Name:_____
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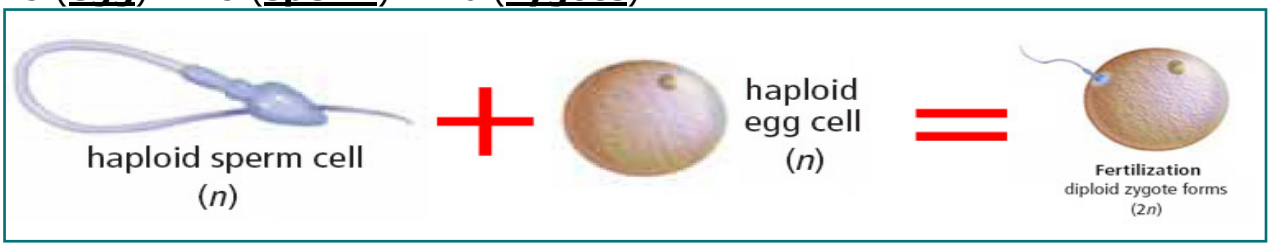
Science 9
Notes on Meiosis

Meiosis is an important aspect of **sexual reproduction**
Sexual reproduction, through the shuffling of DNA, produces genetic diversity.

This variation offspring produces individuals that may have **advantages** over one another.

Role of Gametes:
Normal body cells have a **diploid** chromosome number, meaning chromosomes occur in **pairs**.

In humans, the male and female each contribute 23 chromosomes - when **fertilization** takes place:
23 (**egg**) + 23 (**sperm**) = 46 (**zygote**)

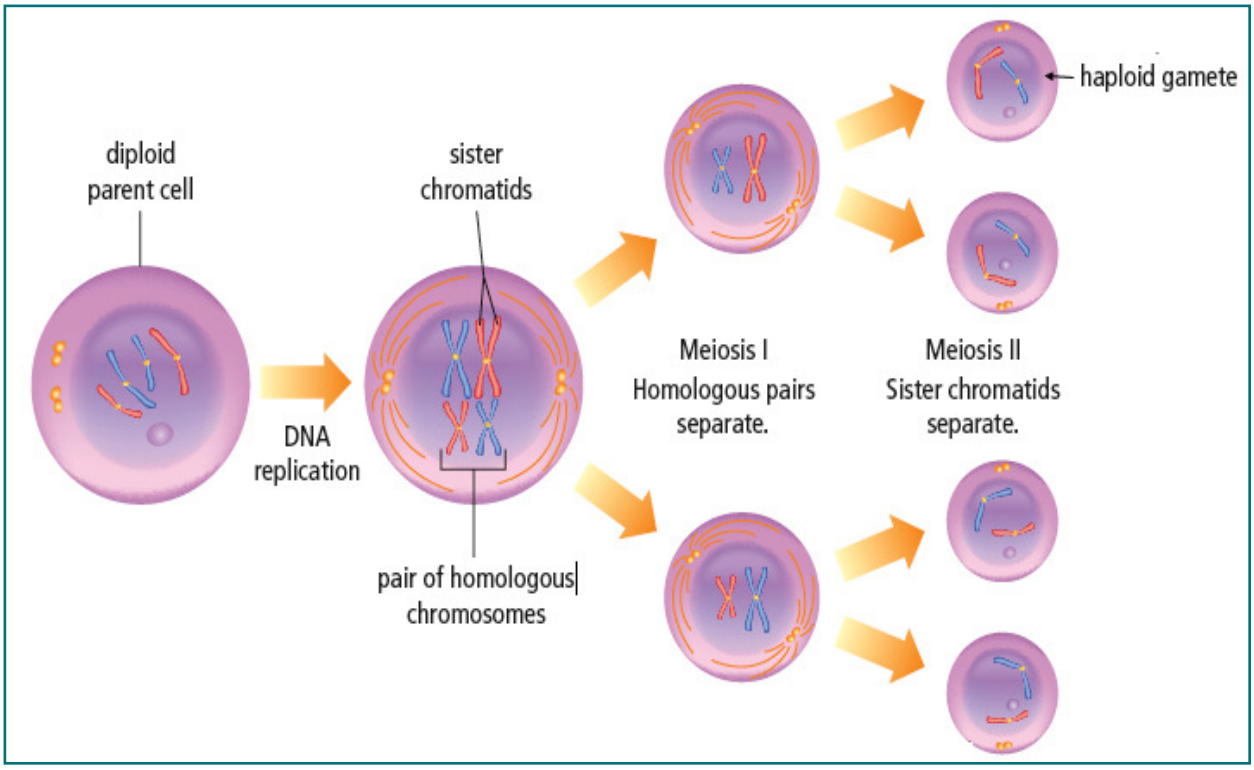


The zygote goes on to develop into an **embryo**, and on into a complete individual. When the time comes, the cycle repeats - humans produce **gametes** (either egg or sperm) that have half (**haploid**) the normal number of chromosomes.

Meiosis
Meiosis produces gametes with **half** the chromosomes compared to body cells:

Meiosis I:
Matching chromosome pairs (**homologous chromosomes**) move to opposite poles of the cell - two daughter cells result.

Meiosis II:
Chromatids of each chromosome are pulled apart - the end result is **four** haploid cells, each with half the number of chromosomes. These develop into **gametes**.



Crossing Over
In meiosis I, chromatids of chromosome pairs can **cross over** each other and exchange DNA segments - this **increases** genetic possibilities and produces more variation

Independent Assortment
The pairs of chromosomes in meiosis I separate **independently**, creating many different combinations of chromosomes in the daughter cells

Meiosis Details:

Gametes do not form equally in males and females:

In males, all **4** cells resulting from meiosis develop into **sperm.**

In females, **1** cell gets most of the cytoplasm and becomes the **egg**.