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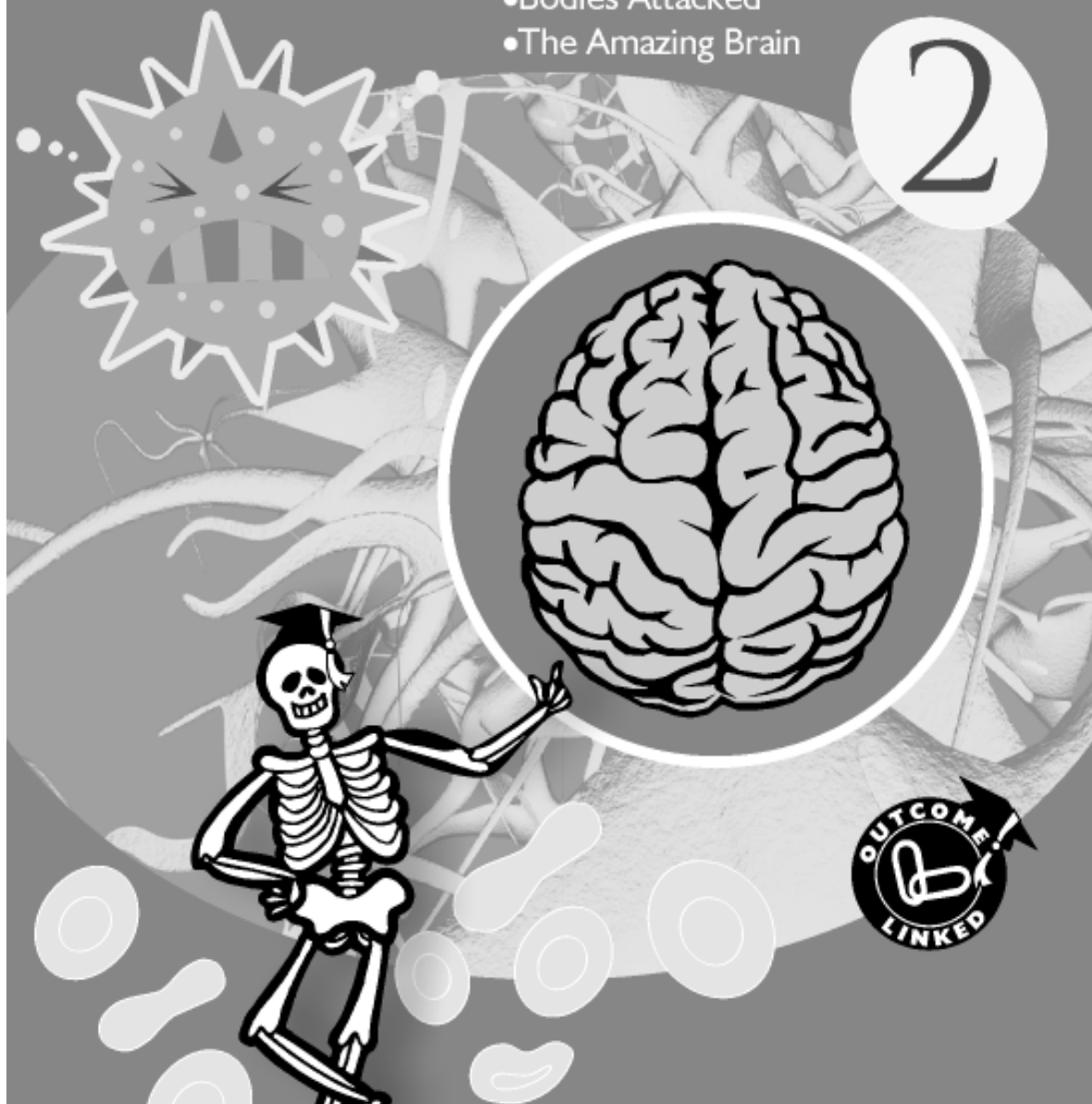
10+ YEARS

 PHOTOCOPY
MASTERS

BODY SCIENCE

- Bodies Attacked
- The Amazing Brain

2



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RATIONALE

Body Science was written for teachers who want lessons that are inspiring as well as being practical. For teachers, science lessons are too often associated with long lists of difficult to find equipment and experiments that do not account for the busy time schedule within a teaching day. *Body Science* provides a science experience which delivers easy to teach lessons packed with relevant, motivational information and tasks. This book covers scientific concepts as well as relevant skills and processes.

Body Science aims to entice students with the fascinating progress, studies and future projections that are being explored in the scientific world today.

Body Science is used as the title of this book as a general term, to incorporate an exploration of anatomy and physiology, historical views on the body and future directions for science in this field.

Students, like the rest of us, want to learn about the things that directly affect them. There is no better "real" learning experience than students gaining knowledge and insight into the structure and function of their own bodies. This book provides real answers to the kind of questions and topics that are interesting and relevant to students and teachers alike.

Body Science 2 consists of two sections: *Bodies Attacked* and *The Brain*.

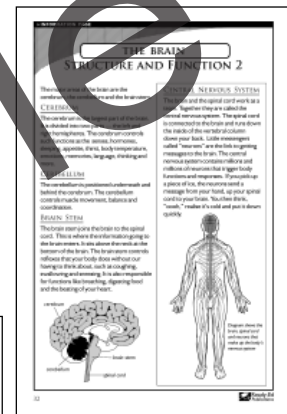
Each section explores the history of diseases, health and past views on body science; in the information pages titled *Looking Back* (see Example A).

At the end of each part is a section called "Hot Science" dealing with topical issues facing science today (see Example D).

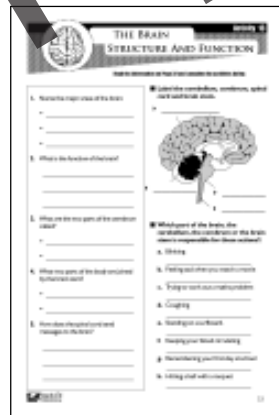
Because of the range of information and tasks included, this book also spans the *Society and Environment and Health* curricula. As such, it is ideal as the basis of an integrated theme of work on the topic.



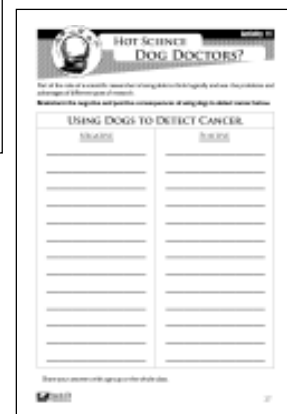
Example A



Example B



Example C



Example D

LOOKING BACK

THE GREAT PLAGUE 1

According to history, the biggest threat to humans is not war, or environmental disasters – it’s disease. The major killers of humankind in recorded history have been ‘flu, smallpox, tuberculosis, malaria, plague, syphilis, measles and cholera – and some of these are still claiming the lives of thousands today.

THE GREAT PLAGUE

The plague or “Black Death” was arguably the most deadly disease ever to hit humankind. Large-scale outbreaks of the plague have occurred time and again throughout the world from as early as 540 AD until the late 1800’s. Possibly the worst of these outbreaks ravaged a path through Europe in the 14th century. In 1348 London had an estimated population of about four million. Within two and a half years a third of these people had died. When the plague hit Italy in the same decade up to 75% of the population died within the first year. Venice’s waterways and warm conditions were perfect for the spread of the plague and 60% of its residents died within a year and a half. The number of deaths proved such a problem that the pope declared that the Rhone river be a site for the dumping of corpses. Throughout Europe the plague is thought to have claimed a total death toll of about 25 million out of a population of 40 million. But why wasn’t it stopped sooner?

The answer to that question is that nobody had the faintest clue as to what caused it. This period of history in Europe was not one of great advancement in medical research. The church forbade a lot of investigation into the causes of diseases and people’s own explanations of the Black Death were dominated by superstitions and belief in the workings of some sort of evil force. The plague was in fact caused by bites from fleas infected with the plague bacteria. The fleas were carried by black rats. These rats were found all over Europe and were particularly happy in the thatched roofs of houses and in amongst the filthy conditions of life in the cities at this time.



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LOOKING BACK
THE GREAT PLAGUE



Answer the following questions from the information pages on Page 8 and 9.

1. What was another name that the Great Plague was known by?

2. What were some of the symptoms that a victim of the plague would suffer?

3. What factors of life in the middle ages contributed to the spread of the plague?

4. Who might have had a slightly greater chance of escaping the plague? *E.g. what may have made a difference in terms of career, where someone lived, living conditions, etc.?*

Sample

What is the meaning behind the picture opposite?

Do you think the picture would have appeared in newspapers during the time of the plague or is it more modern than that? Explain your answer.



LOOKING BACK

SMALLPOX

Smallpox is caused by a poxvirus and is spread from person to person through skin contact. It is called smallpox due to the little marks it leaves on the skin. People who contract the illness experience shivering, nausea, convulsions and delirium. After the fever eases a person develops red spots that turn into large blisters and eventually scabs. The earliest evidence of smallpox has been identified on the skin of the mummified body of Rameses the fifth, an Egyptian pharaoh who died in 1157 BC. Since that time it consistently spread throughout Asia and Europe, wiping out large sections of the population and leaving survivors disfigured with pox mark scars. Perhaps its most devastating effect, however, was on the indigenous people of South America. In the early 1500's the Spanish invasion of South America devastated the native South Americans. Smallpox, along with measles, influenza and typhus wiped out an estimated 90% of the population, making them powerless against their invaders. In Australia, many Aborigines also died as a result of the smallpox carried by European settlers. These indigenous people had no history of exposure to these illnesses and so were even more likely to catch smallpox and die as a result.

Prevention for smallpox was recorded as early as the 11th century by a Buddhist nun in China. It involved taking some of the pox scabs of people inflicted with the disease and grinding them up into a fine powder. This powder was then blown up the noses of well people. This practice continued throughout Asia and was also practiced in

Europe until the late 1700's. By taking in a small dose of the virus, antibodies were built up in the person, protecting them from catching a full-blown dose of smallpox. Unfortunately it was not full-proof and a small percentage of people who inhaled the powder actually contracted the disease and died as a result.

English physician, Edward Jenner, took the first step towards ending the rapid spread of this disease. In the 18th century many women worked as milkmaids. Jenner noticed that milkmaids that caught the less serious disease cowpox, from cows, never went on to catch smallpox as well. He then assumed that if people were given a small dose of cowpox in an injection, that this would prevent them from developing smallpox. He was right and by 1800 about 100,000 people around the world had been vaccinated and many lives were preserved as a result.



Image courtesy of the US National Library of Medicine.

LOOKING BACK SMALLPOX



Read the information on Page 12 and answer the following questions.

1. What gives smallpox its name?

2. How did smallpox, in conjunction with other diseases, affect the indigenous people of South America?

3. How did a Buddhist nun prevent people from contracting smallpox?

4. Who invented the first vaccination against smallpox?

Draw and label a timeline that shows significant events in the history of smallpox.



Use the Internet and the library to research the symptoms and history of cowpox.



LOOKING BACK

Activity 4

SMALLPOX

Research: Choose a disease (historical or current). Use the Internet and the library or any other sources you have available, to research your disease.

USE ONE OF THESE OR INVESTIGATE YOUR OWN.

- AIDS
- chicken pox
- whooping cough
- rheumatic fever
- rubella

Fact File ▶

SYMPTOMS:

HOW THE DISEASE IS SPREAD:

LIKELIHOOD OF RECOVERY:

PLACES/TIMES IN WHICH THE DISEASE WAS PREVALENT

CURES

TREATMENT

Draw a picture to illustrate your disease.