Meiosis

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MARCH TEST – 2026 Key Points: Meiosis

- The **importance** of Meiosis
- **Chromosome numbers** – Diploid and Haploid
- The events of each phase of **Meiosis I**
- The events of each phase of **Meiosis II and Compare the phases**
- **How Meiosis** contributes to **Variation**
  1. **Crossing Over –** Describe process
  2. **Random Arrangement** of Chromosomes at Equator of the Cell - Describe

* Abnormal Meiosis – Down Syndrome & Non Disjunction

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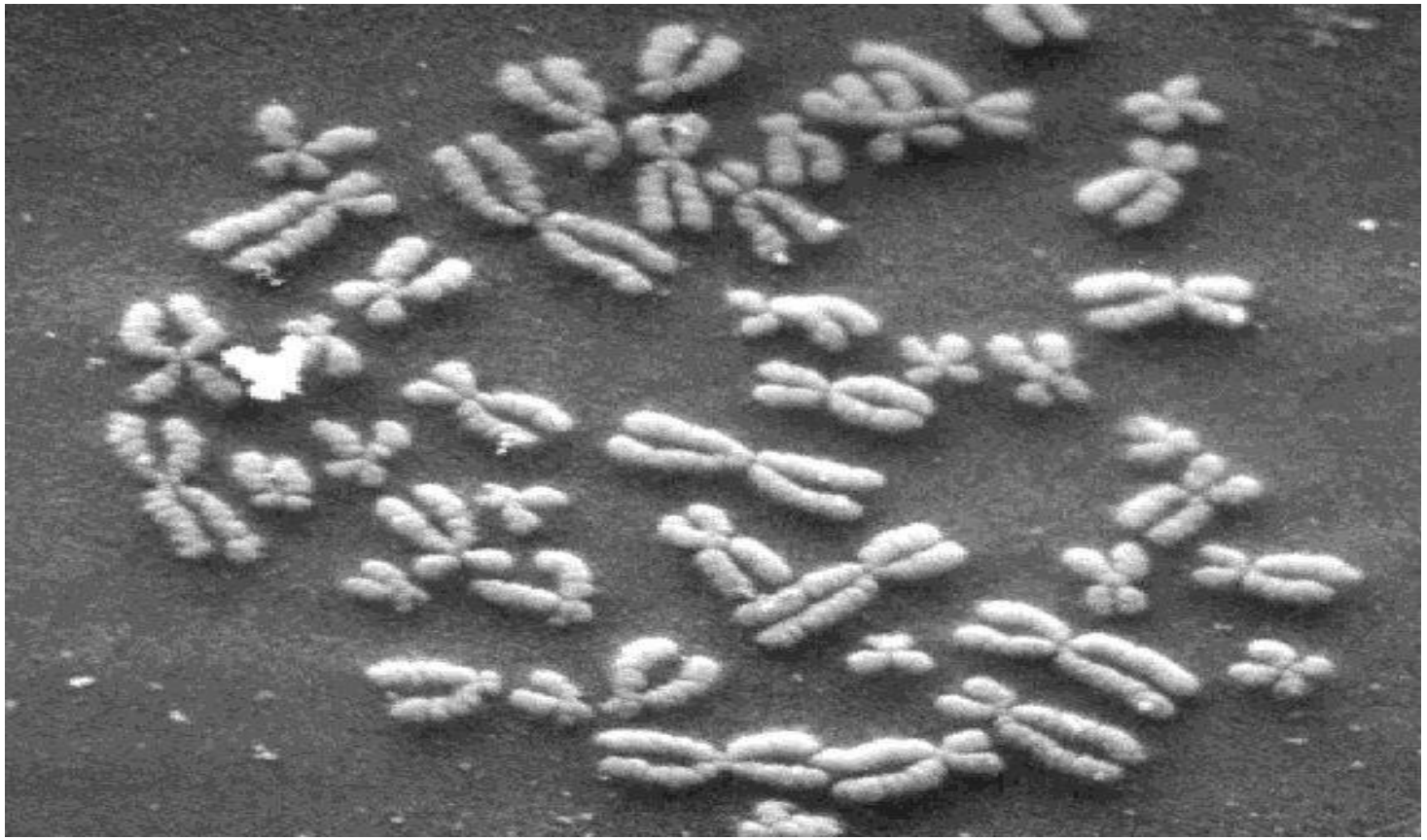
Each human body cell has 46 chromosomes (2n)



Pairs

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What is Meiosis?

(46)

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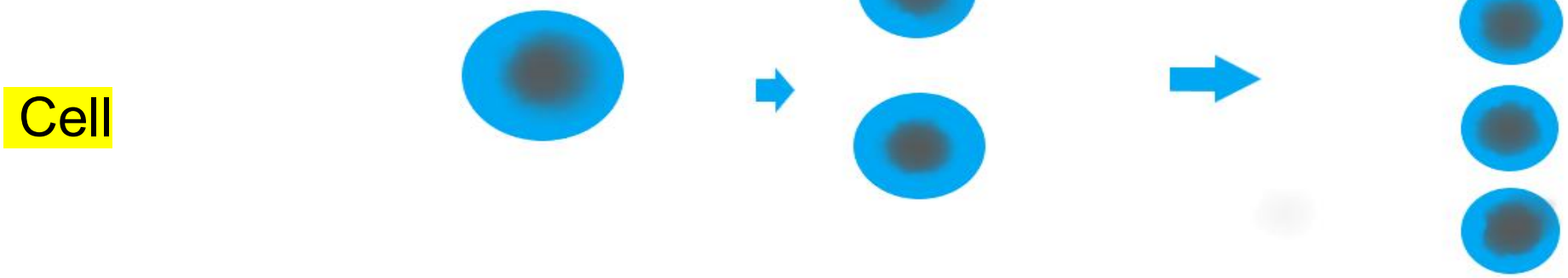
Sex Cells



Cell

M

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What is Meiosis?

Answer:

A type of cell division that results in 4 non-identical daughter cells each,

with half the number of chromosomes of the parent cell. This is how gametes are produced in testes and ovaries in animals.

In plants, meiosis occurs in the anthers and ovaries.

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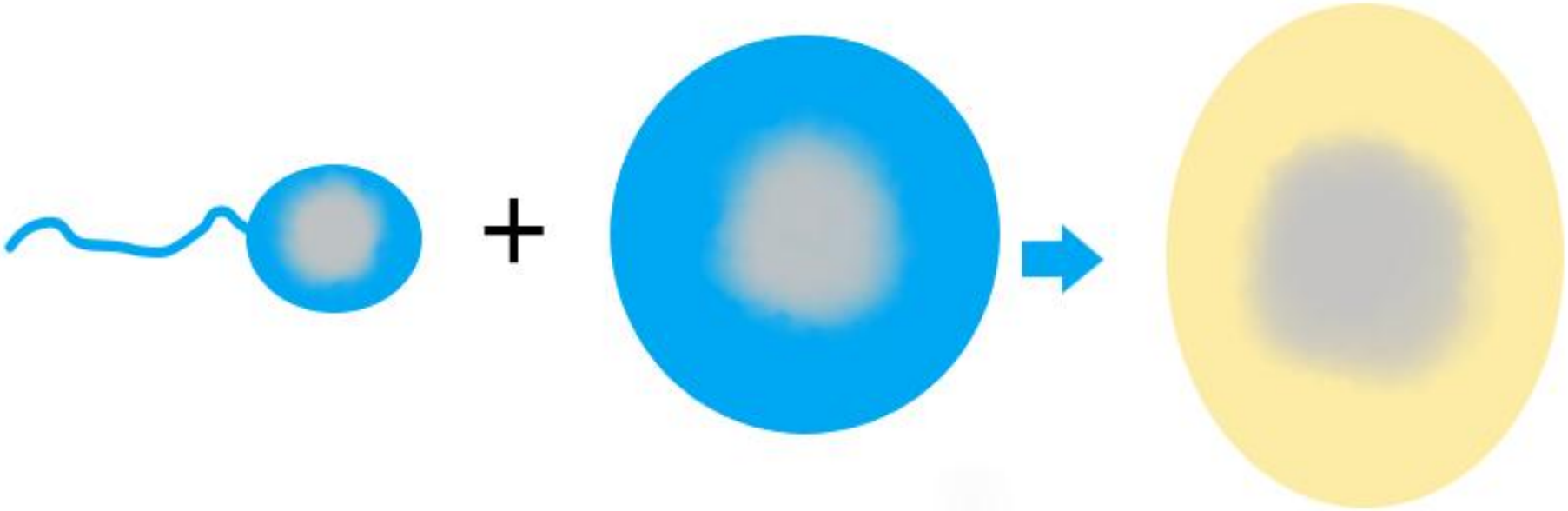
What is the significance of Meiosis?



23 (n)

23 (n)

46 in Zygote (2n)

What is the significance of meiosis?

- Production of gametes
- Halves the chromosome number
- Contributes to variation
- Ensures that the chromosome number in the species remains the same over time.

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What happens at fertilisation?

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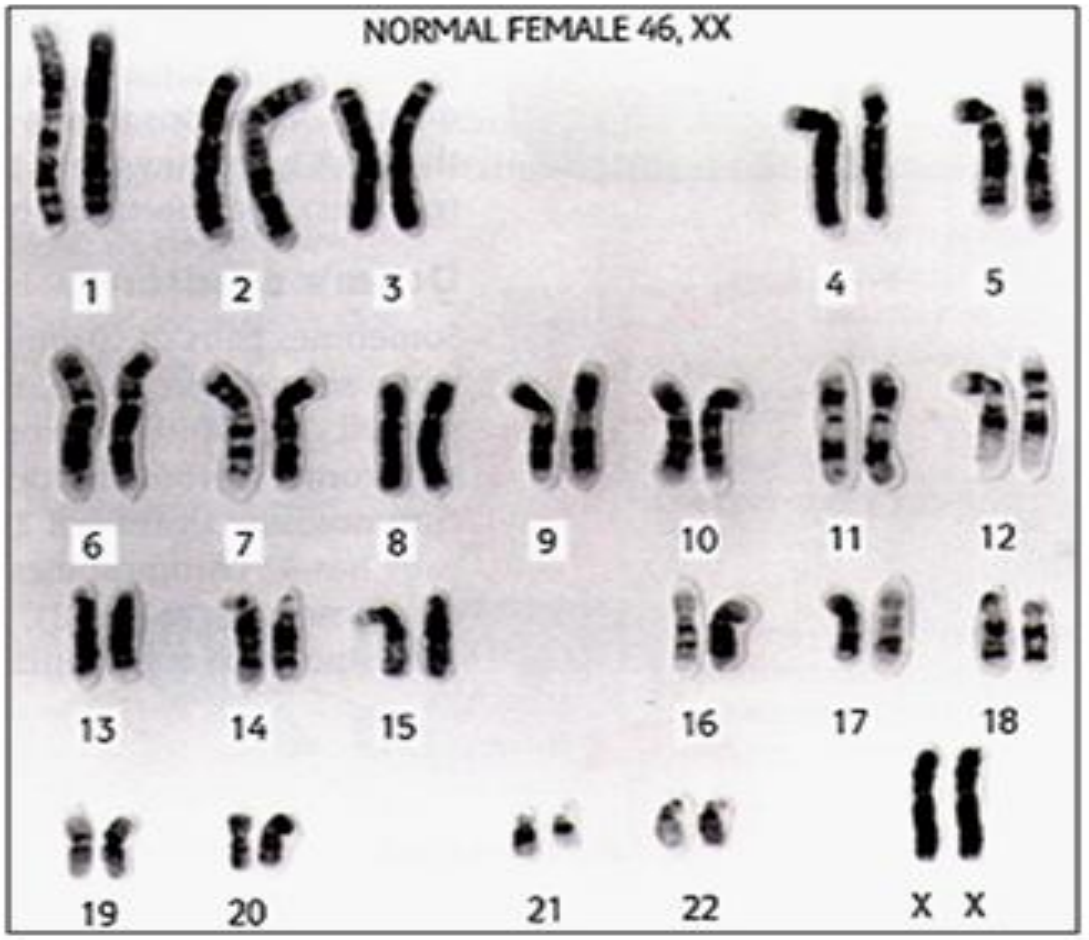

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What happens during Meiosis I

Answer:

Before Meiosis I starts, DNA Replication takes place during a phase called the INTERPHASE, then…

- Prophase I
- Metaphase I
- Anaphase I
- Telophase I

- After Meiosis I, the second period starts – Meiosis II

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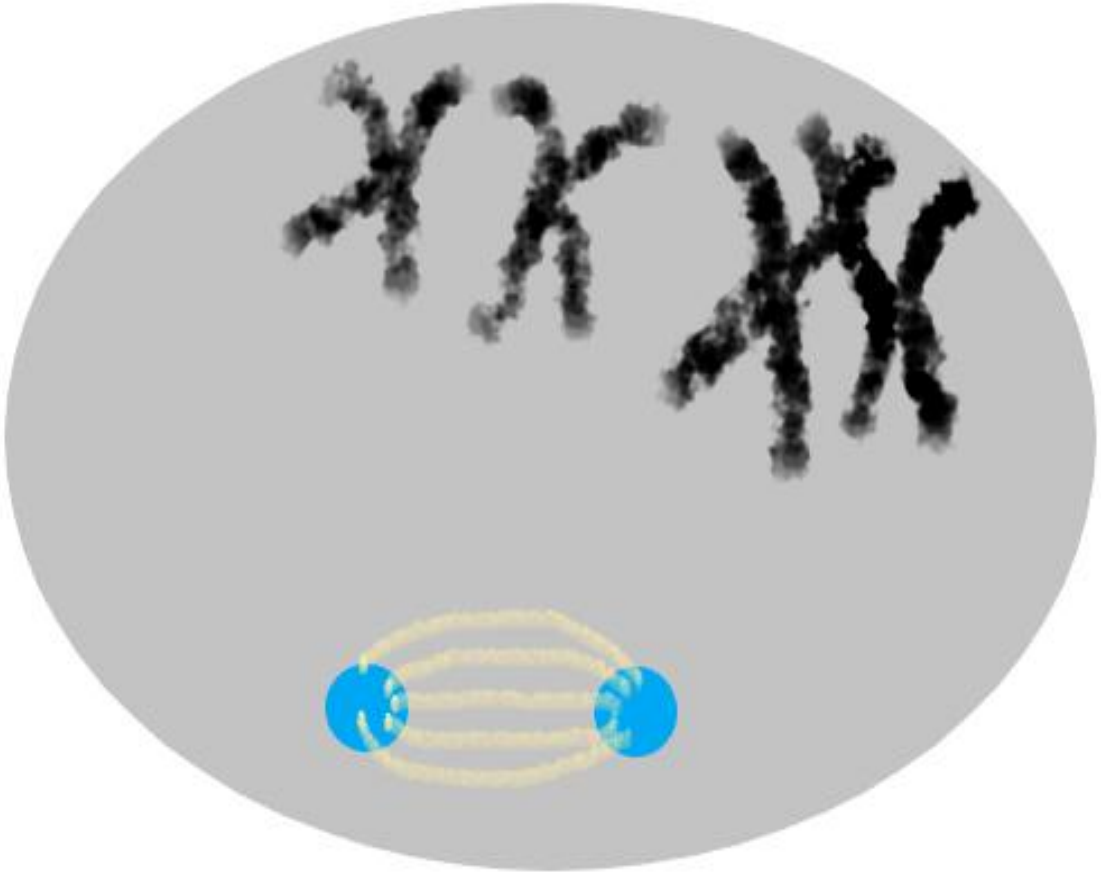
Prophase I



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Prophase I: Crossing Over

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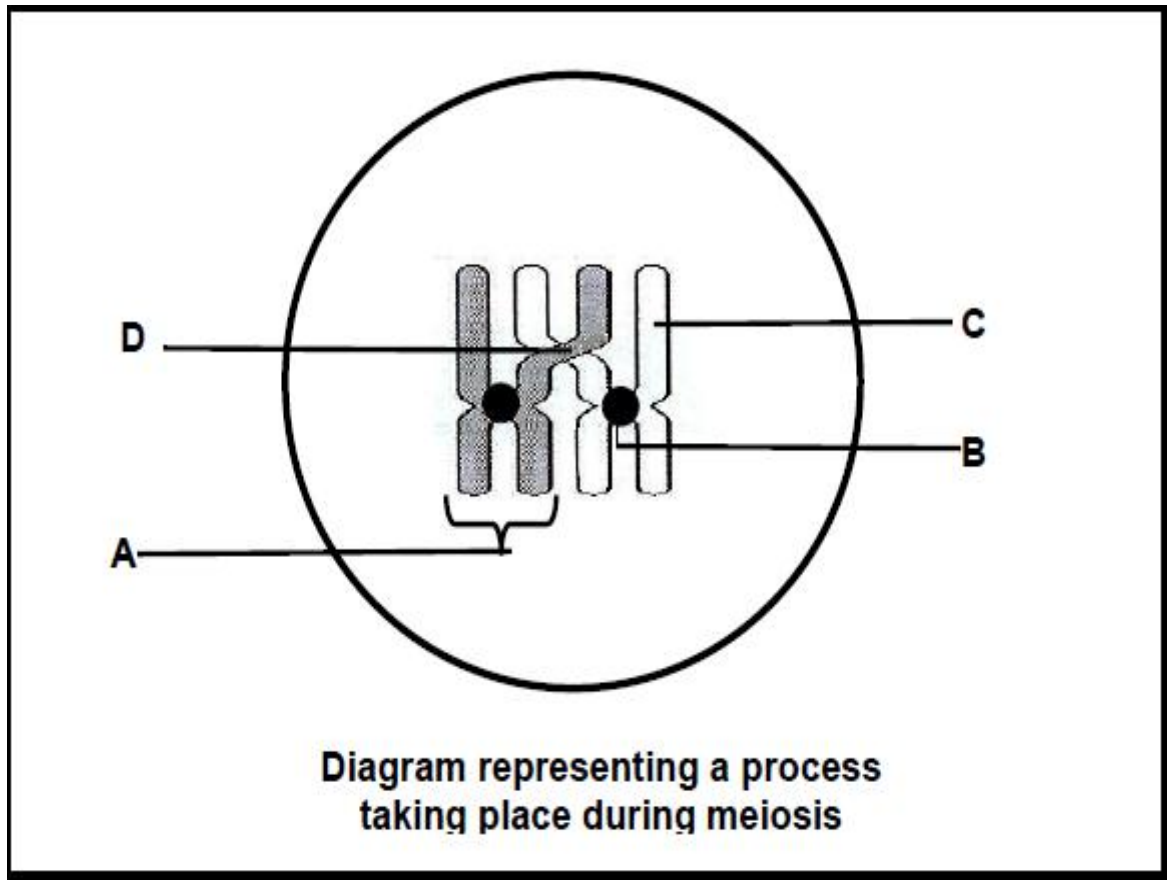

Diagram representing a process taking place during meiosis

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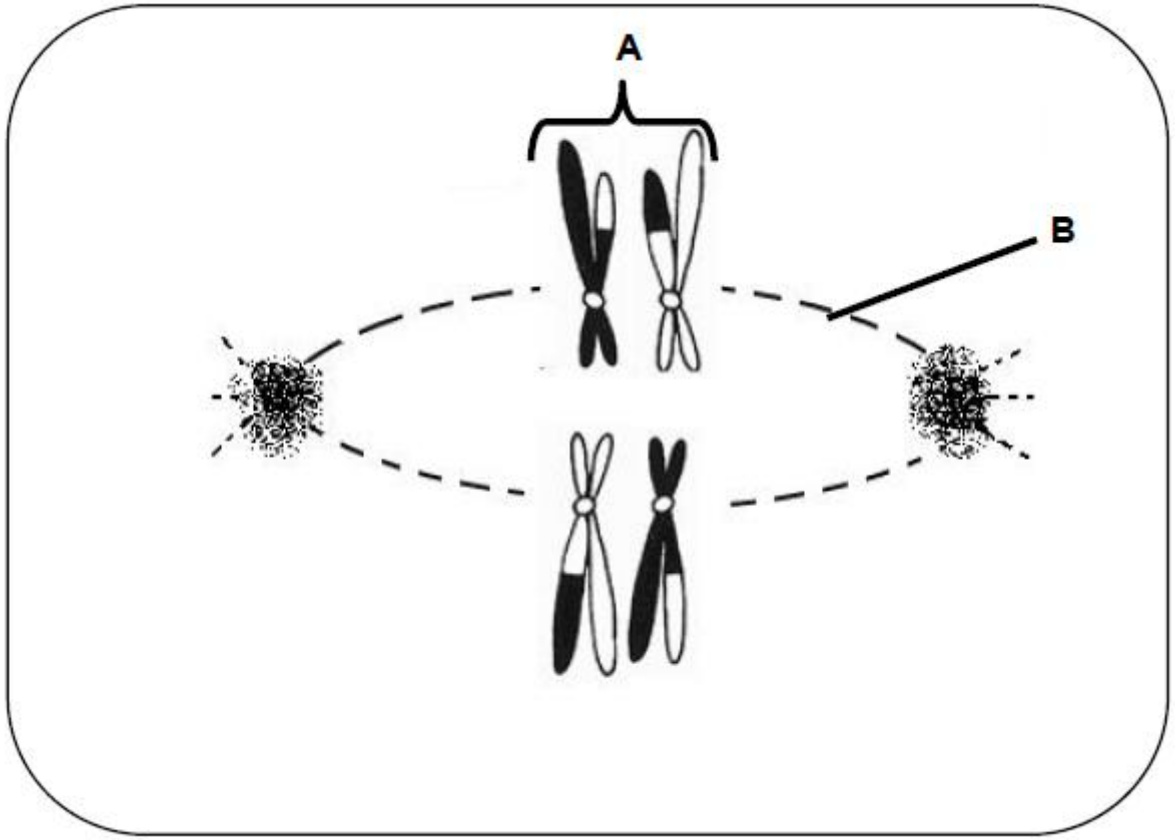
Metaphase I



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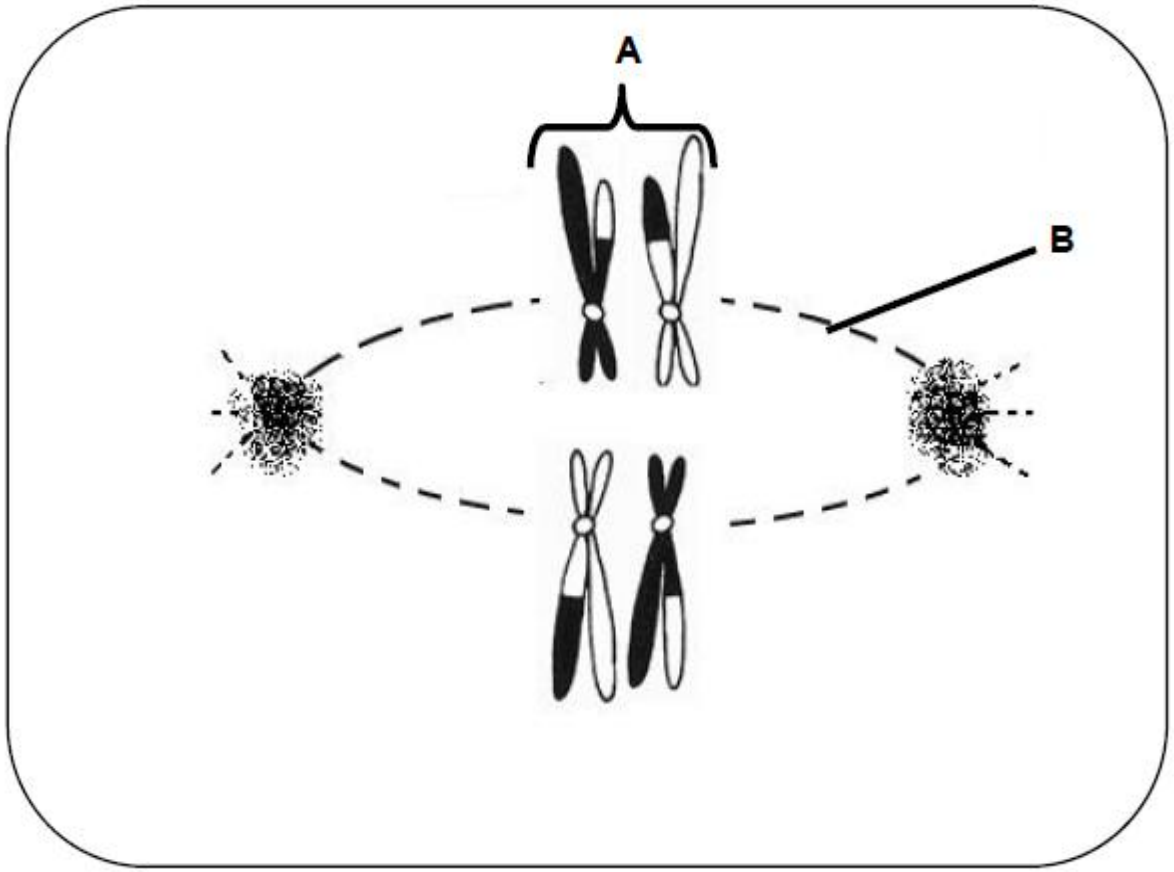
Anaphase I



Chromosomes separate

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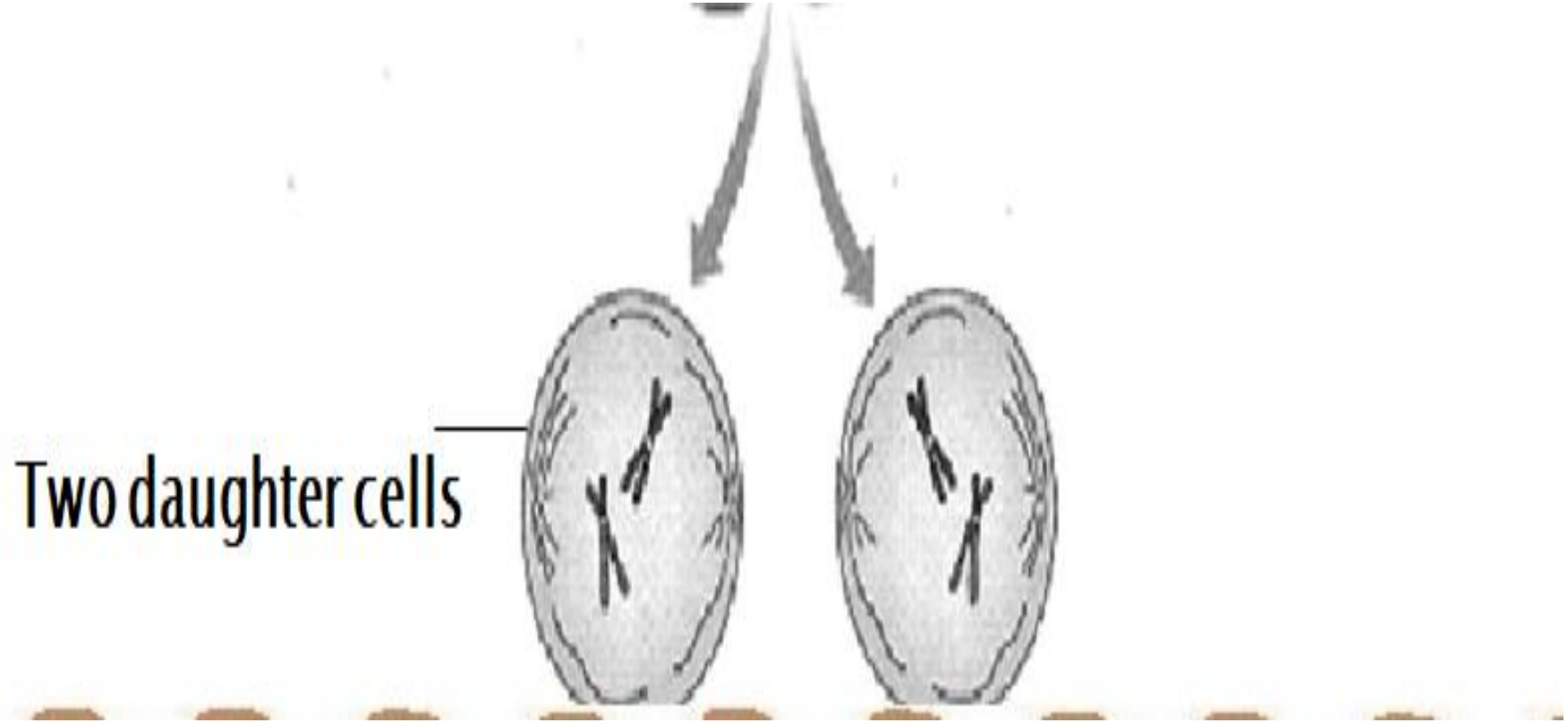
Telophase I



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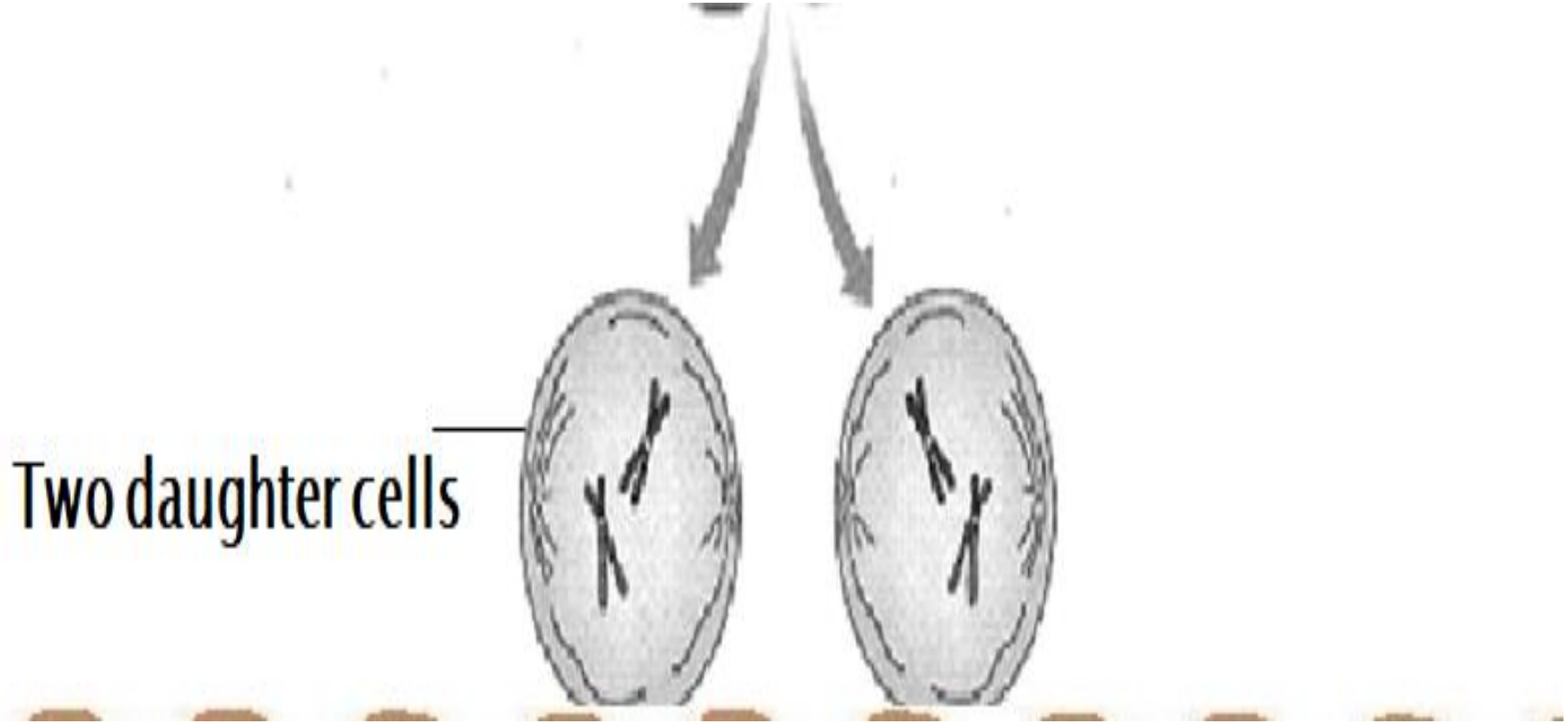
Prophase II



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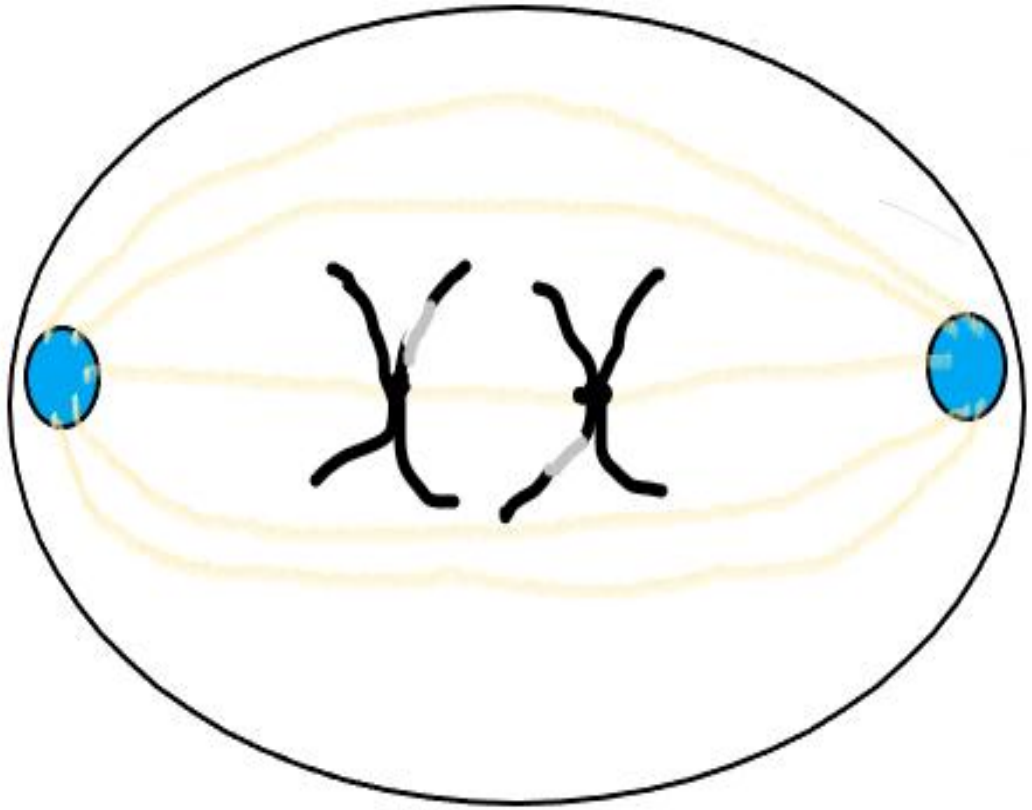
Metaphase II



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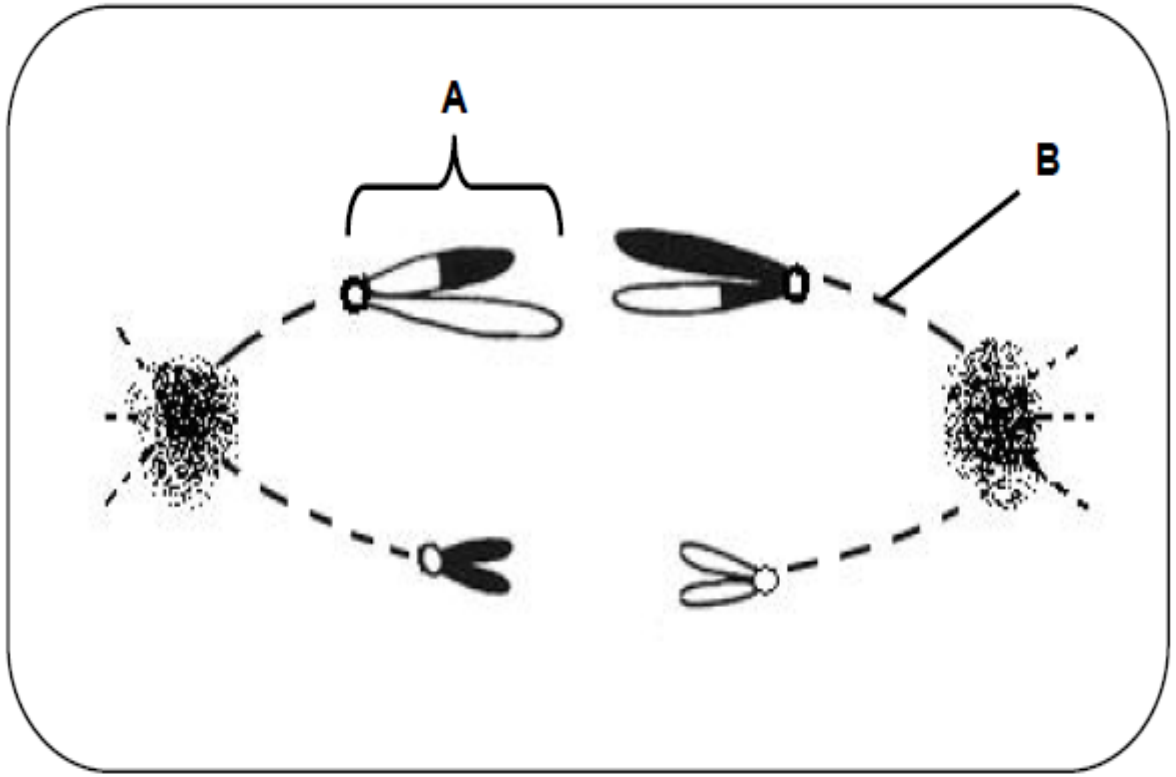
Anaphase II



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Telophase II

Four haploid cells, each with two chromosomes known as reproductive cells. (ovum or sperm)

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Question

Where does meiosis take place in animals and in plants?

Answer

In animals - testes and ovaries. Parent cells (2n) divide to form sperm cells and ova. Look at the picture below to see where the same process happens in plants.

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How Meiosis contributes to Variation

- Crossing Over during prophase I
- Random arrangement of chromosomes on equator

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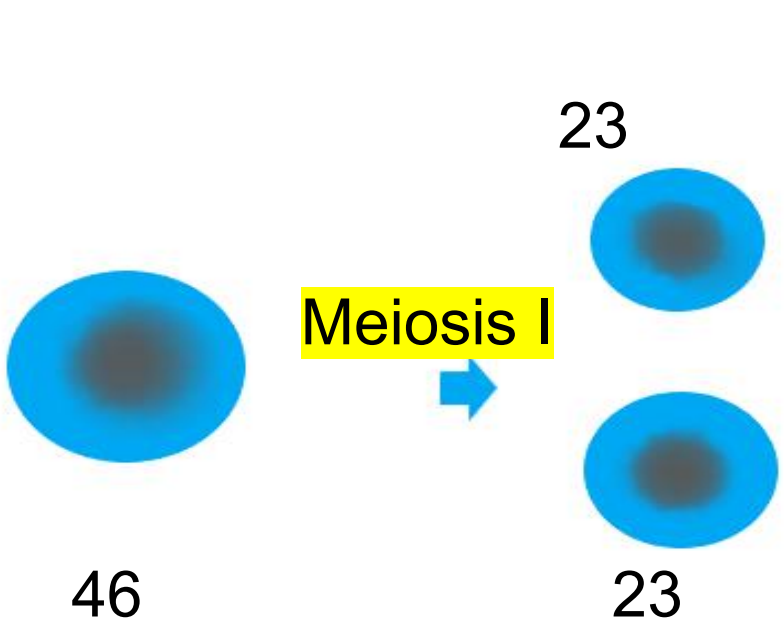
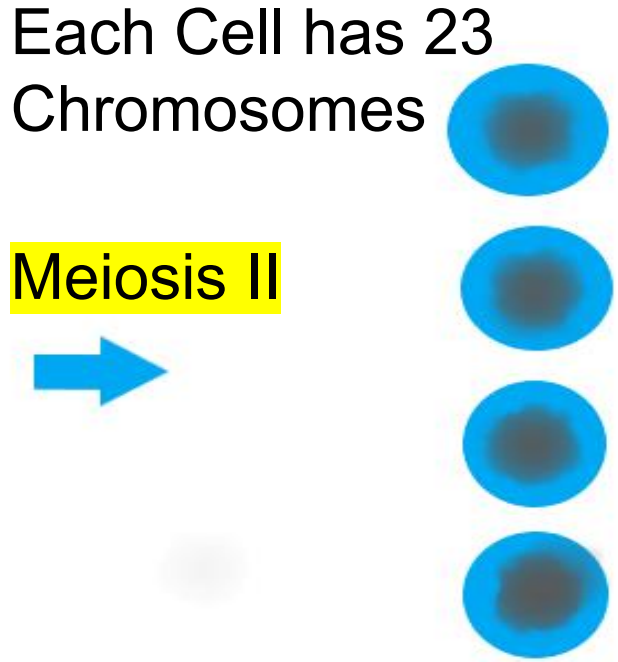
Chromosome numbers - halved





Not halved again

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Key Points: Meiosis

- What is Meiosis?
- The Importance of Meiosis
- Chromosome numbers – Diploid and Haploid
- The events of Meiosis I
- The events of Meiosis II
- How Meiosis contributes to Variation

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