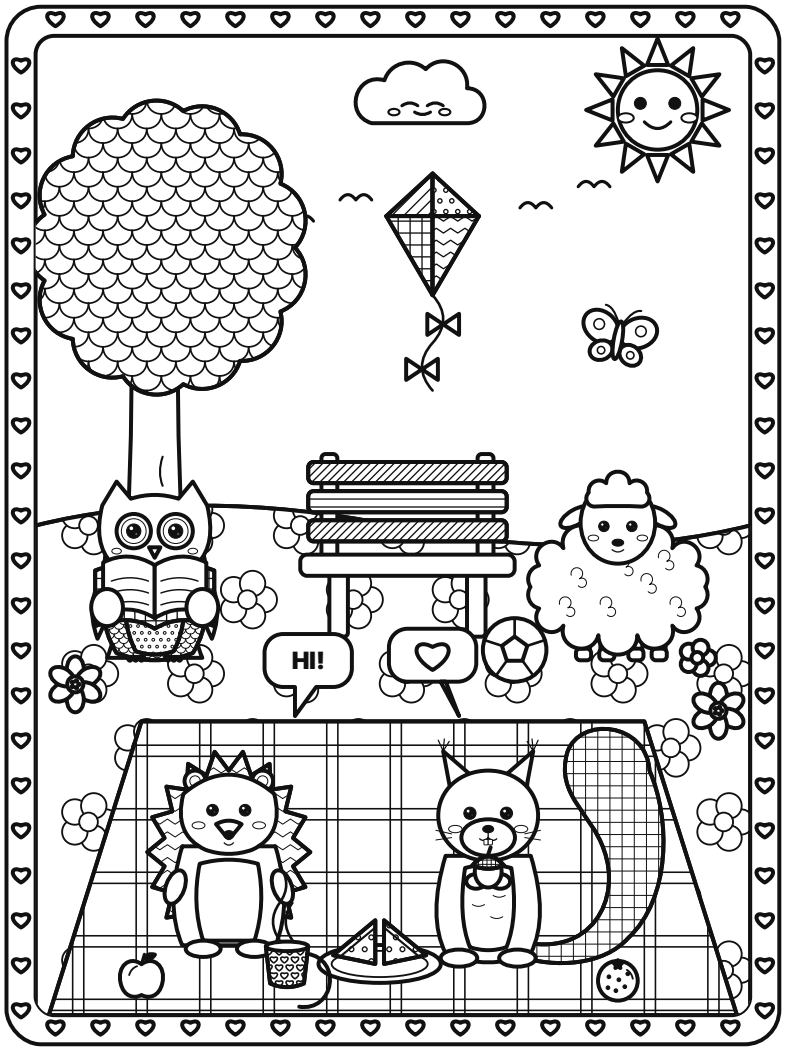
REAL-LIFE SCIENCE

Human Health

Workbook for National 4 Science

Unit: Human Health



C. Blewis

Blewis LEARNING

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How to use this book

This book is about your health: how your body works, what keeps it healthy, what can harm it, and how to tell whether a health claim is true. Each topic follows the same pattern, so you always know what comes next.

EACH TOPIC HAS

Opener	the story for the topic, what you will learn and the key words
Learn pages	short explanations with diagrams, and questions to try
Practical	You plan the investigation yourself, carry it out safely, take repeat readings, draw a graph and evaluate your method.
Brain break	a calm puzzle or colouring page
Check-up	a few questions to show what you know, and a checklist

PRACTICAL WORK: STAY SAFE

- Only start a practical when an adult says it is OK.
- Read the whole method and the Stay safe table first.
- Tell your teacher about anything that might affect you, like asthma or an allergy.
- Stop and tell an adult if you feel unwell or something goes wrong.

NO LAB TODAY?

Every practical has a set of example results. If you could not do the experiment, use these to finish the results, graph and conclusion.

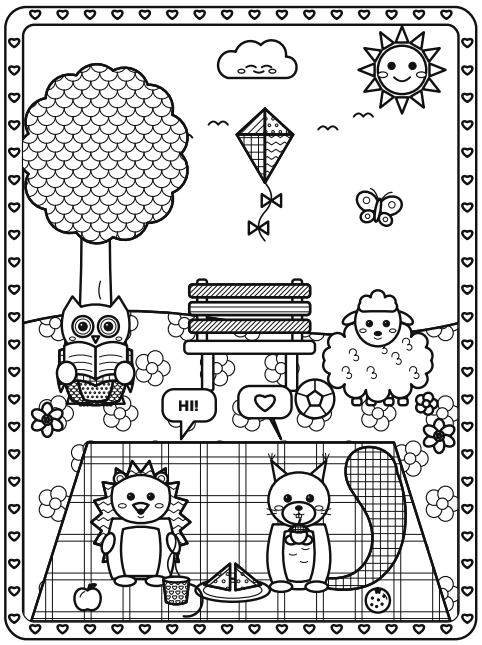
DOODLE CORNERS

Some pages have a doodle corner. Colour it or doodle in it when you need a short break.

What does healthy mean?

Being healthy is more than not being ill. It is about your body, your mind and the people around you.

Theme: health week. It is health week at the Glen Arrin Youth Club. Ruby, Jay and Amir are running a health check stall. Visitors can find out about the health triangle and have their temperature taken. Help them get it right.



IN THIS TOPIC YOU WILL LEARN TO

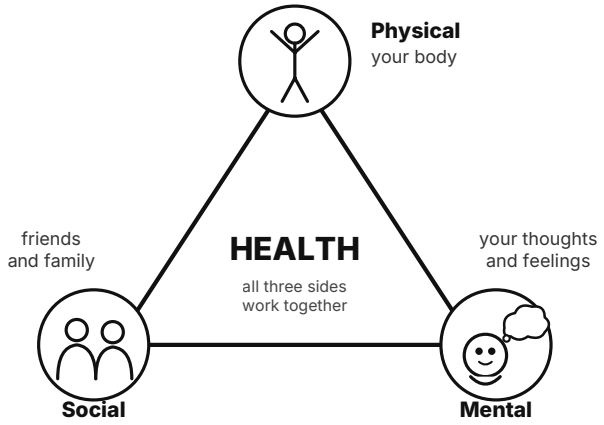
Skill 1	explain physical, mental and social health and how they affect each other
Skill 2	explain how body measurements give a health check
Skill 3	plan a fair test of two thermometers, with repeats and averages

KEY WORDS

Physical health	how well your body is working and growing
Mental health	your thoughts, feelings and how well you cope
Social health	your relationships and how you get on with others
Body temperature	how warm the inside of the body is, normally about 37 °C
Fever	a body temperature of 38 °C or above
Baseline	your own normal reading, taken when you are well

❶ The health triangle

Good health is more than not being ill. It means feeling well in your body, your mind and your relationships. The three sides are linked: if one side is weak, the others are often affected too.



KEY FACTS

Physical	how well your body works: sleep, activity, diet, hygiene
Mental	how you think, feel and cope with everyday stress
Social	your relationships and the support around you

1 Tick the side or sides of health each activity helps.

Activity	Physical	Mental	Social
Cycling to school with a friend			
Getting 8 to 10 hours of sleep			
Joining a drama club			
Writing down worries in a diary			

2 Finn breaks his leg and cannot play football for six weeks. Explain how this could affect his **mental** and **social** health, not just his physical health.

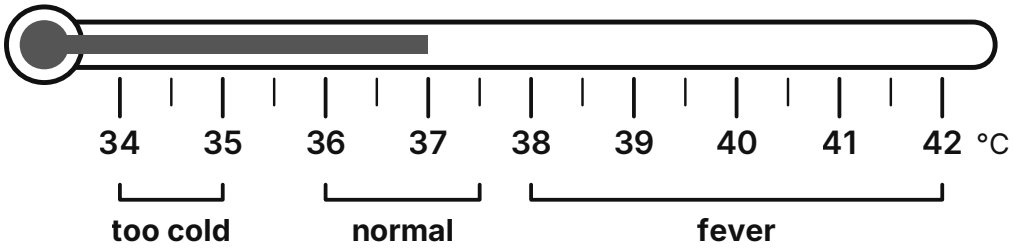
Answer:

3 Isla spends every weekend alone in her room gaming until late at night. Suggest **one** change that would help her health triangle, and say which side it helps.

Answer:

❷ Body temperature

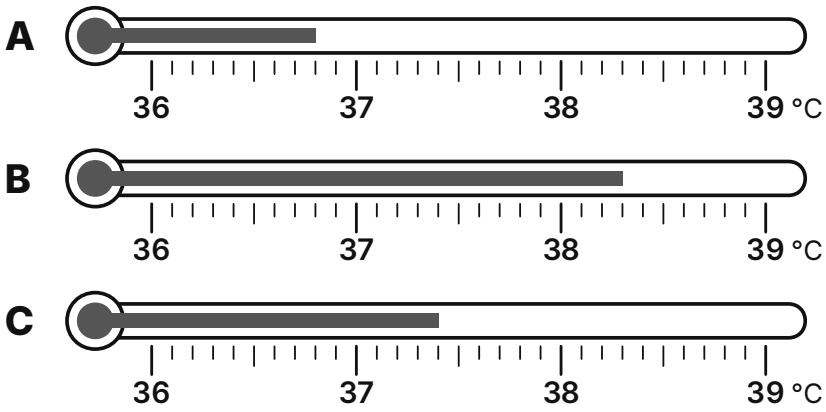
The body keeps its inside temperature steady at about **37 °C**. Most people are normally between about 36 °C and 37 °C. The chemical reactions in your cells work best at this temperature, so even a change of 1 or 2 °C can make you ill. A temperature of **38 °C or above** is a **fever**, often caused by the body fighting an infection. Below **35 °C** the body is dangerously cold. This is called **hypothermia**.



DID YOU KNOW?

Your temperature changes a little during the day. It is often lowest early in the morning and a bit higher in the late afternoon. Where you measure it (mouth, ear, armpit or forehead) also makes a small difference.

1 Read each thermometer to 1 decimal place. Each small mark is 0.1 °C.



A = ...

B = ...

C = ...

2 Which reading, A, B or C, shows a fever? Explain how you know.

Answer: .....

3 Mia's temperature rises from 37.0 °C to 38.6 °C. By how much has it risen?

Answer: .....

PRACTICAL 1

Plan it: comparing thermometers

AIM To find out if a **FOREHEAD STRIP** and a **DIGITAL THERMOMETER** give the same reading.

1 Variables

A fair test changes **one** thing and keeps everything else the same.

I will change the independent variable	
I will measure the dependent variable	
I will keep the same controlled variables (give two)	

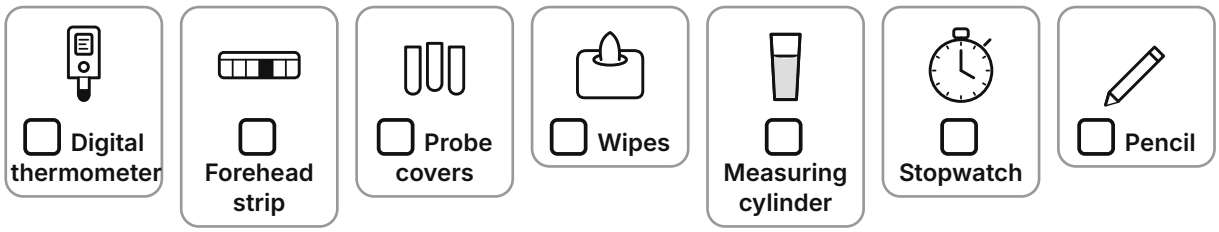
2 Prediction

I think that .....

because .....

3 Equipment

Tick the equipment you need. Not everything here is useful.



4 Stay safe

The first row is done for you. Add two more hazards.

Hazard What could cause harm?	**Risk** What could happen?	**Control** How will I stay safe?
Sharing a thermometer	Germs pass from one person to another	Use a new probe cover for each person and wipe the thermometer clean.

Method and results

5 Write your method

Write clear steps someone else could follow.

1. How will you get each person ready so the readings are fair?

2. How will you use the digital thermometer, and where on the body?

3. How will you use the forehead strip? How will you keep things clean between people?

4. How many times will you repeat each reading?

6 Results

Complete the headings, including units. Then fill in your results.

Person	Digital thermometer				Forehead strip			
				Average				Average

WORKING OUT AN AVERAGE

Add the repeats, then divide by how many there are. Readings 36.6, 36.8 and 36.7 °C: (36.6 + 36.8 + 36.7) ÷ 3 = 110.1 ÷ 3 = **36.7 °C**.

NO LAB TODAY? USE THESE RESULTS

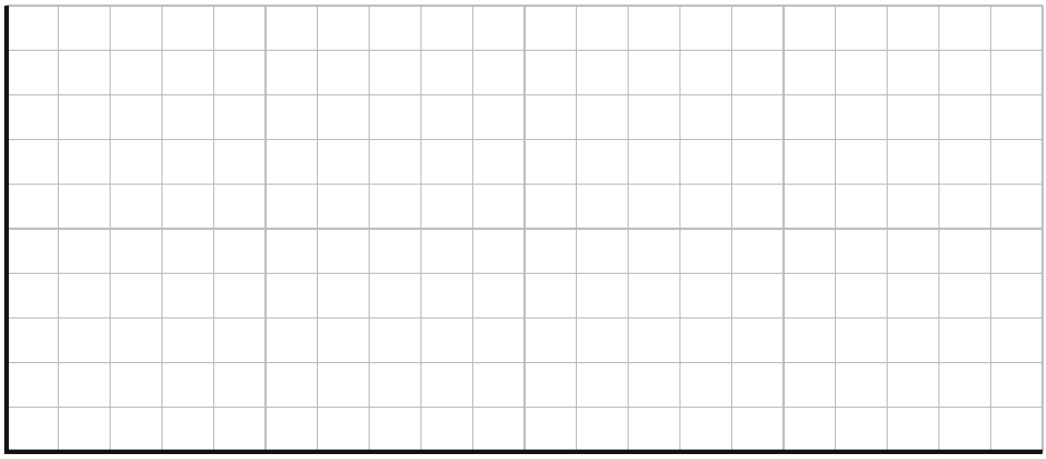
Person	Digital thermometer				Forehead strip			
	Trial 1	Trial 2	Trial 3	Average	Trial 1	Trial 2	Trial 3	Average
Ruby	36.6	36.8	36.7		37.0	36.5	37.0	
Jay	36.9	37.0	36.8		37.5	37.0	37.0	
Amir	36.4	36.5	36.3		36.5	36.0	37.0	

All readings in °C. Digital readings taken under the armpit. Work out the averages to 1 decimal place.

Analyse and evaluate

7 Draw a bar chart

Draw two bars for each person: one for each thermometer. Choose your own scale and add a key. Tip: start the temperature axis at 36 °C and show the break with a zigzag.



8 Conclusion

The two thermometers

9 Explain

a The digital thermometer and the strip did not always agree. Give **one** reason why.

Answer:

b Why is it fine for healthy people to have slightly different temperatures?

Answer:

10 Evaluate

a Which thermometer gave repeat readings that were closer together? What does this tell you?

Answer:

b Give one improvement to your method and explain how it would make the results more reliable or accurate.

Answer:

FREE SAMPLE

Human Health (N4 Science)

This sample shows a few pages. The full printed workbook is available from Amazon.

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