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Chromosomes and DNA

Subject Outline terms and phrases

DNA, double-stranded, helical, cytosol, prokaryote, mitochondria, chloroplast, eukaryote, chromosome, nucleus

1. Organisms are made of one or more cells and cells are made of chemicals. Define the following chemical terms:

element _____

compound _____

molecule _____

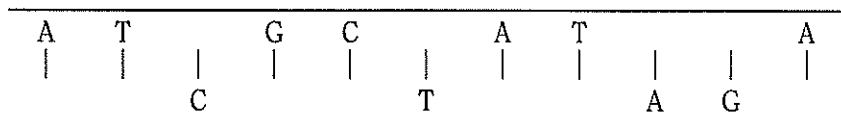
organic compound _____

2. (a) Describe how DNA stores and transmits genetic information.

(b) DNA functions in the same way in all living things. Explain what this means.

3. (a) Draw a simple diagram to represent a nucleotide molecule. Label the subunits.

(b) Complete the following diagram of a segment of DNA to show the missing nitrogen bases.



(c) Draw a simple diagram to represent a section of DNA showing complementary strands. Indicate on the diagram the positions of the sugar phosphate backbones.

4. State four important features of DNA.

- (1) _____
- (2) _____
- (3) _____
- (4) _____

5. Explain why DNA is a suitable molecule for storing genetic information in organisms.

6. What is the difference between cytosol and cytoplasm?

7. (a) Describe the structure of a chromosome.

(b) What is the function of chromosomes?

8. Complete the following table comparing chromosomes in prokaryotes and eukaryotes:

	Chromosomes in prokaryotes	Chromosomes in eukaryotes
Shape		
Histones present or absent		
Location in cell		
Number per cell		
Introns present or absent		
Where centromere attaches during cell division		