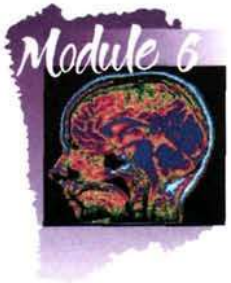


16 Life Savers

SKILLS FOCUS

Before you start

1 Look at the Key Words. For which of the diseases is there a vaccine to prevent the illness?

KEY WORDS

Aids, bronchitis, cancer, diarrhoea, 'flu (= influenza), heart disease, malaria, measles, pneumonia, polio, tetanus, TB (= tuberculosis)

2 Work in pairs. Do you think these statements are true (T) or false (F)?

1 Measles, diarrhoea and pneumonia kill an estimated seven million children a year.
2 Each year 600,000 babies pick up tetanus bacteria and die – even though there is a vaccine.
3 Many children still suffer from polio; every year the disease disables 140,000 children.
4 Over two million people a year get malaria and die, mostly in Africa.
5 Nearly one-third of the world's population is infected with tuberculosis, which kills almost three million people per year.
6 By the year 2000, more than 20 million people had contracted and died of Aids since the outbreak of the epidemic.

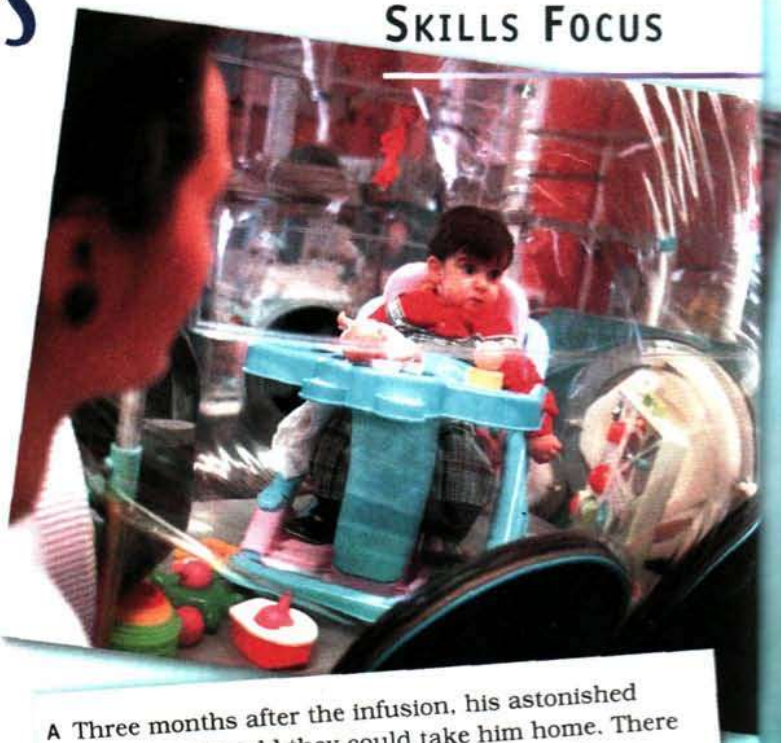
Check your answers on page 135.

3 Read the Strategies.

READING STRATEGIES:
Texts with paragraph gaps

- Read the text with gaps to get the general idea and see how it develops, e.g. *The X-factor* on page 65.
- Read the sentences before and after the gaps to give you an idea of what the beginning or end of the missing paragraph might refer to, e.g. paragraph 2 might begin with a reference to a history-making event or end with a reference to the 'little boy'.
- Read the missing paragraphs and look for these references.
- If a paragraph doesn't seem to fit, you may have made a mistake *or* it may be 'the extra paragraph'.

Now use the Strategies to match five out of six paragraphs (A–F) with gaps 2, 4, 6, 8 and 11 in the text. There is one extra paragraph.



A Three months after the infusion, his astonished parents were told they could take him home. There he remains, a normal, healthy two-year-old boy.

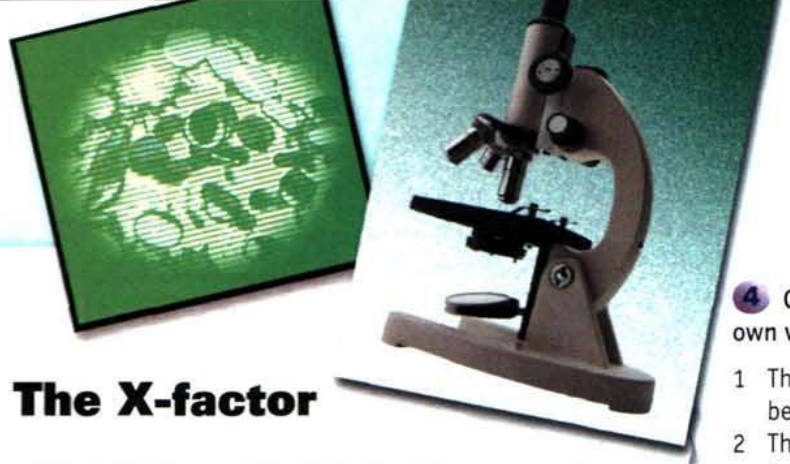
B For the first time, doctors had used their knowledge of the genes involved in a fatal disease to cure it. After years of experiments, gene therapy's promise to correct nature's flaws was being realised. Now that our genetic code has been cracked, more and more of those flaws will come within reach of repair.

C Dr Cavazzana-Calvo agrees that there has not been enough time to claim that it's a definitive treatment. "Nevertheless, the importance of this work is that it has proved this strategy can work. It has been a breath of fresh air for gene therapy."

D In every person's bone marrow is a group of cells known as 'stem' cells. When they receive the right chemical signals, they multiply to become red and white blood cells.

E Adrian Thrasher, a consultant in child immunology at a London hospital, announced: "This is the first time we can say, unequivocally, that gene therapy is effective on its own. Patients have not received any other treatment, yet have got better."

F Meanwhile, doctors Alain Fischer, Marina Cavazzana-Calvo and Salima Hacein-Bey took out a few million of his bone marrow cells and managed to insert a healthy gene in them. Then they put them back – a single, simple infusion of 20 to 30 millilitres of fluid. It took half an hour to give the boy what they hope will be a lifetime of normal immunity.



The X-factor

Gene therapy has been used successfully for the first time. James Meek looks at how this was achieved.

1 Last February, there was an air of euphoria in the corridors of the Necker Hospital for Sick Children in Paris. An incredible transformation was happening to an 11-month-old baby boy in an airtight bubble. In fact, history was being made there.

2 ...

3 When the little boy was admitted to hospital, he was facing death from a rare inherited disorder called 'X-linked SCID', a disease that causes children to be born without a working immune system. The slightest infection can be deadly. For several days, the boy lay in his bubble and his only direct contact with his mother, father and nurse was through plastic gloves.

4 ...

5 Within 15 days, doctors knew from tests that the new gene was working. But the marvel for the parents was watching the change in their sickly, underweight boy. Before their eyes, he began to get better. The ugly red blotches on his skin faded away, his diarrhoea disappeared, he put on weight and his breathing became easier.

6 ...

7 "Afterwards, we lived through three months of euphoria," said Cavazzana-Calvo. "Everyone was so happy then." Since then, treatment of three other children in the Necker Hospital has also turned out well. A fifth boy has done less well, because the disease had already caused serious complications, but the Necker is pressing ahead with further trials later this year, and similar gene therapy is to be carried out in London.

8 ...

9 Despite the initial optimism, this first achievement of gene therapy will have to be further proved over time, as it might not be so successful in treating other genetic diseases. Nevertheless, it is a major step forward in gene therapy.

10 Dr Jennifer Puck, a leading genetics researcher, underlines the importance of this breakthrough. "Although these children had no immunity when they were born, now they're exactly as good as any babies of their age. However, the immune system is not totally mature until they're three or four years of age. So the question is, is this going to last a lifetime?"

11 ...

4 Complete these sentences about the text in your own words.

1 The baby had to be kept in an airtight bubble because ...
2 The parents were allowed to take the boy home because ...
3 Adrian Thrasher believed gene therapy could work because ...
4 Doctors are careful not to be too optimistic about the operations because ...
5 Doctors should be able to cure more illnesses in the future because ...

5 How did you feel after reading the article? Tell the class.

Vocabulary: Synonyms

6 Match the words from the first four paragraphs (1–10) with their meanings (a–j).

1 euphoria	a) treatment
2 transformation	b) uncommon
3 fatal	c) great happiness
4 therapy	d) put in
5 flaw	e) weakness
6 rare	f) deadly
7 disorder	g) liquid
8 insert	h) disease
9 fluid	i) protection
10 immunity	j) change

7 Find idiomatic words or expressions in the text which mean the same as these.

1 feeling of happiness (paragraph 1)
2 deciphered (paragraph 2)
3 be in our capacity (paragraph 2)
4 nearly dying (paragraph 3)
5 very quickly (paragraph 5)
6 continuing (paragraph 7)
7 important advance (paragraph 9)
8 a great encouragement (paragraph 11)

Speaking

8 Work in pairs. Which of these things do you think will happen within the next 25 years?

1 Genetic therapy will cure cancer.
2 New drugs will help people to live for 150 years.
3 Malaria will disappear in the developing world.
4 Manipulating genes will cause new illnesses.