

Heredity and Evolution Class 10 Science – Summary, Notes, MCQs & Keywords (NCERT)

Meta Description

Heredity and Evolution Class 10 Science NCERT notes, summary, keywords, MCQs, important questions and exam tips for board exams.

Introduction of the Chapter

The chapter **Heredity and Evolution** from **Class 10 Science (NCERT)** explains how traits are passed from parents to offspring and how living organisms evolve over generations.

Heredity and Evolution forms the basis of genetics and evolutionary biology, helping students understand variation, inheritance, and the origin of species. This chapter is highly important for board exams and competitive exams.

Short Notes – Heredity and Evolution

- Heredity is the transmission of traits from parents to offspring
 - Traits are controlled by genes present on chromosomes
 - Gregor Mendel is known as the Father of Genetics
 - Dominant traits express themselves over recessive traits
 - Variation helps organisms survive in changing environments
 - Evolution is the gradual change in species over generations
 - Acquired traits are not inherited
 - Speciation occurs due to geographical isolation
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Detailed Summary (200–250 Words)

The chapter **Heredity and Evolution** explains the scientific principles behind inheritance and evolutionary changes. Heredity refers to the transfer of characters from parents to offspring through genes. Genes are located on chromosomes inside the nucleus and determine physical and physiological traits.

Gregor Mendel conducted experiments on pea plants and proposed laws of inheritance. According to Mendel, traits can be dominant or recessive. A dominant trait expresses itself even in the presence of a recessive trait. Mendel's monohybrid and dihybrid crosses explain how traits are inherited across generations.

Variation is an important concept in **Heredity and Evolution**. Variations arise due to errors in DNA copying and sexual reproduction. These variations help organisms adapt and survive in changing environments.

Evolution refers to gradual changes in organisms over long periods. It explains how simple organisms evolved into complex forms. Homologous organs indicate common ancestry, while analogous organs show convergent evolution. Acquired traits, such as muscles developed by exercise, are not inherited, whereas genetic traits are passed on.

Speciation occurs when populations become geographically isolated and evolve into new species. Thus, **Heredity and Evolution** explains the continuity of life and diversity of organisms on Earth.

Flowchart / Mind Map (Text-Based)

Heredity

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Genes → Chromosomes → Traits

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Mendel's Laws

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Variation

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Natural Selection

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Evolution

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Speciation

Important Keywords with Meanings

- **Heredity**: Transfer of traits from parents to offspring
- **Gene**: Unit of inheritance
- **Chromosome**: Thread-like structure carrying genes
- **Dominant Trait**: Trait that expresses itself
- **Recessive Trait**: Trait masked by dominant trait
- **Variation**: Differences among individuals
- **Evolution**: Gradual change in organisms

Important Questions & Answers

Short Answer Questions

1. What is heredity?
Answer: Heredity is the transmission of genetic traits from parents to offspring.
2. Who proposed laws of inheritance?
Answer: Gregor Mendel.

Long Answer Questions

1. Explain Mendel's monohybrid cross.
Answer: Mendel crossed pure tall and dwarf pea plants and observed that tall plants appeared in the first generation, showing dominance.
2. Explain evolution with an example.
Answer: Evolution occurs through variation and natural selection, e.g., development of long necks in giraffes.

MCQs – Heredity and Evolution

1. Father of Genetics is:
 - a) Darwin
 - b) Mendel
 - c) Lamarck
 - d) Morgan
2. Genes are present on:
 - a) Ribosomes
 - b) Cytoplasm
 - c) Chromosomes
 - d) Cell wall
3. Which traits are inherited?
 - a) Acquired traits
 - b) Genetic traits
 - c) Environmental traits
 - d) Learned traits
4. Variation helps in:
 - a) Extinction
 - b) Adaptation
 - c) Death
 - d) Cloning
5. Evolution occurs due to:
 - a) No variation

- b) Variation and selection 
- c) Reproduction only
- d) Mutation only

(Continue similarly up to 20–40 MCQs for exams)

Exam Tips / Value-Based Questions

- Practice Mendel crosses with diagrams
 - Learn keywords and definitions clearly
 - Focus on differences between homologous and analogous organs
 - Value-based question: Explain how variation helps in survival of species
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Conclusion

The chapter **Heredity and Evolution** is a core topic of **Class 10 Science NCERT**, explaining inheritance, variation, and evolution. Understanding **Heredity and Evolution** helps students score well in board exams and builds a strong foundation for biology and competitive exams.

Primary Keywords: Heredity and Evolution Class 10, Heredity and Evolution summary, Heredity and Evolution notes, Heredity and Evolution MCQs

Secondary Keywords: NCERT Class 10 Science genetics, evolution notes, inheritance questions