

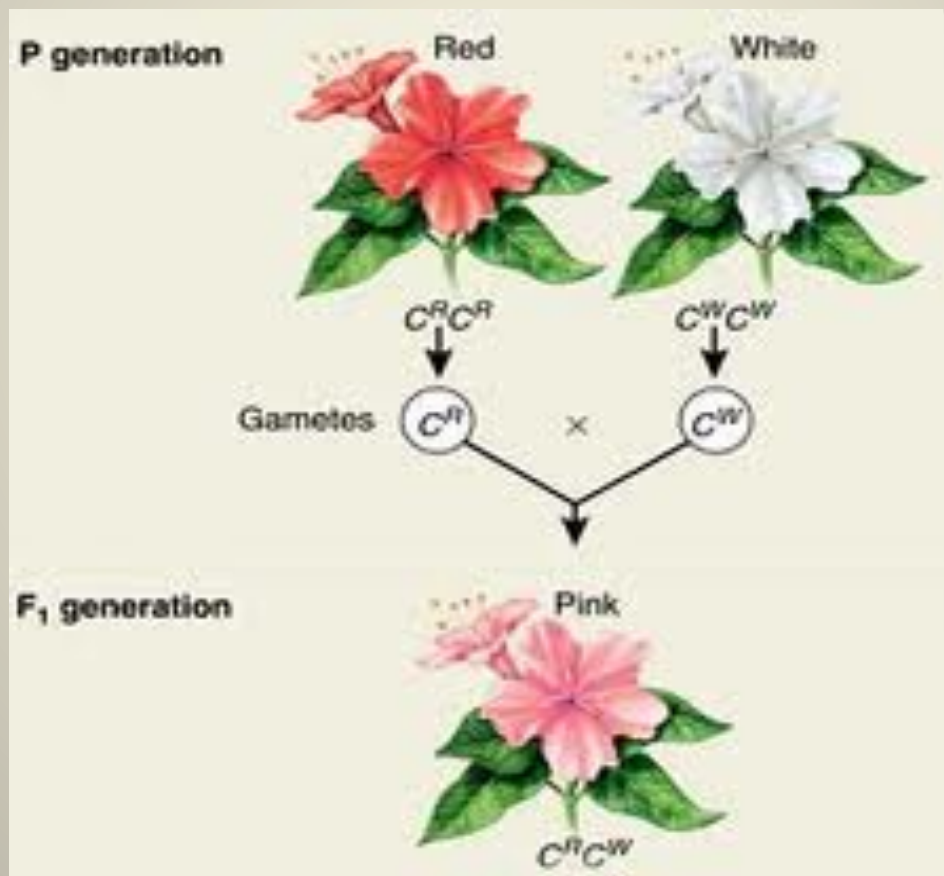
Ch 11-3, 11-4 & 11-5:
-Beyond Simple Dominance
-Meiosis
-Gene Linkage

Essential Questions:

- What are some inheritance patterns different from simple dominance?
- What happens during the process of *meiosis*?
- What are the differences between *meiosis* & *mitosis*?
- What are *gene maps* and *gene linkage*?

■ Beyond Dominant and Recessive Alleles

- Incomplete Dominance



- Codominance



- Multiple Alleles

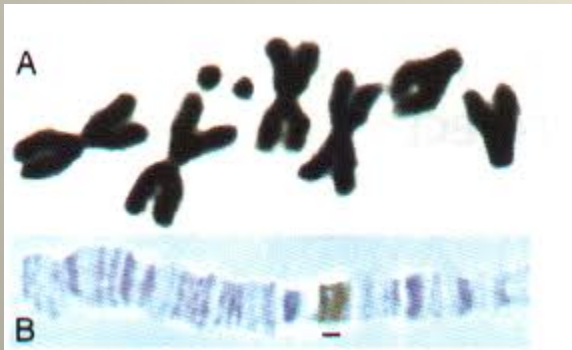
Possible genotypes	CC, Cc^{ch}, Cc^h, Cc	$c^{ch}c^{ch}$	$c^{ch}c^h, c^hc^h$	c^hc^h, c^hc	cc
Phenotype	Dark gray	Chinchilla	Light gray	Himalayan	Albino



– Polygenic Traits



- Meiosis
 - Chromosome number
 - **Homologous**: corresponding to other parent's genes
 - **Ex: fruit fly: 8 chromosomes**
 - 4 from Mom, 4 from Dad
 - **Diploid** = “2 sets” (2N)
 - » **Fruit fly: $2N = 8$**
 - Gametes are **haploid** (“one set”)
 - » **Fruit fly: $N = 4$**



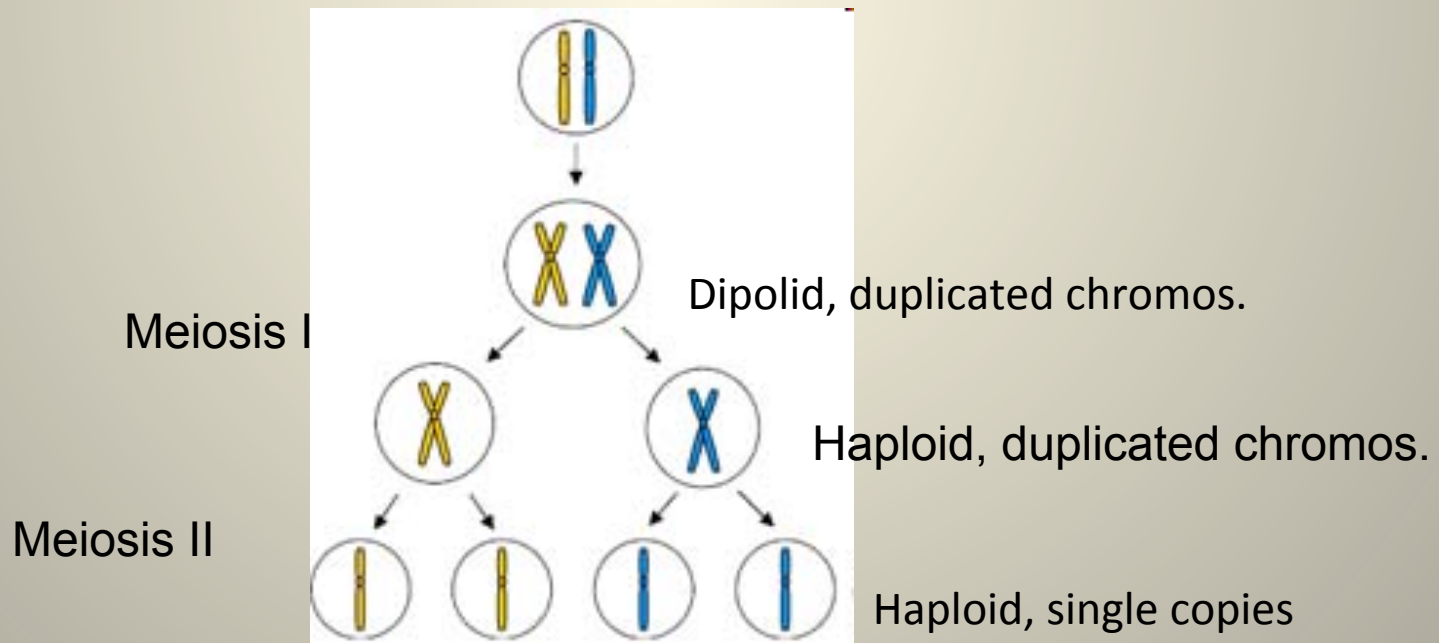
- Phases of meiosis

- Meiosis I separating *homologous chromos.*

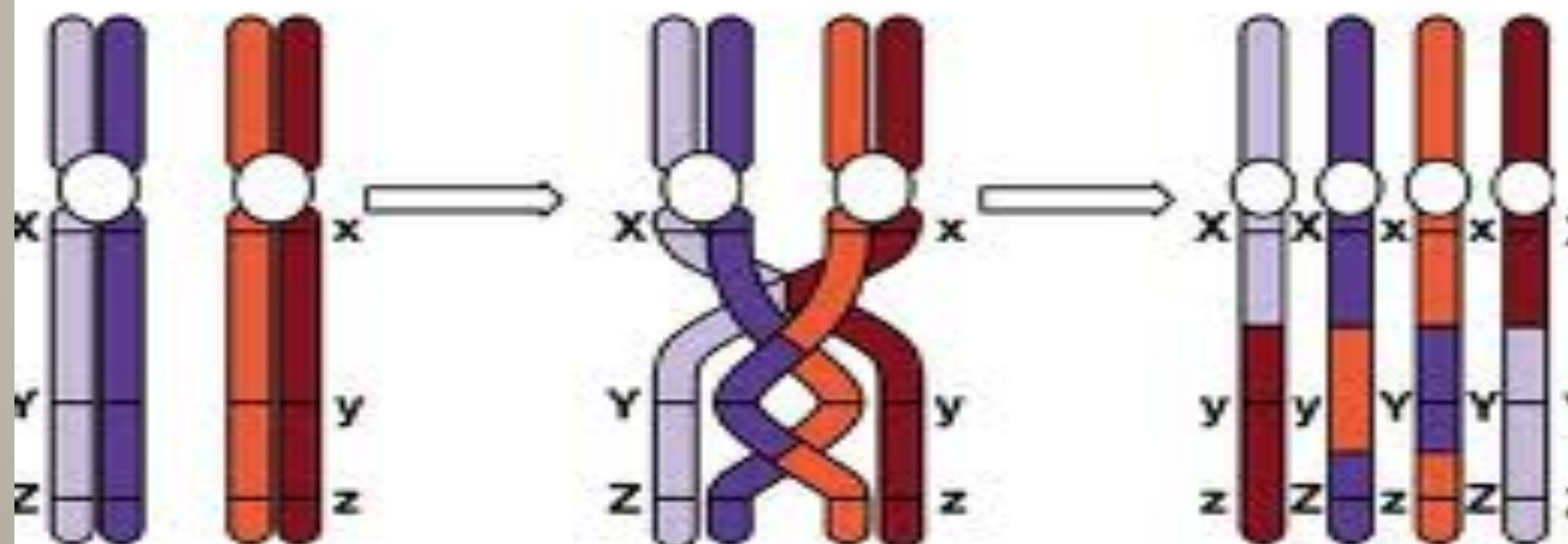
- Crossing over

- Meiosis II – *sister chromatids*

- gametes

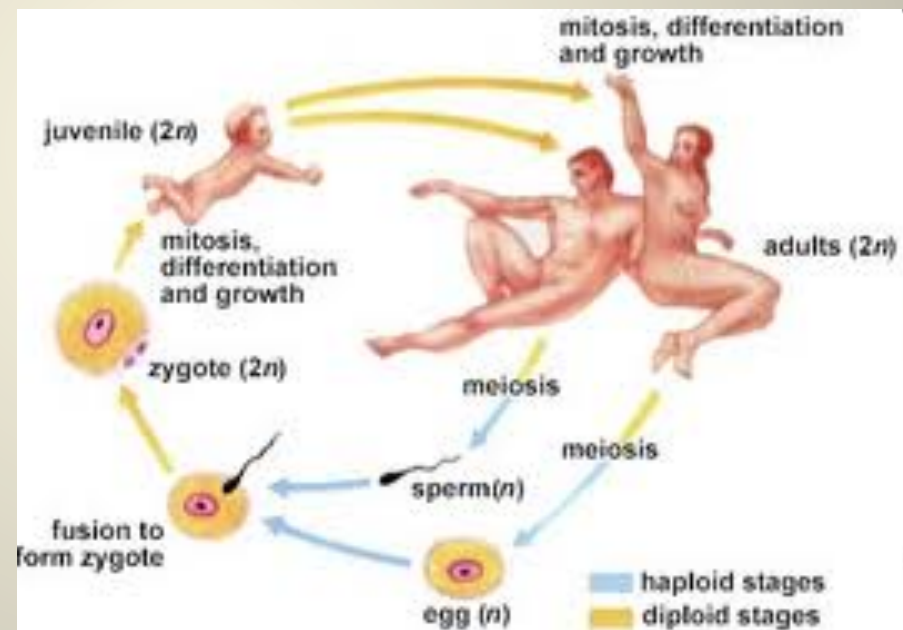


Crossing over during meiosis



■ Comparing Mitosis & Meiosis

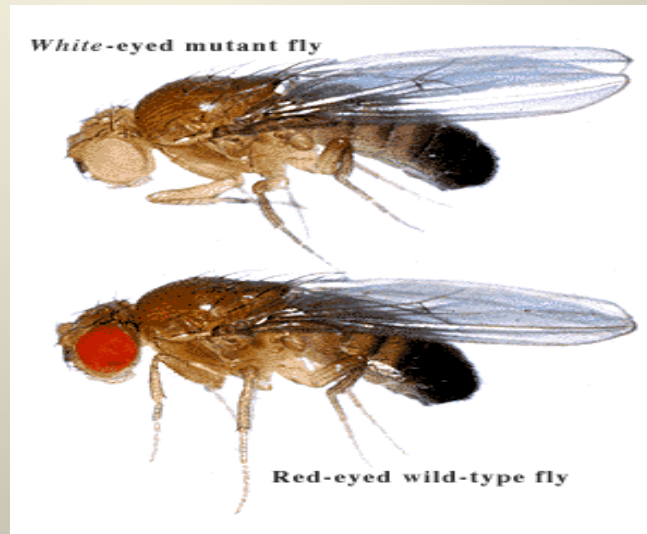
- Mitosis: 2 genetically identical diploid cells
- Meiosis: 4 genetically different haploid cells



Linkage and Gene Maps

Gene linkage

- Mendel: genes assort independently in meiosis
- Morgan (1910):
 - chromos. are a group of linked genes
 - genes on same chromos. tend to be inherited together



– **Chromosomes** assort independently, NOT individual genes.

- Gene Maps

- Are genes on same chromos. always linked?

- No

- Greater dist. between genes on chromos., more likely that they will separate.

