



Read the passage carefully. Then answer each question in a full sentence, citing evidence from the text where asked.

The Secret Blueprint of You



Imagine a tiny, twisted ladder inside almost every cell of your body.

This incredible ladder is called DNA, which stands for deoxyribonucleic acid. It's so small that millions of them could fit on the head of a pin, yet it holds all the instructions for building and operating you! Think of your DNA as a giant, incredibly detailed instruction manual for your entire body, from the color of your eyes to how tall you might grow. Every living thing, from a tiny bacterium to a giant blue whale, has DNA, making it the universal blueprint of life.

This instruction manual isn't just one long string of letters; it's divided into chapters called genes. Each gene is a specific set of instructions for a particular trait, like whether your hair is straight or curly, or if you can roll your tongue. These genes are organized into structures called chromosomes, which are found in the nucleus of your cells. You inherit half of your chromosomes from your mother and half from your father. This process of passing traits from parents to children is called heredity. A famous scientist named Gregor Mendel, often called the "father of genetics," discovered many basic rules of heredity by studying pea plants in the 1800s. He showed how traits like flower color or pea shape were passed down through generations.

The instructions in DNA are written using a special chemical alphabet with four letters: A, T, C, and G. The specific order, or sequence, of these letters tells your cells exactly what to do. For example, a sequence of A-T-T-G-C-A might tell your cells to make a certain protein. Sometimes, a tiny mistake can happen when DNA is copied, like a typo in the instruction manual. This change is called a mutation. Most mutations are harmless, but



occasionally they can lead to new traits or even diseases. Scientists have learned that humans share about 98.7% of their DNA sequence with chimpanzees, showing how closely related all life on Earth truly is. Understanding your DNA is like unlocking the secret code that makes you, you!

COMPREHENSION QUESTIONS

(1) What is DNA compared to in the first paragraph?

(2) In the second paragraph, what does the word "heredity" mean?

(3) What is the main idea of the second paragraph?

(4) Why did the author compare DNA to an instruction manual?



(5) Based on the text, why might two siblings look similar but not exactly alike?

(6) Based on the text, why is it important to understand the concept of heredity?

(7) What did you learn from this text that most surprised you? Explain using the text.

