

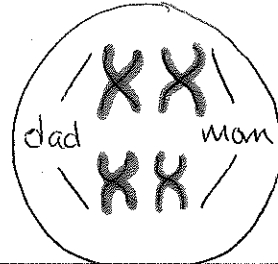
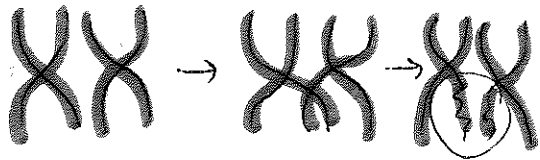
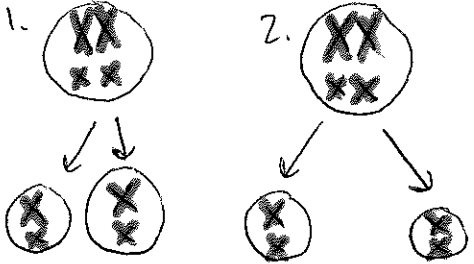
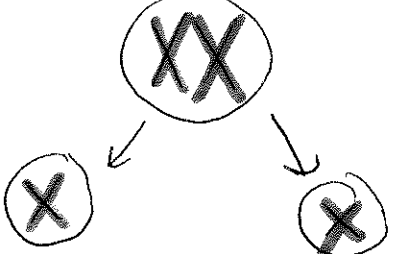
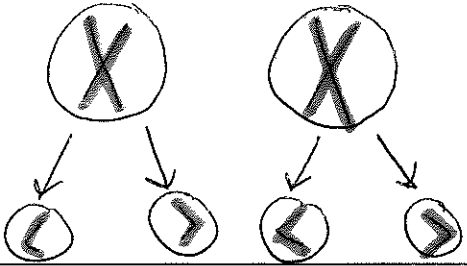
Meiosis Notes

Sexual reproduction 2 parents make 1+ offspring

- Requires sex cells (gametes; sperm + egg) 1/2 # chromosomes



Meiosis cell division that makes sex cells

- Only occurs in sex organs / germ cells (ovaries, testes)

Order	Event	Description	Picture
1	homologous chromosomes pair up	chromosomes from mom & dad find partners (same size, DNA)	
2	crossing over	homologous pairs trade DNA to create new combos of mom & dad genes	
3	independent assortment	chromosomes from mom & dad line up randomly, so many combos are possible	
4	Meiosis I (1st division)	homologous pairs are separated; cuts # of chromosomes in 1/2	
5	Meiosis II (2nd division)	sister chromatids separate to make 4 genetically unique daughter cells, each 1/2 normal chromosome #	

1/2 # → will mature to make sperm/egg

In order to make useable, healthy sex cells (gametes), meiosis must do 2 things:

Goal	1. make cells w/ 1/2 number of chromosomes	2. increase genetic diversity advantage: sex reproduce
Importance	sex cells are meant fuse/fertilize to make offspring 	helps populations survive new challenges or new diseases
How?	divides twice 	crossing over, independent assortment, random fertilization

Meiosis I



Prophase I
(2n = 4)

4 chromosomes
per
cell

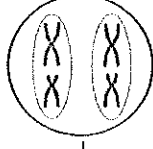


Metaphase I

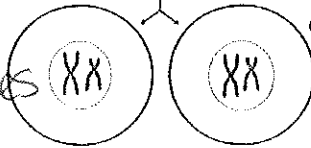
independent
assortment



Anaphase I



Telophase I



Cytokinesis
(n = 2)

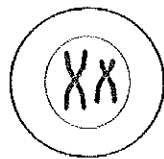
Meiosis II

homologous
chromosomes
cross
over

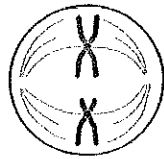
1st
division

2
chromosomes
per
cell

Meiosis II



Prophase II
(n = 2)



Metaphase II



Anaphase II



Telophase II



Cytokinesis
(n = 2)

2nd
division
chromatids
separate

2 chromosomes
per
cell