



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

DNA: Life's Instruction Manual



Deep inside every cell of your body, from your brain to your toes, there's an incredible molecule called DNA. Imagine it as a tiny, twisted ladder, so incredibly small that millions could fit on the head of a pin. But don't let its size fool you! This amazing ladder holds all the instructions for building and operating you, from the color of your eyes to how tall you might grow, and even how your heart beats. It's like the ultimate instruction manual, a unique blueprint for every living thing on Earth, guiding its development and functions.

Each important section of this DNA instruction manual is called a **gene**. Genes are like individual recipes within the book, each telling your body how to make a specific part or perform a certain function. For example, one gene might carry the instructions for blue eyes, while another might tell your hair cells what color to be, defining a specific **trait**. The precise order of the chemical "letters" on the DNA ladder is called its **sequence**, and this sequence is what makes each gene unique and carries its specific message. In 1953, scientists James Watson and Francis Crick famously discovered the beautiful double helix structure of DNA, which helped us understand exactly how these vital instructions are stored and accurately copied.

All these genes, carrying countless instructions, are packaged neatly into structures called **chromosomes**, which are found in the nucleus of your cells. The way **traits** are passed from parents to children is called **heredity**. You inherit a mix of genes from your mother and your father, which is why you might have your dad's nose and your mom's smile, a perfect blend of characteristics. Sometimes, there can be tiny changes in the



DNA sequence, known as a **mutation**. While some mutations can cause problems or lead to genetic differences, others are harmless or even lead to new traits over many generations, driving evolution. It's truly fascinating to think that humans share about 98.7% of their DNA with chimpanzees, showing our deep connection and shared history on Earth through common ancestry.

So, DNA truly is the amazing blueprint of life, a hidden code that makes every living thing special and unique. It's a complex and beautiful set of instructions that connects us all through the incredible process of heredity. Understanding DNA helps scientists learn about diseases, develop new medicines, and even understand how life itself evolved from simple beginnings to the incredible diversity we see today, making it one of the most important discoveries in biology.

COMPREHENSION QUESTIONS

(1) What shape is DNA described as in the story?

(2) What does the word "trait" mean in the context of the story?



(3) What is the main idea of this passage about DNA?

(4) Why did the author compare DNA to an "instruction manual" or "recipe book"?

(5) Based on the text, why might a child have characteristics from both parents, like their dad's nose and their mom's smile?

(6) Do you think understanding DNA is important for developing new medicines? Explain your answer using information from the text.



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

