

# MEIOSIS AND FERTILIZATION

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MY OH MY!!!

## What do we need to know?

(Background Information)

- homologous chromosomes: a pair of chromosomes, one from each parent.
  - haploid (n): one set of chromosomes
  - diploid (2n): two sets of chromosomes
- n = number of chromosomes

## Two Major Types of Cells

- somatic or body cells  
ex: skin, stomach, brain, liver, blood cells, etc.
- sex cells (also called gametes)  
female= egg cells (created in ovaries)  
male= sperm cells (created in testes)



Egg in the fallopian tube

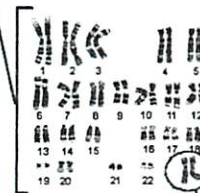


Sperm

## Within each somatic (body) cell are chromosomes

- Sex Chromosomes: the X and Y determine gender  
male- XY female- XX  
"XY it's a guy, XX the opposite sex."
- Autosomes: all of the other chromosomes (chromosomes #1-22)

Autosomes



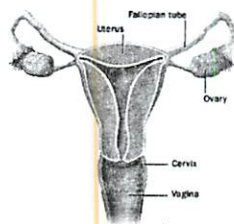
Sex Chromosomes

## What is Meiosis?

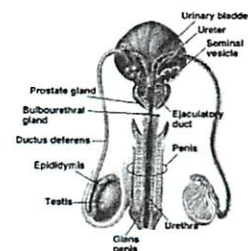
Meiosis makes sex cells or gametes.

Meiosis is a cell division process that reduces the number of chromosomes by half.

## Site of Meiosis



Female Anatomy

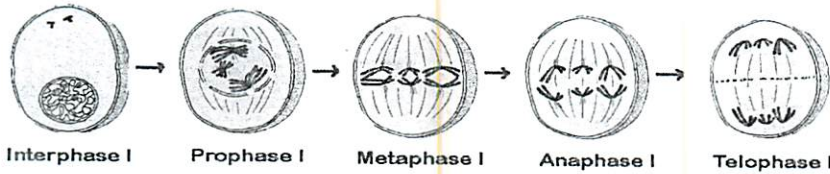


Male Anatomy

## WHAT HAPPENS IN MEIOSIS???

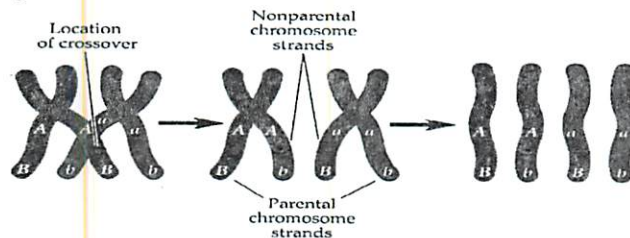
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### Meiosis I (First round of division)



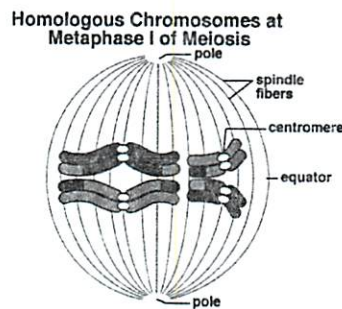
### Crossing Over

- During prophase of Meiosis I, the homologous chromosomes form tetrads, which may exchange genetic information.
- This increases genetic variation.

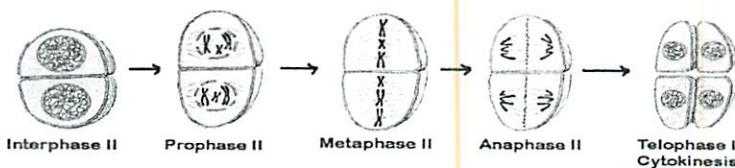


### Independent Assortment of Chromosomes

The chromosomes line up during metaphase I at random which leads to genetic variability.

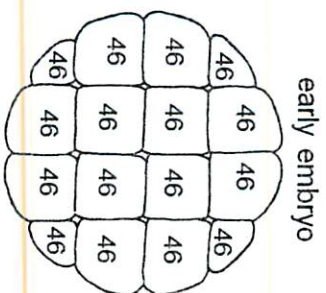
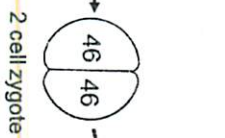
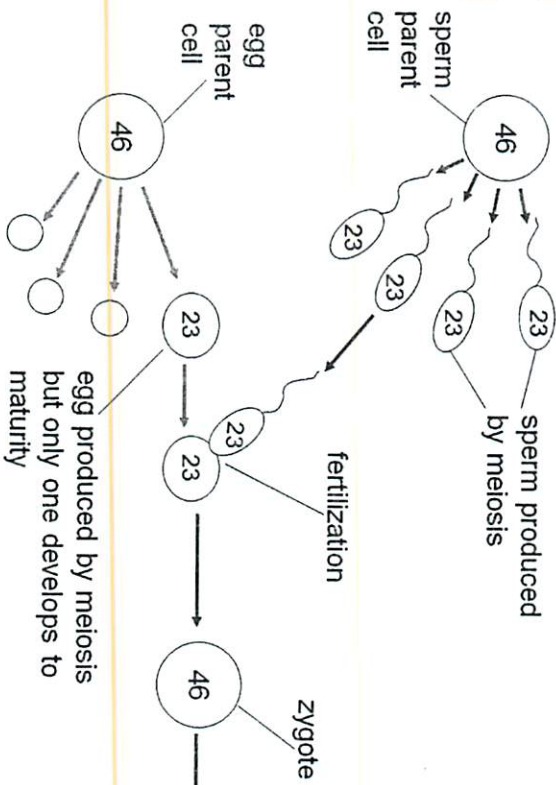


### Meiosis II (Second round of division)



### END RESULT OF MEIOSIS

- 4 sex cells which contain the haploid number of chromosomes
- Unique/different due to crossing over and the independent assortment of chromosomes



Cell division continues by mitosis, so all the cells will contain 46 chromosomes