

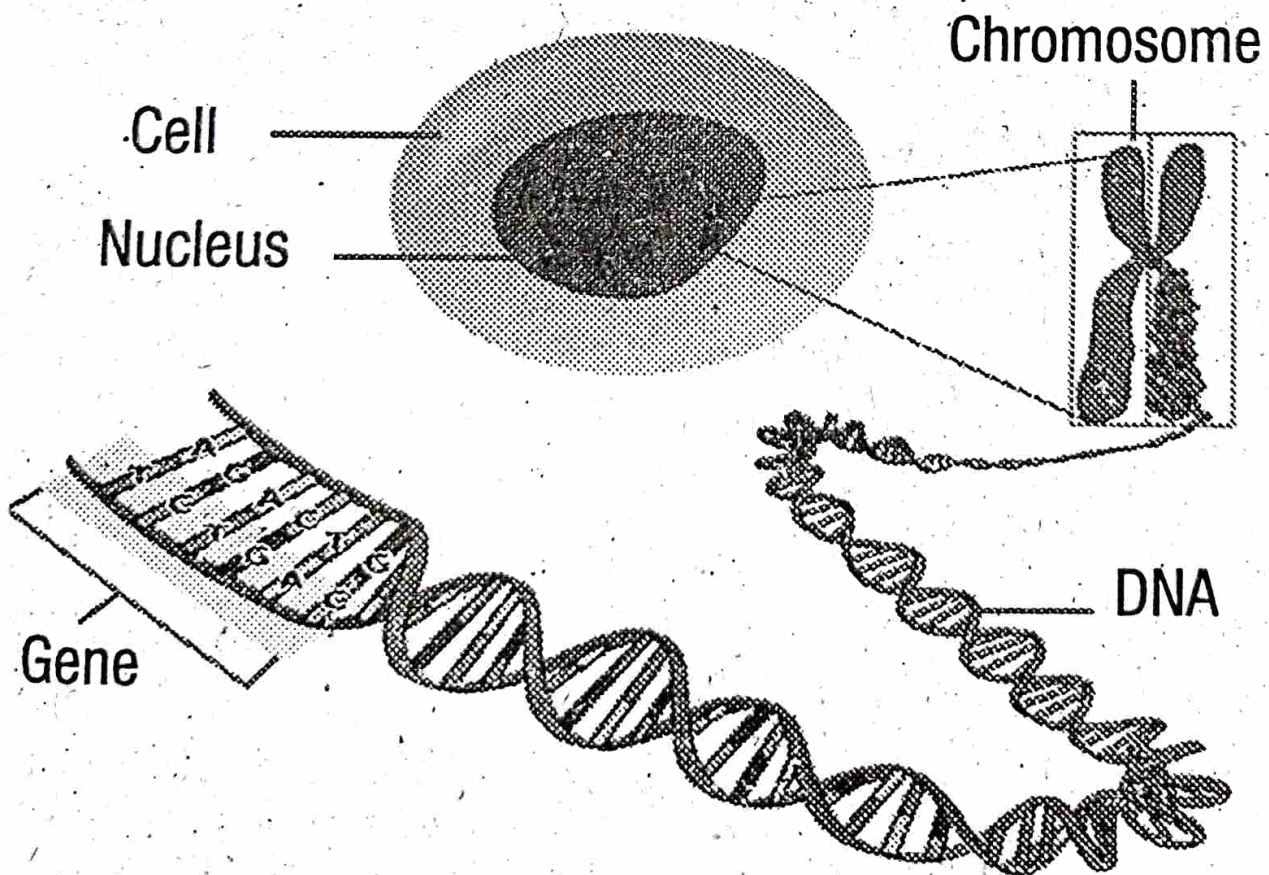
# RNA (Ribonucleic acid)

Completion of table 6.2

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Nucleic acid	Number of strands	Type of sugar	Nitrogen bases
DNA	2	Deoxy ribose sugar	Adenine, Thymine, Guanine, Cytosine
RNA	1	Ribose sugar	Adenine, Uracil, Guanine, Cytosine

## How do genes act?



**Where are chromosomes seen?**  
In the nucleus of a cell

Where is DNA present? In chromosomes

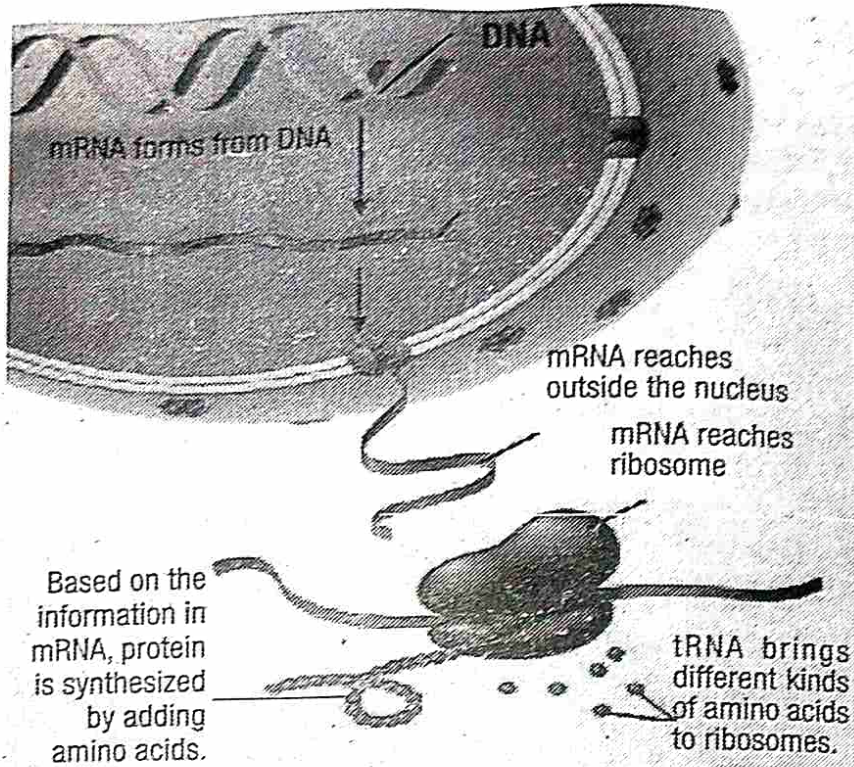
• What are genes?

Genes are particular segments of DNA.

• What are the functions of enzymes?

- Controls metabolic activities.
- Responsible for specific characteristics.

## Action of genes



### Indicators - Explanation

- **Different kinds of RNAs**  
mRNA tRNA rRNA
- **Role of mRNA in protein synthesis?**  
mRNA carries the information about the protein to be synthesized and reaches the ribosome. mRNA is formed from DNA.
- **Activities that take place in the nucleus**  
mRNA is formed from DNA. mRNA reaches out of the nucleus, carrying the information from DNA.
- **Activities that take place in the cytoplasm**  
tRNA brings different kinds of amino acids to ribosomes. Based on the information in mRNA protein is synthesized by adding amino acids.

### Flow chart (To the science diary)

DNA synthesises mRNA → mRNA carries the information of DNA → mRNA reaches ribosome → tRNA brings different kinds of amino acids to ribosomes → Based on the information in mRNA, protein is synthesized.

## Chromosomes in Humans

### Indicators and answers

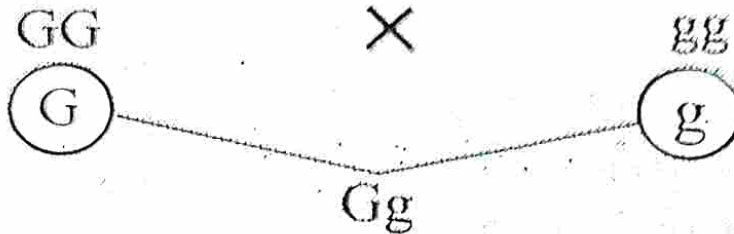
- Chromosome number in man : 46
- Somatic chromosomes : 44
- Sex chromosomes : 2



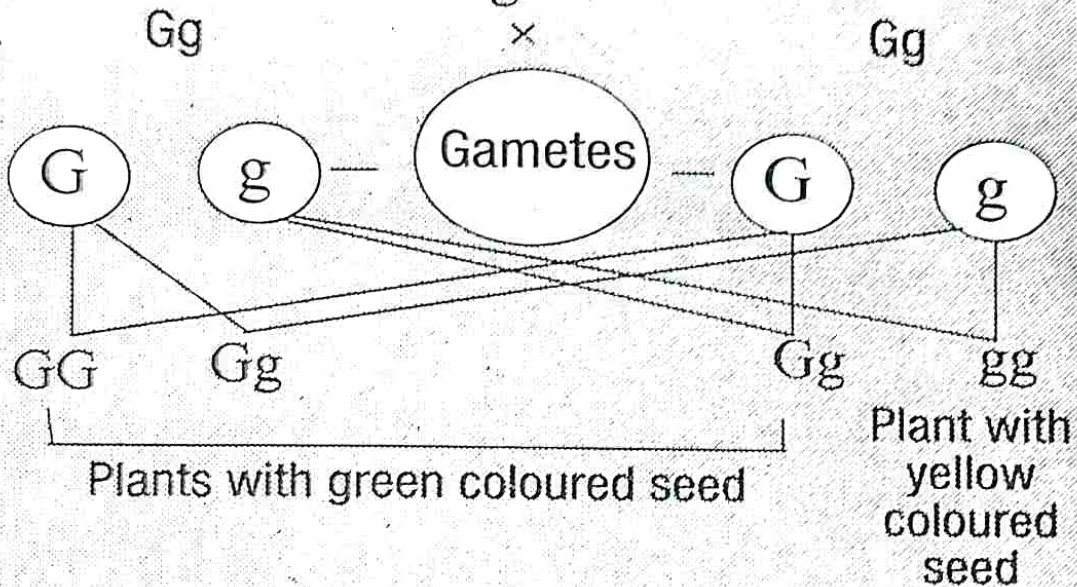
# LET US ASSESS - ANSWERS

1. b. Thymine
2. • mRNA is formed. • mRNA reaches ribosomes.  
• Amino acids are carried to the ribosomes.  
• Protein is synthesised by adding amino acids.

3. a.



b.



4.

- ❖ As a result of crossing over, part of a DNA crosses over to become the part of another DNA, this causes a difference in the distribution of genes. When these chromosomes are transferred to the next generation, it causes the expression of new characters in offsprings.
- ❖ **Fertilization** : When gametes undergo fusion, the combination of alleles changes. This causes the expression of characteristics in offspring that are different from parents.
- ❖ A sudden heritable change in the genetic constitution of an organism is called mutation. Mutation lead to variations in characters.  
Defects in the duplication of DNA, radiations and due to certain chemicals are the causes of mutation.