

SCIENCE CONTENT TOPICS: L.d.3, L.e.1
SCIENCE PRACTICES: SP.1.a, SP.1.b, SP.1.c, SP.7.a

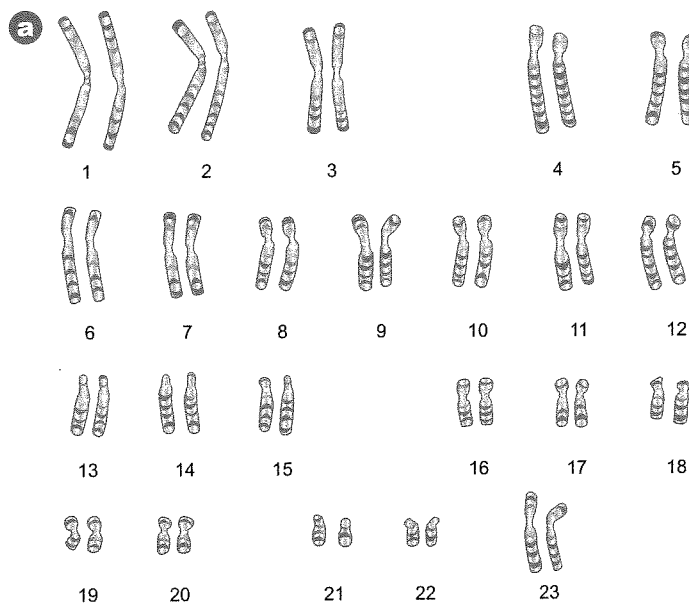
1 Learn the Skill

Illustrations, tables, graphs, maps, and diagrams present information visually. They help you understand text they accompany by providing additional information or by providing information in a different way. Alternatively, text can help you interpret accompanying visuals. In this way, text and visuals support one another. **Relating text and visuals** allows you to fully understand the information being presented.

2 Practice the Skill

By practicing the skill of relating text and visuals, you will improve your study and test-taking abilities, especially as they relate to the GED® Science Test. Study the illustration and information below. Then answer the question that follows.

a The illustration presents information that is not included in the passage. It depicts each of the 23 pairs of chromosomes found in human cells. This information will help you answer the question.



b Text often tells you about a visual and may include information that is not in the visual. In this case, very little information is included in both the illustration and the passage.

It is possible to identify a human as a human because organisms of the same kind are similar. Also, individuals are especially like their parents. All these similarities are due to heredity, or the passing of traits from one generation to the next. Hereditary material is carried on chromosomes, which are tiny structures in cells. Each species has a certain number of chromosomes in its cells. In humans and other organisms, chromosomes that are homologous—similar in size and structure—form pairs. When cells divide to form new cells, chromosomes copy themselves. This replication allows each new cell to have a complete copy of the organism's hereditary material. During sexual reproduction, cells from two parent organisms join so that hereditary material from both parents is passed on.

TEST-TAKING TIPS

When you answer a multiple-choice question, you can eliminate wrong choices. When a question is about text and a visual, first use one element to eliminate choices. Then use the other to eliminate more choices.

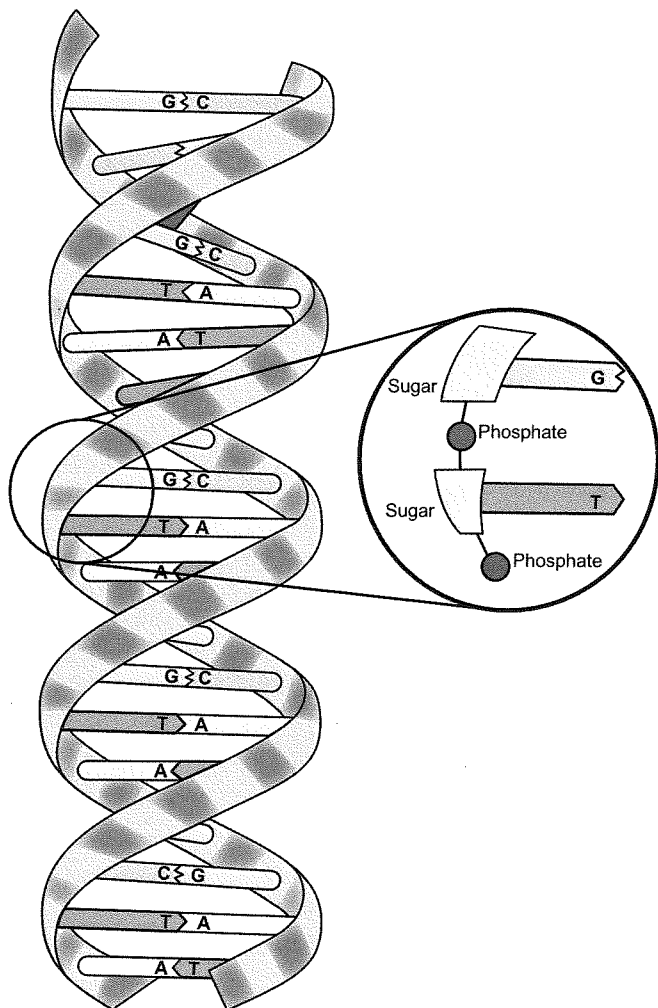
- The illustration and passage suggest that
 - all human chromosomes are identical.
 - humans have 23 pairs of chromosomes in their cells.
 - human chromosomes double in size when a cell divides.
 - humans have fewer chromosome pairs than other species.

3 Apply the Skill

DIRECTIONS: Study the information and illustration, read the question, and choose the **best** answer.

DNA

The basis of heredity is deoxyribonucleic acid, or DNA. The chromosomes in an organism's cells contain tightly coiled DNA molecules, with nearly every cell containing the same DNA. The thin, ladder-shaped DNA molecules are made of millions of tiny units called nucleotides. Each nucleotide contains one of four different bases—adenine (A), guanine (G), thymine (T), or cytosine (C); a sugar; and a phosphate. The bases form pairs, always A with T and C with G, and make up the rungs of the ladder. Sugars and phosphates form the ladder's sides.

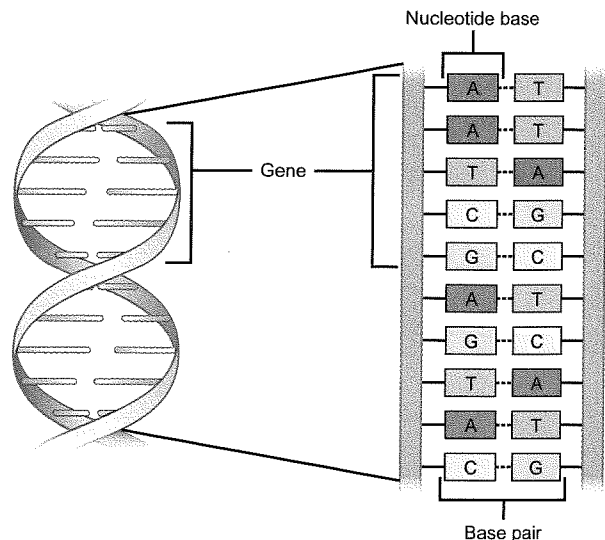


- Based on the passage and illustration, which statement describes DNA structure?
 - Sugars are located along the sides and in the middle of a DNA molecule.
 - Sugars and phosphates form the rungs of the ladder shape of a DNA molecule.
 - One side of a DNA molecule is longer than the other side.
 - Nucleotide bases combine to form different patterns in different parts of a DNA molecule.

DIRECTIONS: Study the information and illustration, read the question, and choose the **best** answer.

GENES

Proteins make the body develop and function as it does, from producing the substance that makes eyes a certain color to causing hair and nails to grow. The instructions for building these proteins come from genes. The DNA carried on an organism's chromosomes has many genes. Each gene consists of a unique sequence of nucleotide bases. According to the arrangement of these bases, genes give instructions for building proteins that determine the functions particular cells will perform.



- Based on the passage and illustration, which sentence is a correct statement about genes?
 - Genes are segments of DNA.
 - All genes have five pairs of bases.
 - One DNA strand may have millions of genes.
 - The nucleotide bases in genes are proteins.