

Macmillan Science

Workbook

5

 **MACMILLAN**
EDUCATION

Sample marketing text © Macmillan Publishers LTD

David and Penny Glover


MACMILLAN

Contents

Unit 1 Living things	4	8 What's in the air?	29
Human body	4	9 Using gases from the air	31
1 Food and nutrition	4	End-of-unit test 2	32
2 Food groups	6	Unit 3 Our Earth	35
3 A balanced diet	7	Water supply	35
4 Food and energy	9	1 Water from different sources	35
5 Digestion	10	2 The water cycle	37
Ecology	11	3 Water and disease	38
6 Producers and consumers	11	4 Purifying water	39
7 Energy flow in a food chain	12	5 Conserving water	40
8 Ecosystems	13	The atmosphere	41
9 Threats to the environment	14	6 The atmosphere	41
10 Conservation	15	7 Air pollution	42
11 The 3Rs – reduce, reuse, recycle	16	8 Cleaning the air	44
End-of-unit test 1	17	9 Global warming	45
Unit 2 Matter and materials	20	The Earth's features	46
Types of matter	20	10 The changing Earth	46
1 Elements, compounds and mixtures	20	11 Volcanoes	47
2 Physical and chemical changes	22	12 The rock cycle	48
3 Mixtures and solutions	23	13 Earthquakes	49
4 Separating mixtures	24	14 Earthquakes and people	51
Water and air	25	15 Shaping the landscape	52
5 The properties of water	25	End-of-unit test 3	54
6 Using water	26		
7 The properties of air	27		

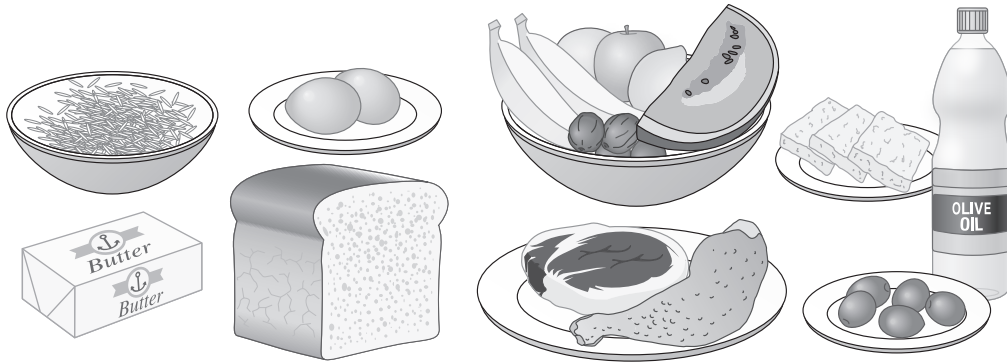
Unit 4 Forces and energy	57	Electricity and magnetism	77
Motion, forces and machines	57	20 Static electricity	77
1 Types of motion	57	21 Electric circuits	78
2 Forces and their effects	58	22 Circuit projects	79
3 Simple machines	60	23 Magnetic materials	80
4 Levers	61	24 Magnetic poles	82
5 Pulleys	62	25 Using magnets	83
6 Screws	63	End-of-unit test 4	84
7 Gears	64	Unit 5 Astronomy	88
8 Using machines	65	1 Day, night and the seasons	88
9 Investigating friction	66	2 The phases of the moon	89
10 Using friction	67	3 Eclipses of the sun and the moon	91
Light	68	End-of-unit test 5	92
11 Light and seeing	68		
12 Light and materials	69		
13 Making shadows	70		
14 Reflection	71		
15 Refraction	72		
16 The eye	73		
17 Investigating lenses	74		
18 Optical instruments	75		
19 Colour	76		



Sample marketing text © Macmillan Publishers LTD

Food and nutrition

1. Label these foods as coming from plants (P) or animals (A).



2. Unscramble the letters to make the names of five nutrients.

(If you are stuck look at this topic in your Pupil's Book for possible words.)

3. Write the name of the nutrient for each of these descriptions.

- a They provide energy. Digestion breaks them into simple sugars. _____
- b Needed for growth and repair. _____
- c They supply energy and are used to build some body parts; excess is unhealthy.

- d Special substances the body needs in small amounts but cannot make itself.

- e Simple substances the body needs to build bones and perform other tasks.



4. Explain briefly the importance of each of these minerals in the diet.

a iron

b calcium

c salt

Use the library and the Internet to learn more about the different minerals the body needs, and the foods that provide them.

Choose a mineral and write a brief report on it to present to the class.

 **MACMILLAN**
EDUCATION

Sample marketing text © Macmillan Publishers LTD.

5. Circle the word that matches the description.

a These living things obtain nutrition from sunlight, air, water and soil.
plants / animals / bacteria

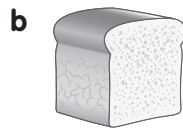
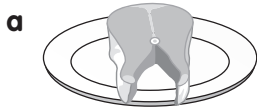
b These living things obtain nutrition by eating other living things.
plants / animals / bacteria

c This process breaks the food we eat into simpler substances that the body can use.
digestion / respiration / excretion

d This substance does not provide nutrition, but helps waste pass through the digestive system.
protein / fat / fibre

Food groups

1. Write the name of the main nutrient in each of these foods.



2. Mark each of these statements as true (✓) or false (✗).

- a Rice is a good source of protein.
- b Milk contains carbohydrate, protein, fat, minerals and vitamins.
- c Humans are adapted to survive by eating only one type of food.
- d Foods that contain fat turn an iodine solution black.

3. Look at the results of these food tests on foods A, B and C. Answer the questions.

- a Which food (or foods) contains starch? _____
- b Which food (or foods) contains fat? _____

distilled water

iodine solution

A B C

food rubbed on filter paper

paper washed

A B C

4. What foods have you eaten in the past 24 hours? What nutrients do these foods contain? Write the name of the food you have eaten for each of the food types listed below.

- a A food from a plant. _____
- b A food from an animal. _____
- c A protein-rich food. _____
- d A carbohydrate-rich food. _____
- e A fatty food. _____
- f A mineral-rich food. _____
- g A vitamin-rich food. _____
- h A food that contains fibre. _____



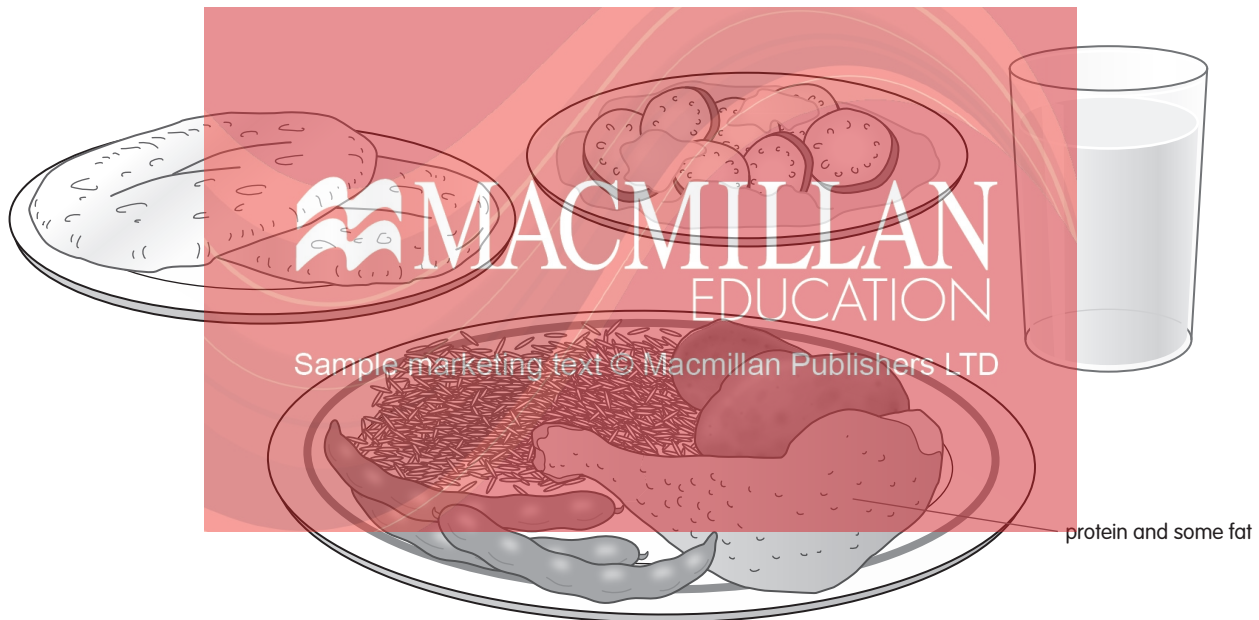
A balanced diet

1. Unscramble the words to make sentences that describe a balanced diet.

healthy to We mixture stay must eat a of foods different

contains A diet balanced carbohydrates, proteins, vitamins, minerals and some fat

2. Label the diagram. Label foods in this meal with the nutrients they provide. The chicken, for example, provides protein and some fat.



3. List *four* important uses of water in the body.

- a _____
- b _____
- c _____
- d _____



4. The tables below give the water intake and water losses for two people during a day. Answer the questions.

Person A

Water intake in cm^3	Water losses in cm^3	
2800	urine	1500
	sweat	1000
	breathing out	400
	faeces	150

Person B

Water intake in cm^3	Water losses in cm^3	
2400	urine	1400
	sweat	550
	breathing out	370
	faeces	80

- a Which person may be dehydrated? _____
- b Which person's water is in balance? _____
- c Explain how you know.

 **MACMILLAN**
EDUCATION

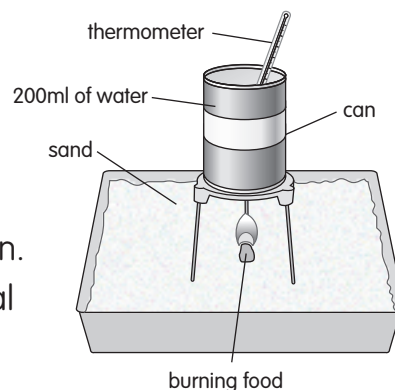
Sample marketing text © Macmillan Publishers LTD



Food and energy

Activities 1, 2 and 3 refer to the experiment below.

Class five compared the energy content of different foods. They used a candle to set fire to a 2 g sample of each food. They used the burning food to heat 200 ml of water in a tin can. They measured the initial temperature of the water and its final temperature when the sample had stopped burning. These are their results.



Food	Initial water temperature (°C)	Final water temperature (°C)	Temperature rise (°C)
dry bread	22	40	
nut	25	63	
chocolate	24	78	

1. Complete the table by calculating the rise in water temperature each sample produced.

2. Answer the questions.

- a Which food sample contained the greatest amount of energy per gram? _____
- b Which food sample contained the least amount of energy per gram? _____
- c Explain how you know.

3. Explain briefly why the class took care to use the same mass of food and the same volume of water for each test.

4. Look at these food labels. Explain why it is better to snack on bread or dates than on chocolate.

Pitta bread
Energy per 100 g
275 calories

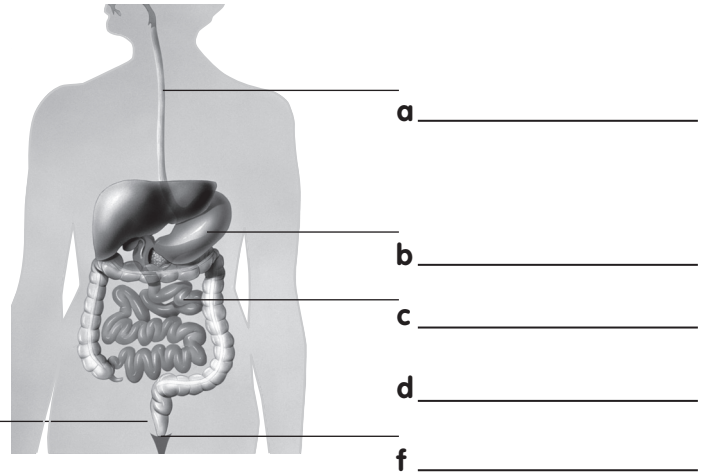
Dates
Energy per 100 g
280 calories

Chocolate
Energy per 100 g
504 calories

Digestion

1. Label the parts of the alimentary canal.

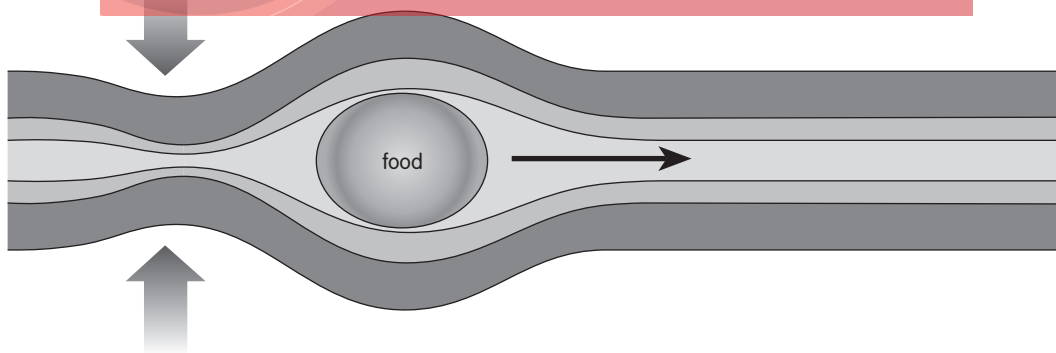
stomach gullet small intestine
anus rectum large intestine



2. Mark each of these statements as true (✓) or false (✗).

- a The alimentary canal is about 7 m long.
- b You cannot swallow food when you are upside down.
- c Digested food is absorbed in the stomach.
- d Bacteria help to digest food in your intestines.

3. You swallow a ball of food. Label this diagram to explain how the food is moved through your gullet.



4. You eat some bread and some dates. Describe briefly what happens to this food after you put it into your mouth.
