

Set up and work Punnett Squares to understand sex linked traits.

Get your notebook, title the next page "Sex-Linked"

What is a sex-linked trait?

<https://www.youtube.com/watch?v=h2xufrHWG3E>

Genetics

Gender and Sex Linked Traits

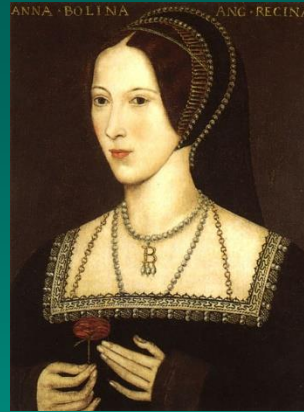
- Is the science of heredity.
- Heredity is the transmission of genetic and physical traits from parent to offspring.

Sex Determination

- Female can contribute only an X chromosome towards the sex of their offspring.
- Male can contribute an X or a Y chromosome toward the sex of their offspring.
- So, what is the genotype of a FEMALE?
MALE?

Medieval Days

- King Henry the 8th
- He killed some of his wives for not giving birth to a son.
- They didn't know back then that it was the man's gamete that determined the gender of the child.



Sex Linked Genes:

- There are genes that are only linked on the X chromosome, which means if you are a male you inherited it from your mom (your dad gave you a Y)! Females can get it from both since dad gives them an X
- Trait examples would be
 - Male Pattern Balding - Yep! From your mom!
 - Colorblindness

Sex-Linked

- Color blindness is a sex linked recessive trait carried on the X chromosome. Cross a colorblind male with a female carrier. What is the chance of a colorblind child?
- Make a key - let's do this together.

Sex-Linked

- Color blindness is a sex linked recessive trait carried on the X chromosome. Cross a colorblind male with a female carrier. What is the chance of a colorblind child?

• KEY:

Now work the square:

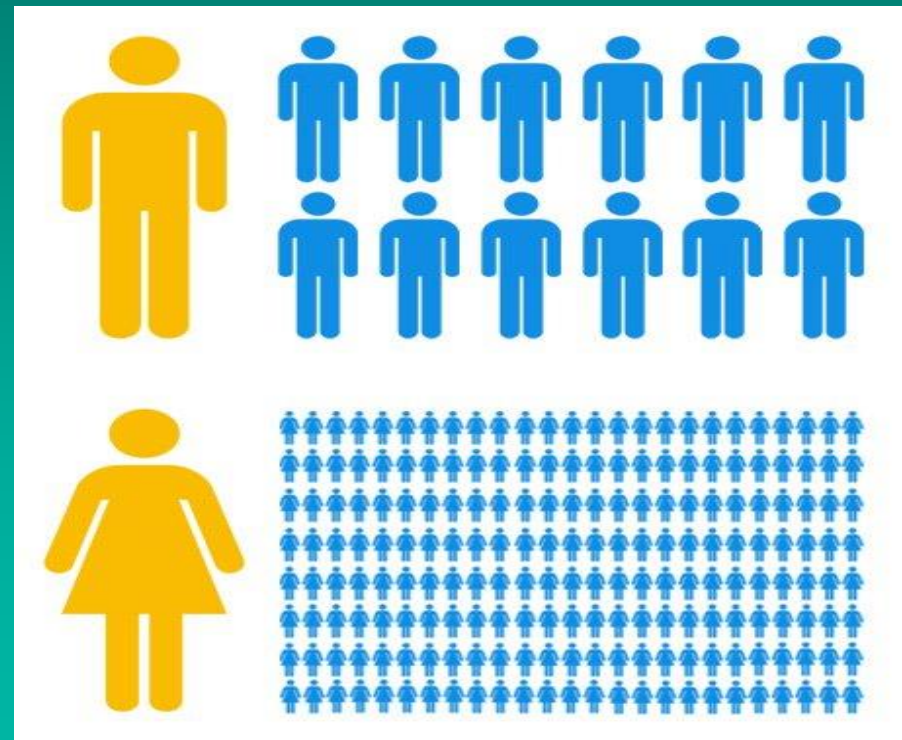
PC: _____ X _____

Chance of colorblind child? _____

Chance of colorblind daughter? _____

Colorblind Statistics:

- 1 out of 4 people have colorblindness to some degree.
- 1 out of 12 men are colorblind.
- 1 out of 100 women are colorblind.



Sex-Linked

- **Male patterned baldness is a recessive sex linked trait. Cross a female carrier with a Normal man. What is the chance their child will have male patterned baldness?**
- **Make a key - Your turn, do this on your own.**

Sex-Linked

- Male patterned baldness is a recessive sex linked trait. Cross a female carrier with a Normal man. What is the chance their child will have male patterned baldness?

• KEY:

Now work the square:

PC: _____ X _____

Chance of child with baldness? _____

Chance of daughter with baldness? _____

Chance of son with baldness? _____

Jacob Syndrome (XYY)	violent, aggressive behavior, great height, acne, speech and reading problems
Klinefelter's Syndrome (XXY)	males with small testes, no pubic or facial hair, long arms, large hands and feet, slow learners
Carr-Barr-Plunkett Syndrome (XXXX)	mental retardation, narrow shoulders, web neck, behavioral problems
Kesaree-Wooley Syndrome (XXXXX)	growth deficiency, mental deficiency, short neck, low ears
Barr-Shaver-Carr Syndrome (XXXY, XXY)	males effected, mental retardation, growth delay, flat nasal bridge