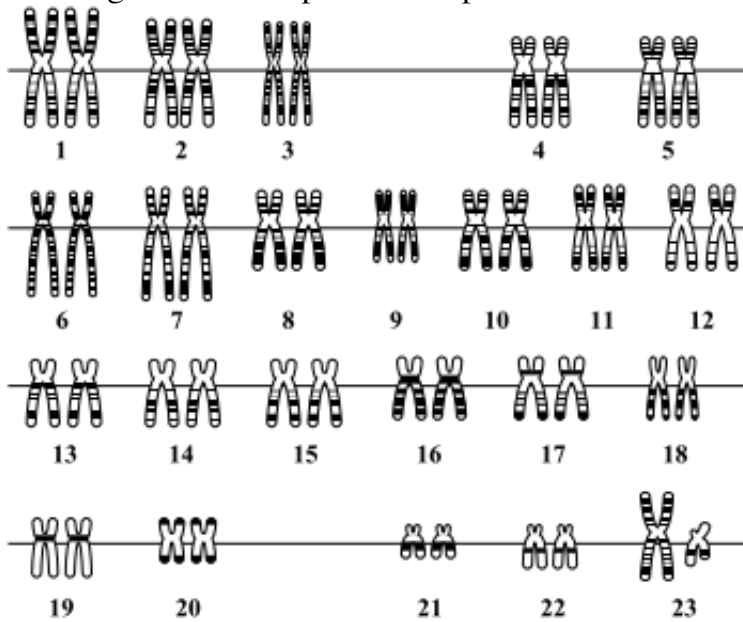


The diagram below represents 23 pairs of structures taken from the nucleus of a human body cell.



1. Identify the structures shown in the diagram.
2. Identify the information that is contained within these structures.
3. Describe how the structures from this cell would compare to the structures in the nucleus of another body cell from the same person.
4. Explain why the structures are in pairs.

Scoring Guide - Score Point 4

a.) The structures shown in the diagram are chromosomes.

b.) The information contained in the chromosomes are DNA.

DNA is what defines the traits in each individual person.

Each chromosome pair tells the cells to do a certain job, or create a certain trait.

c.) The chromosomes in this cell would be exactly the same as the chromosomes in another cell from the same person. All the cells in the body, no matter what type, would have the same pairs of chromosomes in their nuclei.

d.) The structures are in pairs because the person gets one of each number chromosome

from each parent. Their DNA

combines to create an

entirely new, original set of

DNA shared with no one else.

The selection of which

chromosome the parent gives

is totally random, and the

combination possibilities are

virtually endless.

Scoring Guide - Score Point 4

A. These structures are **chromosomes**.

B. The chromosomes each contain a strand of **DNA (deoxyribonucleic acid)**.

C. The structures would be completely identical. The chromosomes would be like a clone of these ones shown, and the DNA would be the same as well.

D. The structures are in pairs because this human got half of their chromosomes from their father and half from their mother. When these two halves were combined, it created this person's own unique DNA.

Scoring Guide - Score Point 3

a. The structures in the diagram are chromosomes.

b. The information stored in the chromosomes is DNA.

c. The two sets of structures would be identical in every way, because all the cells in your body carry the same DNA.

d. The structures are in pairs because that cell is going through interphase. During the cell cycle, the cell will split and turn into two identical daughter cells. The pairs will split, and one end will go into one cell while the other end will go into the other.

Scoring Guide - Score Point 2

A.) The structures are chromosomes of the nucleus.

B.) The information in these chromosomes are the person's genes.

C.) If you compare them to another person's cell, it would be different because one has some kind of genes.

D.) The chromosomes are in pairs because every chromosome has 2 genes in it.

Scoring Guide - Score Point 1

a) There are 23 pairs of chromosomes in the human body cell. Some are big and some are small.

b) In the first row there are 5 pairs of chromosomes, in the second row there are 8 pairs, in the 3rd row there are 6 pairs, and in the last row there are 5 pairs.

c) They would not match up because everyone is different and their cells would not look alike.

d) They are in pairs because it takes a certain amount to build up a cell and they needed to group up in order to function. That's why they are in pairs.

Scoring Guide - Score Point 0

A.) The white structures are the white blood cells, and the dark are the red blood cells.

B.) Within these structures it shows how many white and red blood cells they have.

C.) It would compare the differences between how many blood cells the person has.

D.) The structures are in pairs because it shows you the different kind of cells.

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