

The Cell Cycle and Cell Division (Chromosomes)

Chapter 3: The Cell Cycle and Cell Division (Chromosomes) · Topic 1

Key Concept

Mitosis produces two genetically identical daughter cells from one parent cell, important for growth, repair, and asexual reproduction.

Meiosis produces four genetically different daughter cells with half the chromosome number, essential for producing gametes (sex cells) in sexual reproduction.

Chromosomes carry genetic information as DNA, and their number is characteristic for each species (humans have 46 chromosomes in 23 pairs).

Understanding chromosome behavior during division explains genetic inheritance patterns and how variation is introduced in offspring.

Quick Revision Notes

- Mitosis: 2 identical daughter cells.
- Used for growth, repair, asexual reproduction.
- Meiosis: 4 different daughter cells, half chromosomes.
- Used for producing gametes (sexual reproduction).
- Chromosomes carry genetic info as DNA.
- Humans have 46 chromosomes (23 pairs).
- Chromosome behaviour explains inheritance.
- It also explains variation in offspring.

Practice Questions

- 1 Compare mitosis and meiosis in a table.
- 2 Discuss why meiosis produces cells with half chromosomes.
- 3 Research how many chromosomes different species have.
- 4 Discuss the importance of mitosis in wound healing.
- 5 Explain how meiosis introduces genetic variation.
- 6 Explain chromosome behaviour in your own words.