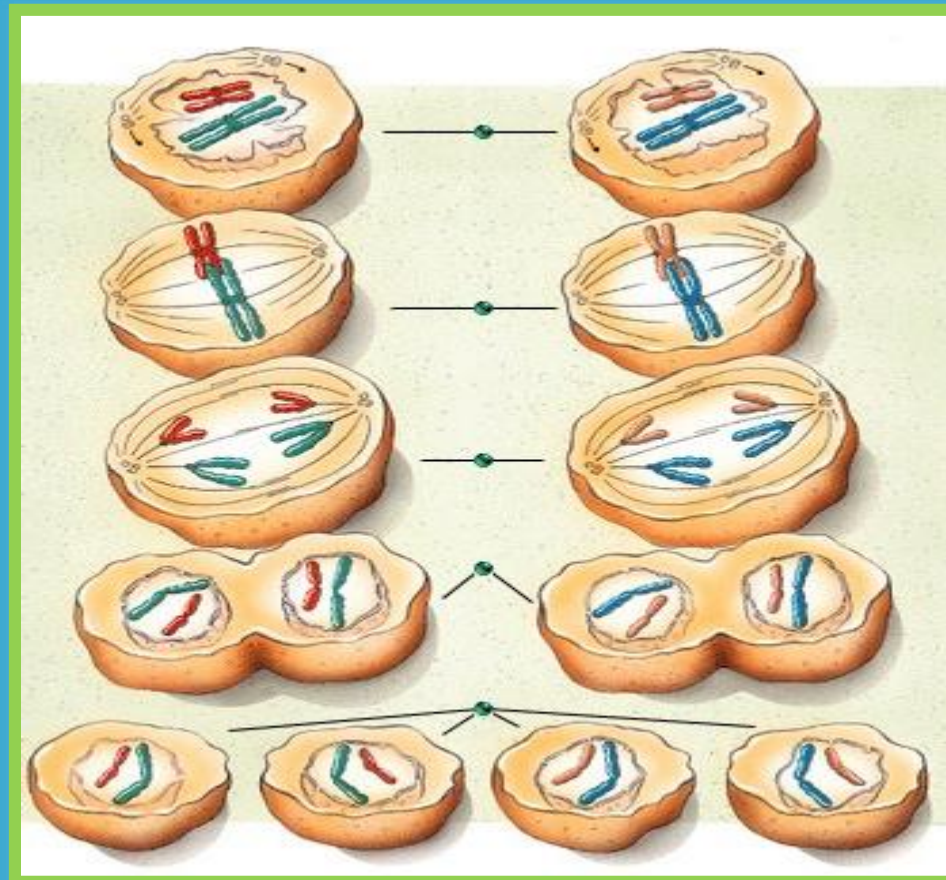
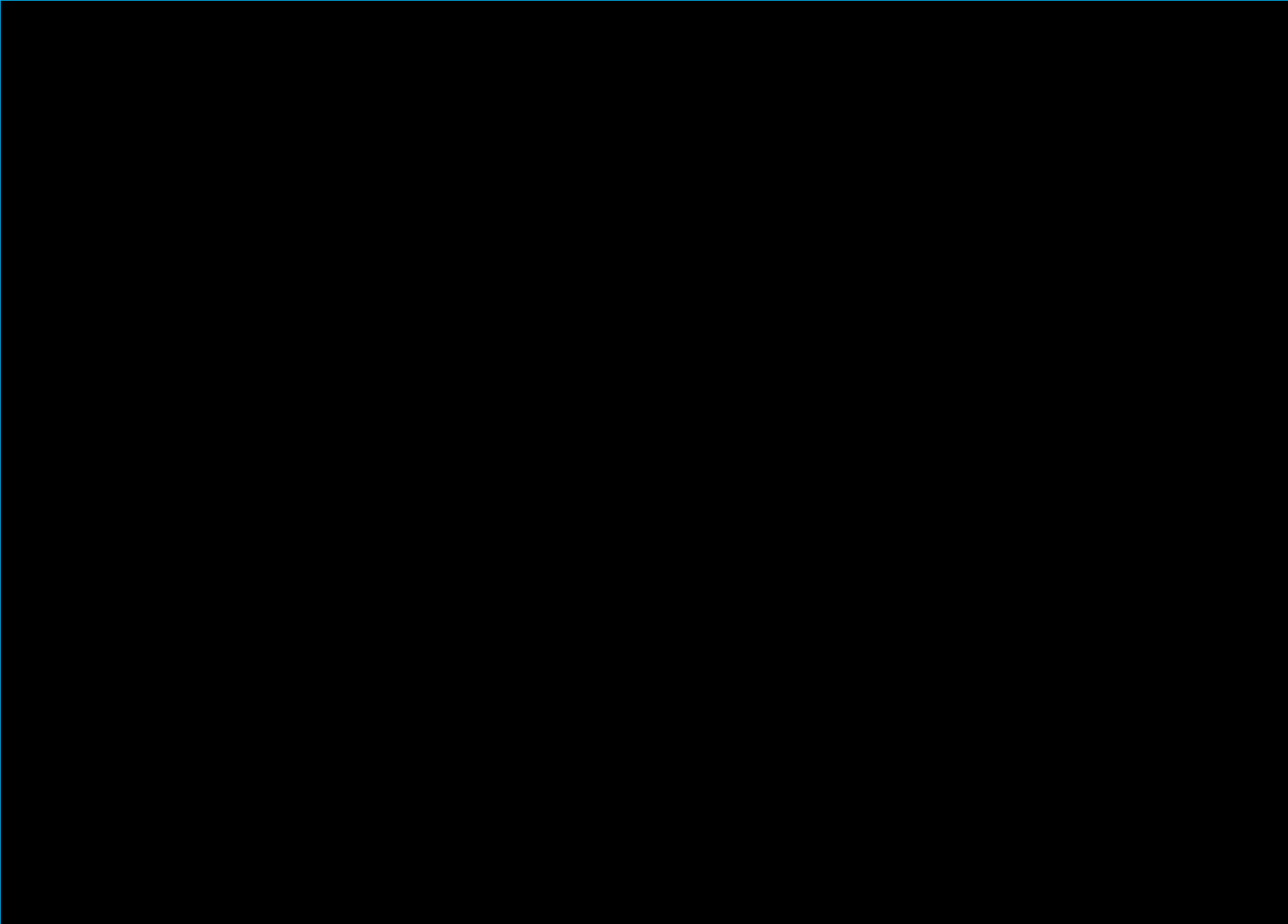


Meiosis



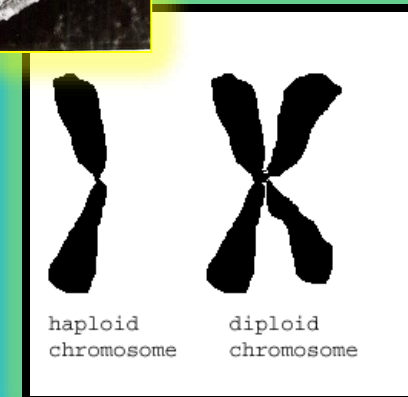
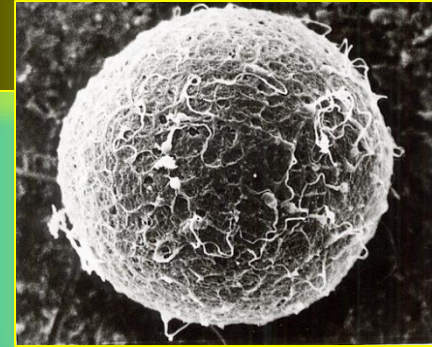
Meiosis



Sex Cells

- Also called gametes
- Eggs and sperm
- Made by meiosis
- Have haploid number of cells (N)

Humans = 23



What is meiosis?

- Sexual reproduction(relies on meiosis)

Meiosis is cell division to form gametes (sex cells)

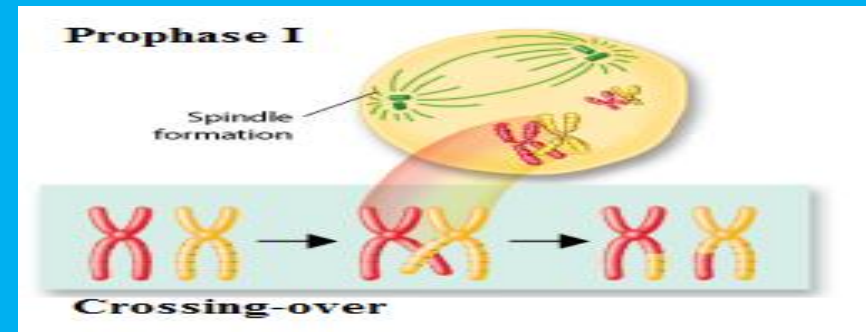
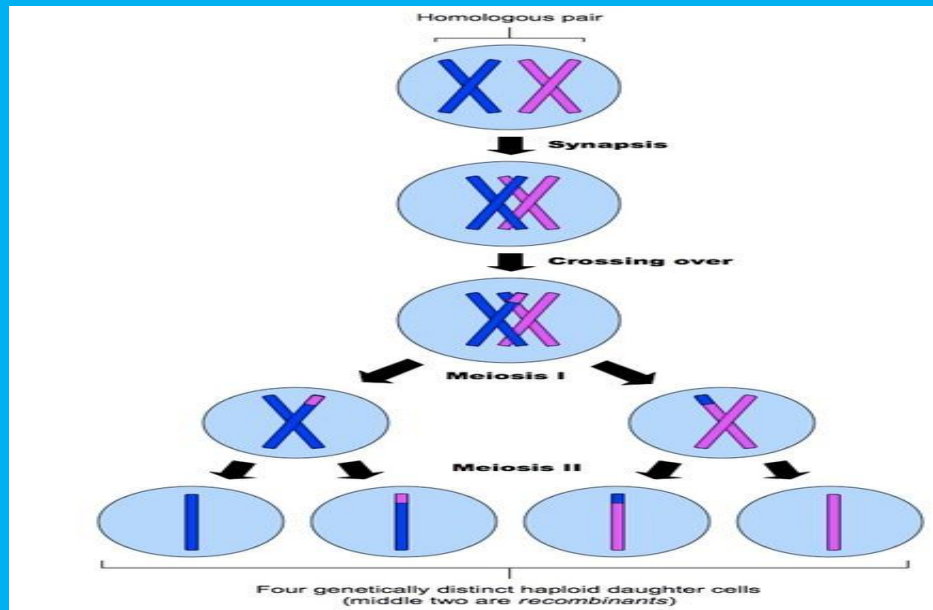
- Sperm: male gamete
- Egg: female gamete

--Occurs in the gonads--



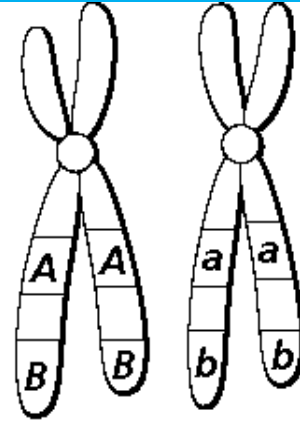
Genetic Variation in Meiosis

- Meiosis does NOT make identical cells
- Ensures genetic variation of a population in two ways:
 - Crossing-Over: Sister chromatids cross over one another and exchange genes.
 - HAPPENS ONLY IN MEIOSIS
 - Having Two Parents: get $\frac{1}{2}$ of your genes from each parent

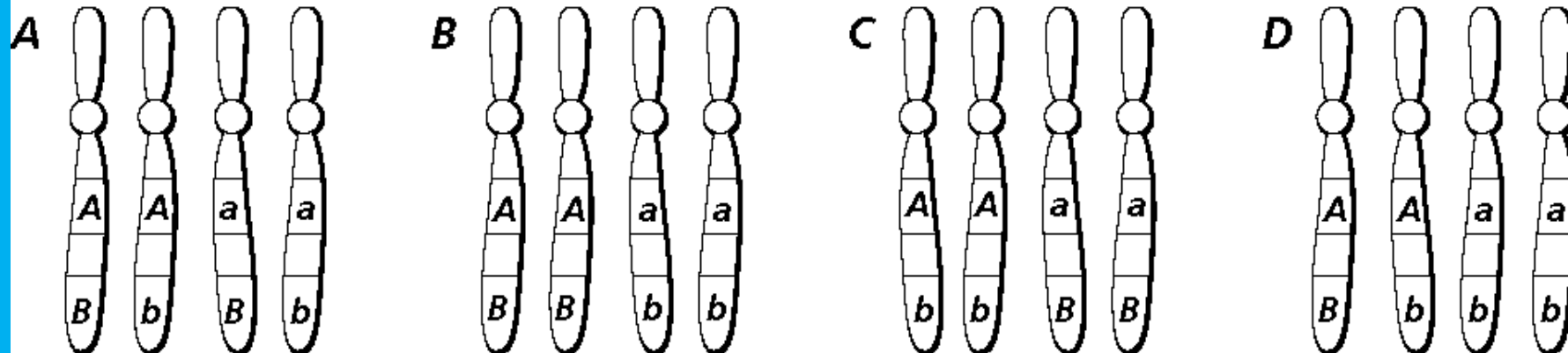


Diagrams of Crossing Over

Crossing Over Example



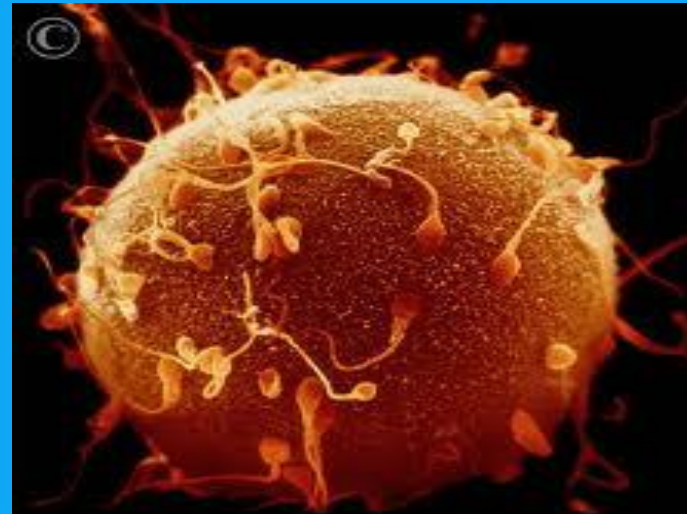
Homologous chromosomes



Which letter would result from a single crossover of the above homologous pair?

Fertilization

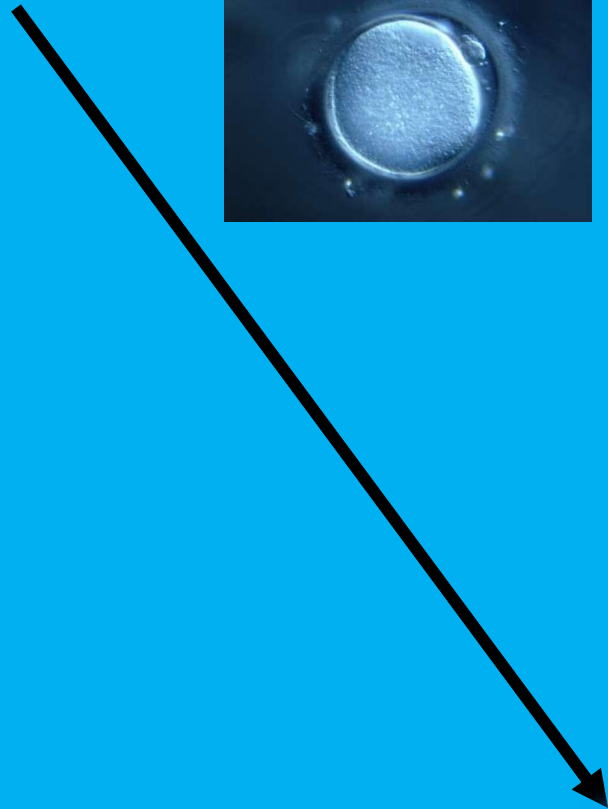
- A human sperm cell (gamete) has a haploid (N) number of chromosomes = 23.
- Once a haploid egg (N) is fertilized by a sperm it is called a **zygote**.
- The diploid (2N) number of chromosomes in a human zygote = 46.



Egg = haploid (N)



Sperm = haploid (N)



ZYGOTE =
diploid (2N)

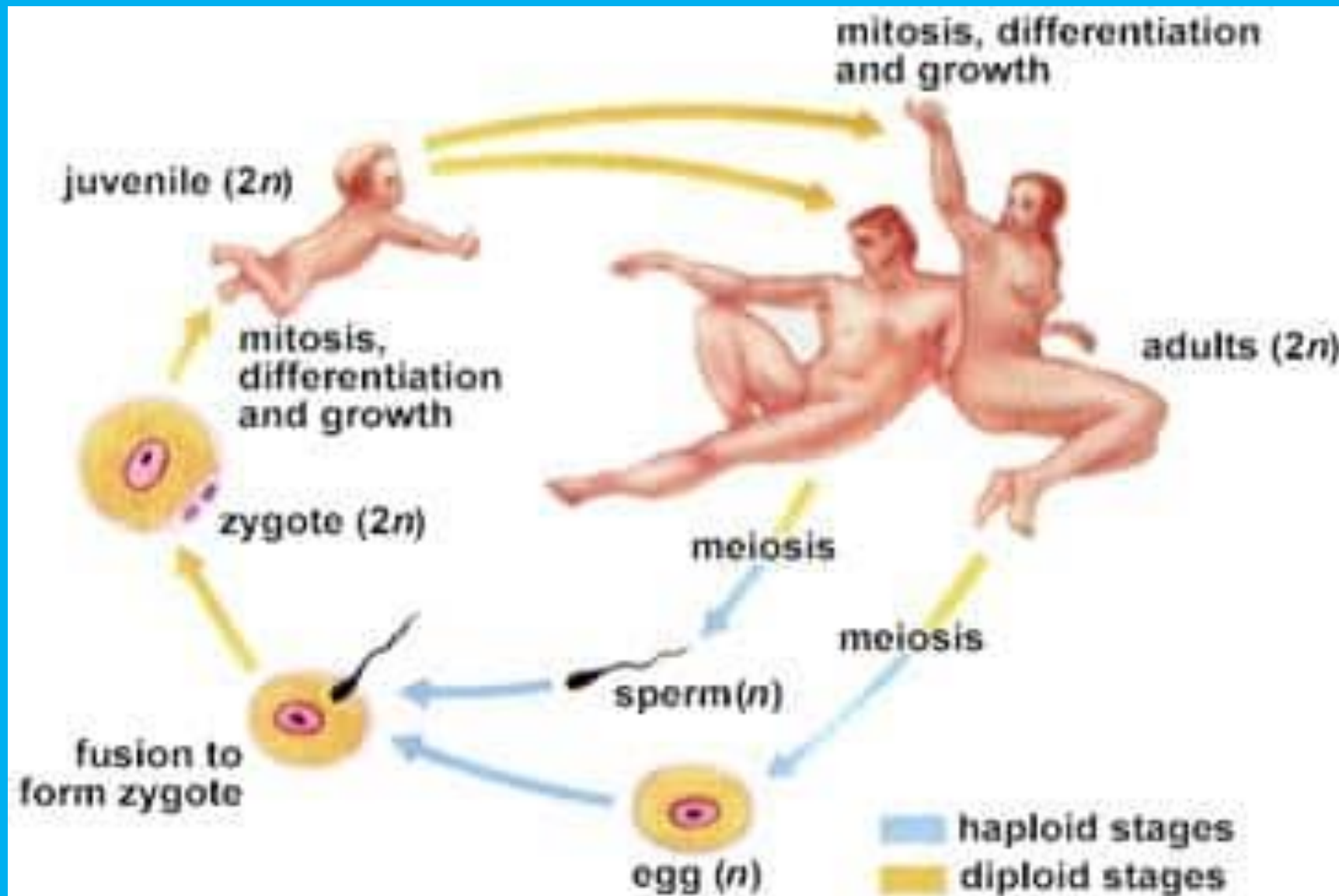
Humans
23 + 23 = 46



Fertilized egg



Mitosis vs Meiosis Summary



Mitosis vs. Meiosis

