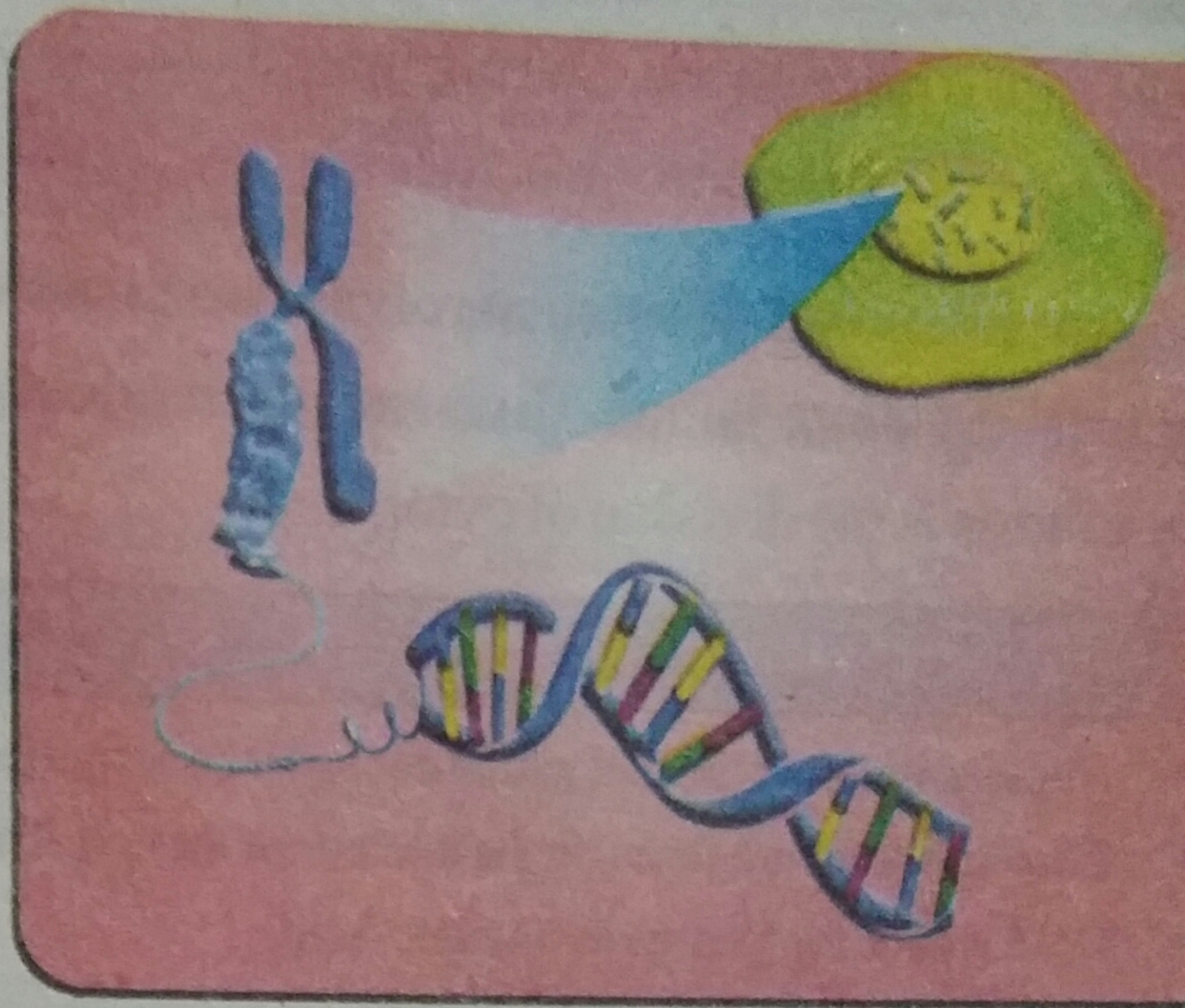


Chapter

2

CELL DIVISION



STUDENTS' LEARNING OUTCOMES

After studying this chapter, students will be able to:

- Differentiate between mitosis and meiosis.
- Identify DNA and chromosomes in the cell diagram.
- Define heredity and recognize its importance in transferring of characteristics from parents to offspring.
- Identify the characteristics that can be transferred from parents to offspring.
- Compare characteristics related to ear and eye colour.

Q. Name 2 non-inheritable characters.

A: 1) If an organ is lost due to disease it is non-inheritable.

2) If an organ becomes weak due to disease, it is also inheritable.

Q. What are haploid cells?

A. A cell having half of the number of chromosomes is haploid cell.
e.g. gametes (sperm, egg)

Chromosomes:-

Chromosomes are thread like structure found in the nucleus of a cell. A typical chromosome consists of two arms called chromatids which are attached to the same part called centromere. DNA and Protein are the components of chromosomes.

Genes:-

The basic physical and functional unit of heredity is called gene. Gene act as instruction to make molecules called proteins. Genes occur in pairs. Every heredity characters in an organisms e.g., tallness, dwarfness, eye colour, free earlobe, attached earlobe, etc is controlled by a pair of genes. Genes are the section of DNA and are located in chromosomes.

Describe characteristics that can be transferred from parents to offsprings.

Such characters which can be transferred from parents to offsprings are called "Inheritable Characters"

These characters are

- 1) Eye Colour
- 2) Skin Colour
- 3) Height
- 4) Intelligence
- 5) Free and attached earlobes etc

Write Note on:

DNA

DNA (Deoxyribonucleic Acid) is called heredity material. Genes are sections of DNA, located on chromosomes.

Different sections of DNA (gene) are set of information for development of different characters in an organism.

DNA and proteins are components of chromosomes.

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Describe characteristics that can be transferred from parents to offsprings.

Such characters which can be transferred from parents to offsprings are called "Inheritable Characters"

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- 1) Eye Colour
- 2) Skin Colour
- 3) Height
- 4) Intelligence
- 5) Free and attached earlobes etc

Write Note on:

DNA

DNA (Deoxyribonucleic Acid) is called heredity material. Genes are sections of DNA, located on chromosome. Different sections of DNA (gene) are set of information for development of different characters in an organism. DNA and proteins are components of chromosomes.

(x) Which statement is correct?

- ✓ a. DNA has instructions for making proteins
- b. Protein has instructions for making DNA
- c. Both of these
- d. None of these

2 Match the words of column A with the relevant words in column B.

A	B
DNA	Haploid cell
Cytokinesis	Diploid cell
Free earlobe	Division of cytoplasm
Zygote	Gene
Egg	Hereditary character

3 Give short answers.

- (i) Name two inheritable characters. *1) Eye colour 2) Skin colour*
- (ii) Name two non-inheritable characters. *Pg 25*
- (iii) What is a gene? *23*
- (iv) Define heredity. *Pg 22*
- (v) What are haploid cells?

Describe mitosis. *Pg 20*

Describe meiosis. *Pg 21*

Define heredity and describe its importance in transferring of characteristics from parents to offspring. *Pg 22*

Describe the characteristics that can be transferred from parents to offspring.

Write notes on:

- (a) DNA
- (b) Chromosomes
- (c) Genes

Identify and label the following diagram:

A chromosome

