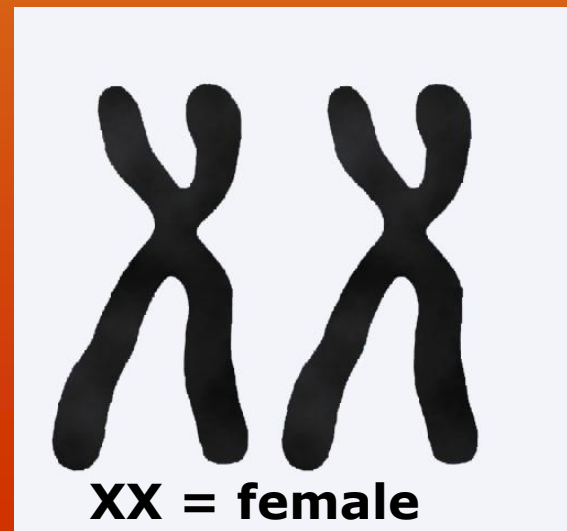
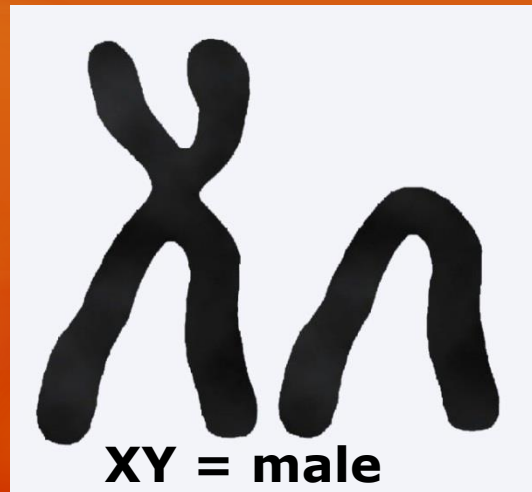
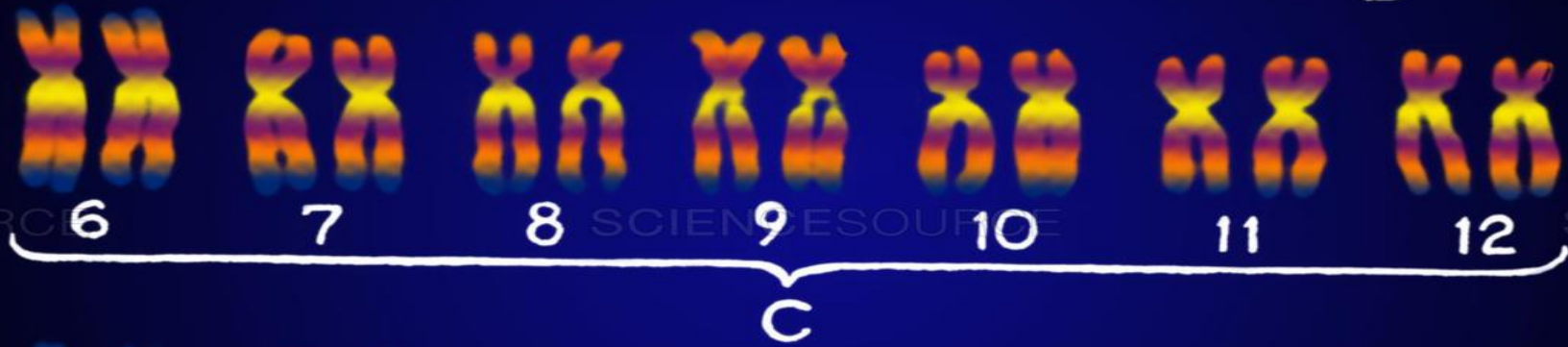
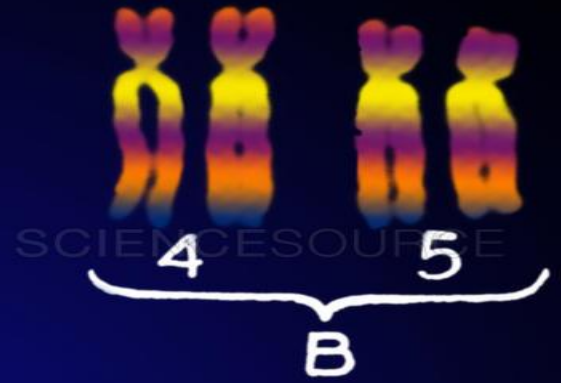
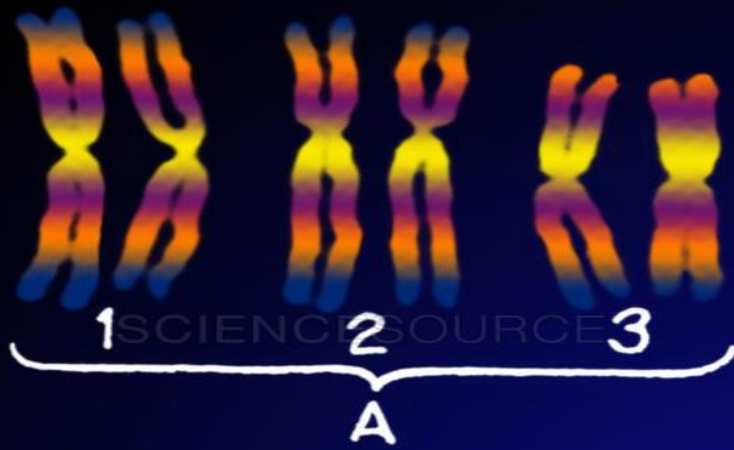


Non-Mendelian: Sex- Linked Traits

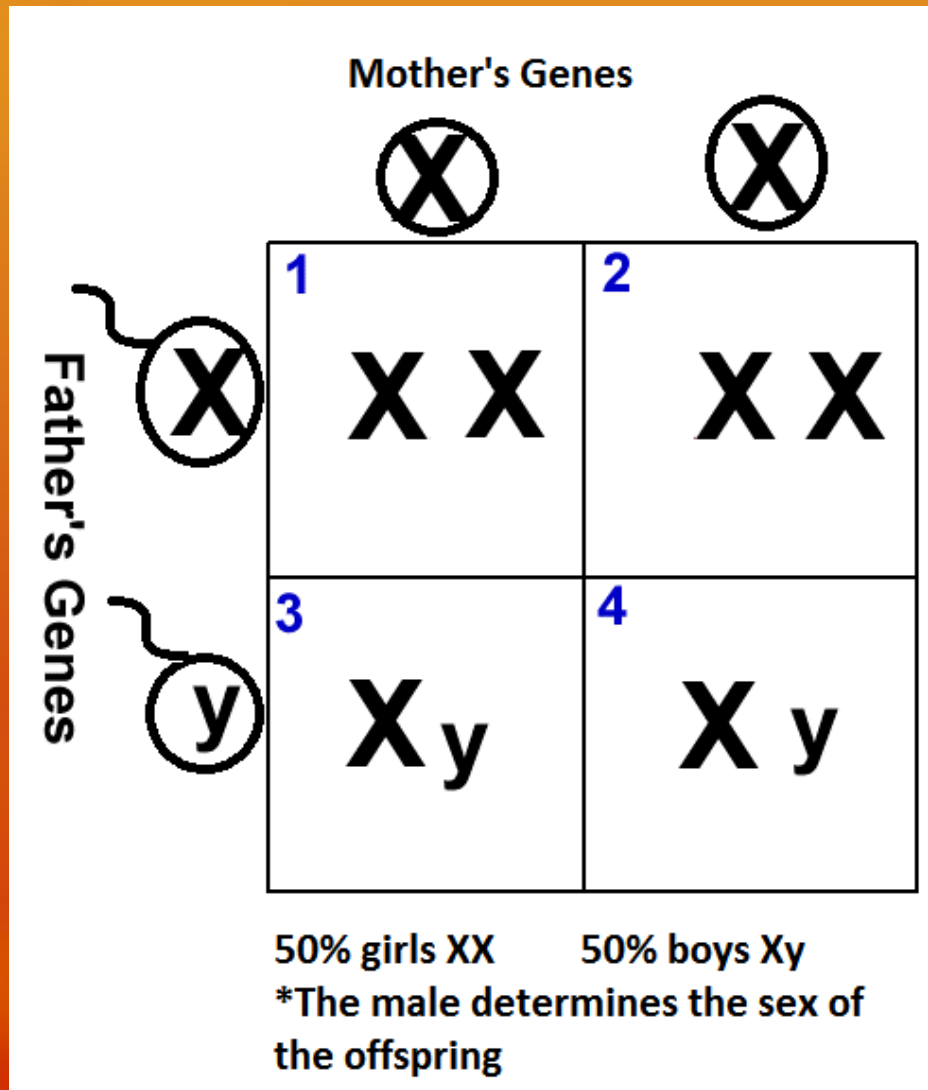
A. Determining Sex

1. Humans have a **diploid** number of **46** chromosomes or **23 pairs**
2. 22 of the pairs are autosomes, they are the **same** for males and females
3. The 23rd pair of chromosomes **differ** in males and females
 - They are the sex chromosomes and are indicated by **X** and **Y**





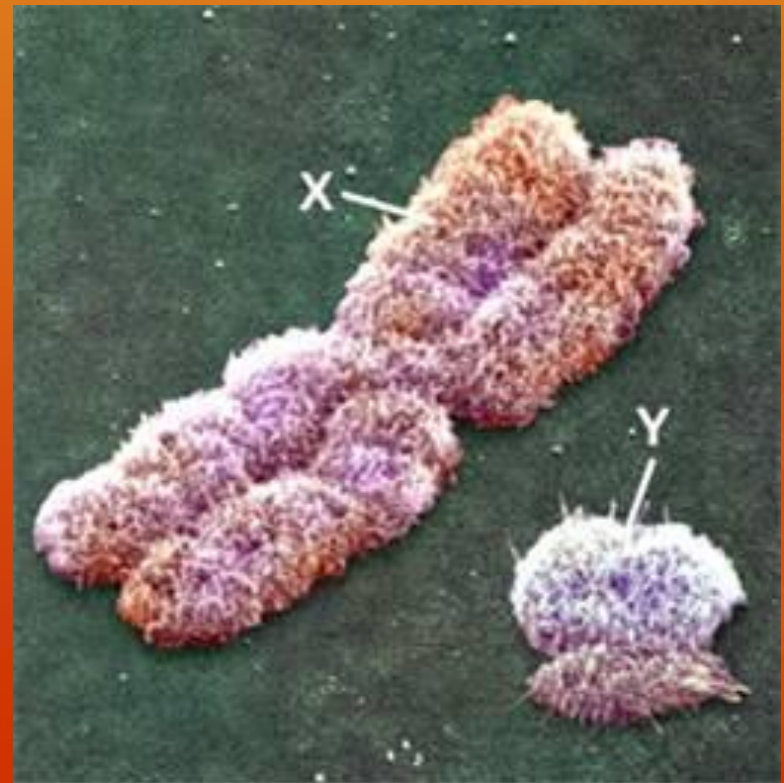
- **Males** determine the baby's sex because only men give the Y chromosome



IX. Sex- Linked Traits

B. Inheriting sex linked traits

1. Genes located on the **sex chromosomes** are called sex- linked traits
2. Because the Y chromosome is small it carries **few genes**, including the male determinant sex gene.



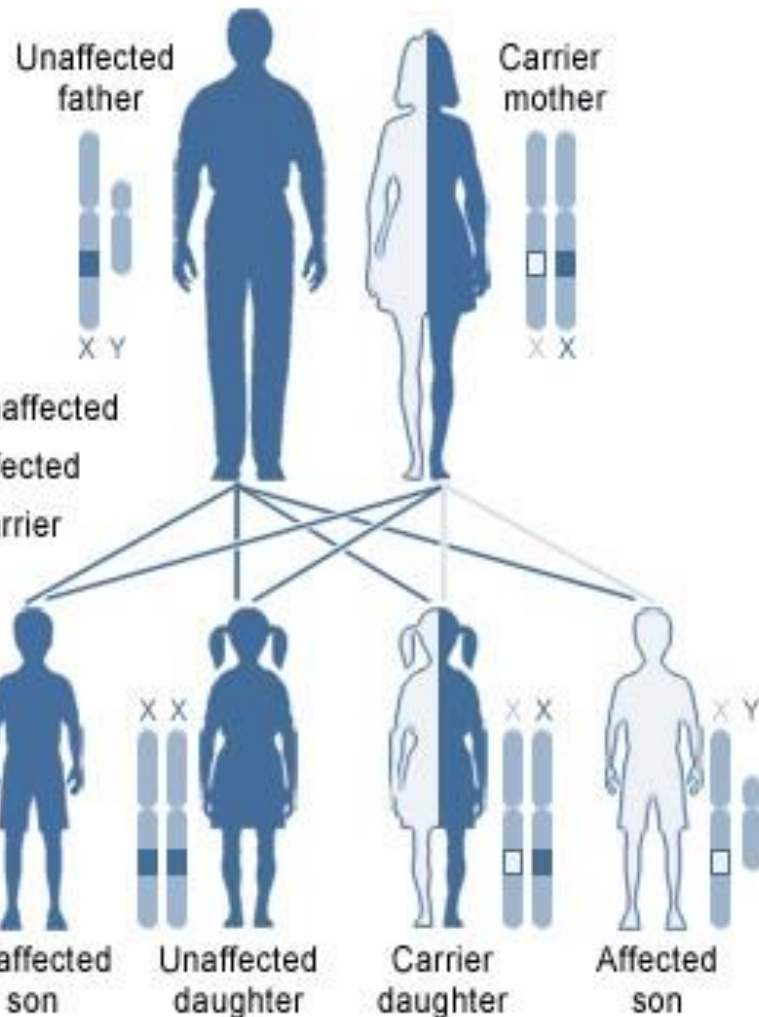
IX. Sex- Linked Traits

3. Males who receive a **recessive allele** on the X chromosomes will express the **recessive phenotype** because he cannot inherit on the Y chromosome.

- There is **no** dominant allele to **overpower** the recessive gene

4. **Males** have a higher percent chance of expressing the recessive trait

X-linked recessive, carrier mother



IX. Sex- Linked Traits

C. Examples in Humans

1. Hemophilia

- Causes a problem with **blood clotting**
- Caused by a **recessive** allele on the **X** chromosomes
- Males: 1/10,000
 - Need **one** recessive allele from carrier mom
- Females: 1/10,000,000
 - Need **two** recessive alleles; one from mom and one from dad



IX. Sex- Linked Traits

C. Examples in Humans

1. **Red-Green** Color Blindness

- People who have red-green color blindness cannot differentiate between the two colors.
- Caused by a **recessive** allele on the X chromosomes

