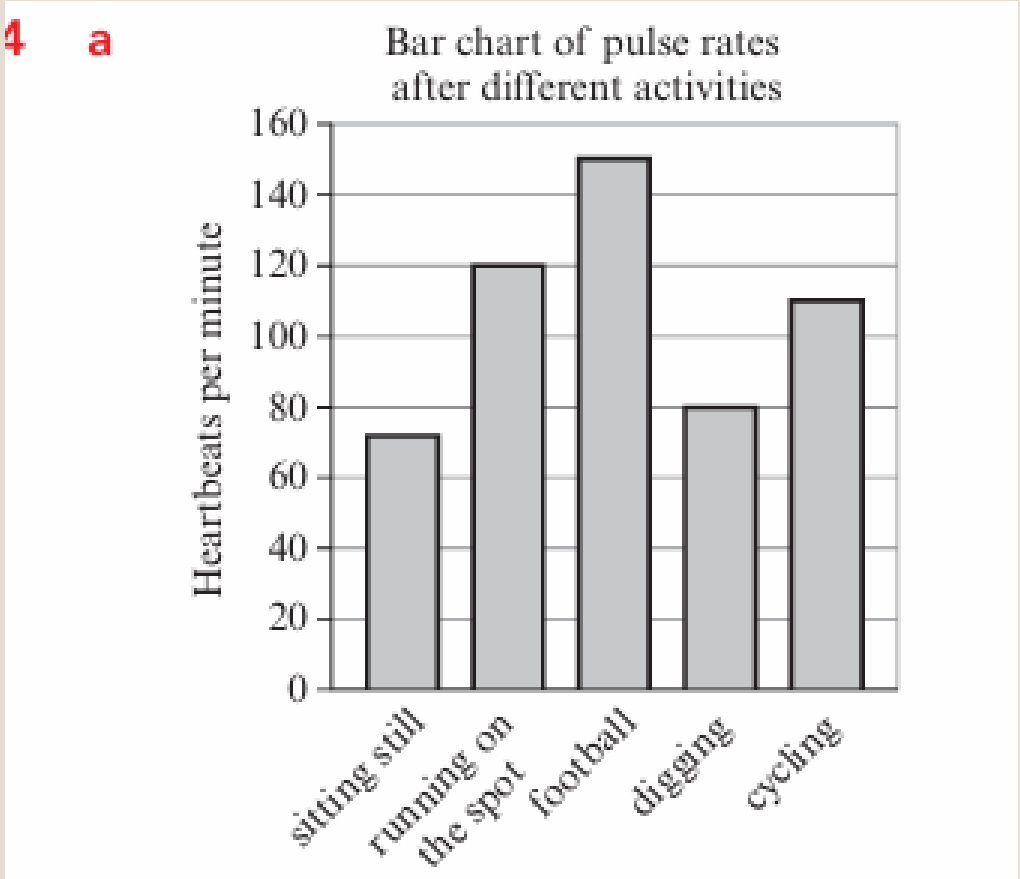
Practice

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.

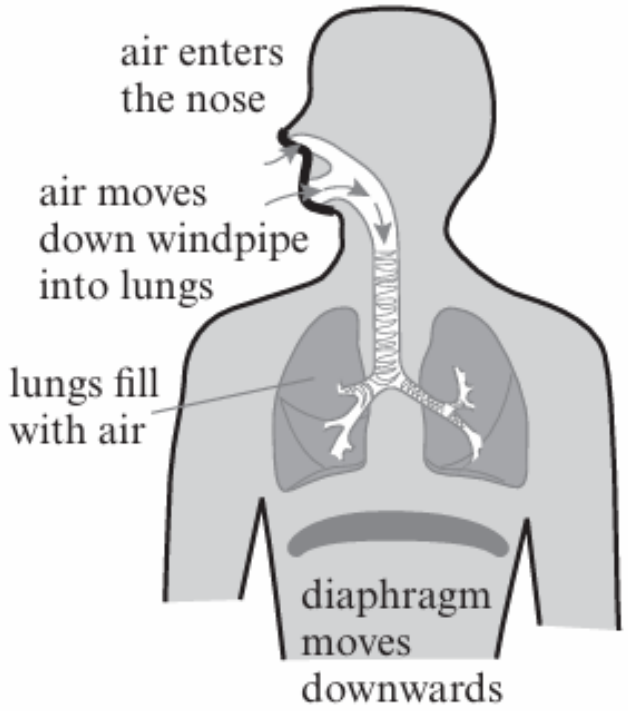
Workbook page 6

- 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

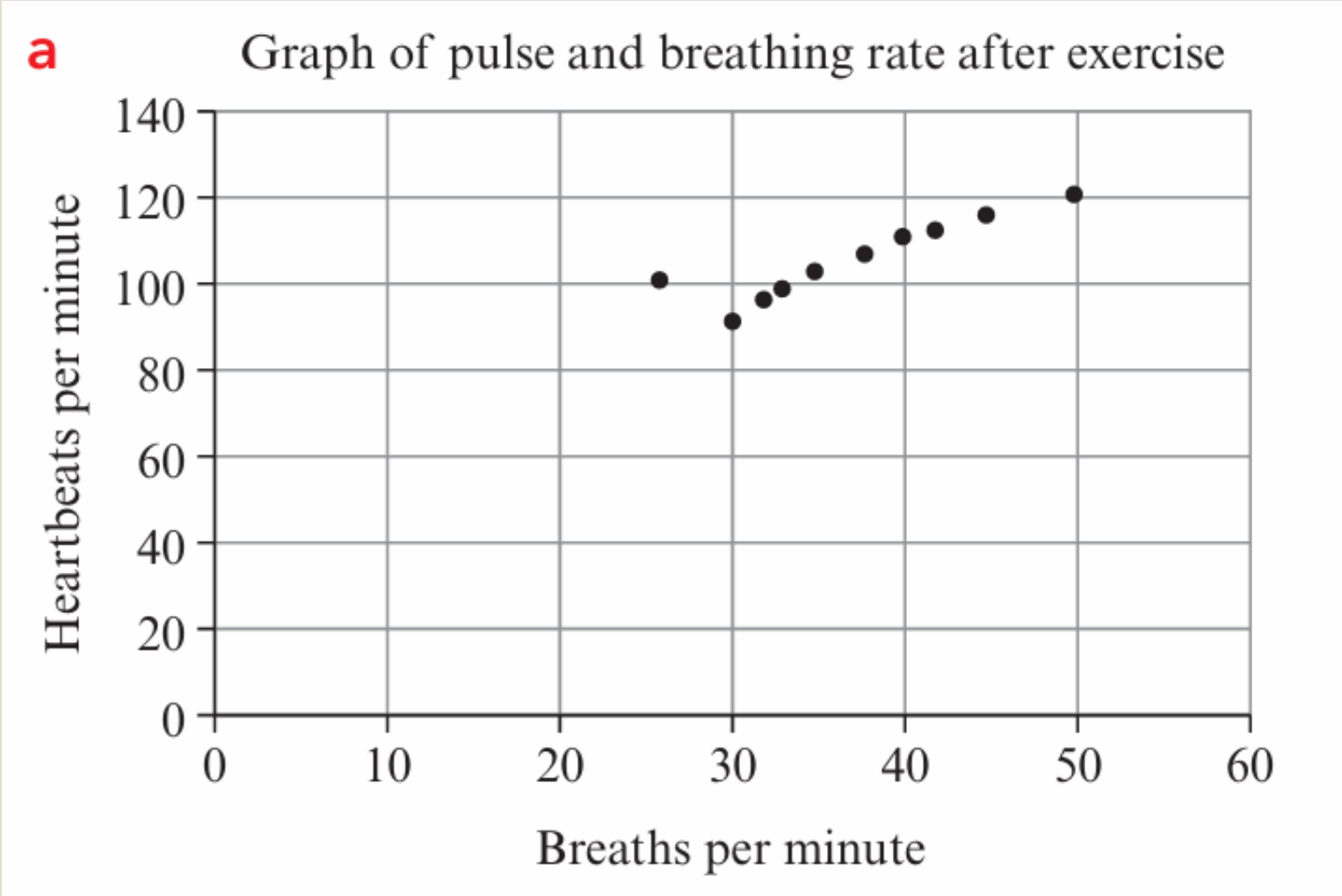
Practice

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.
- Ii- 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 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