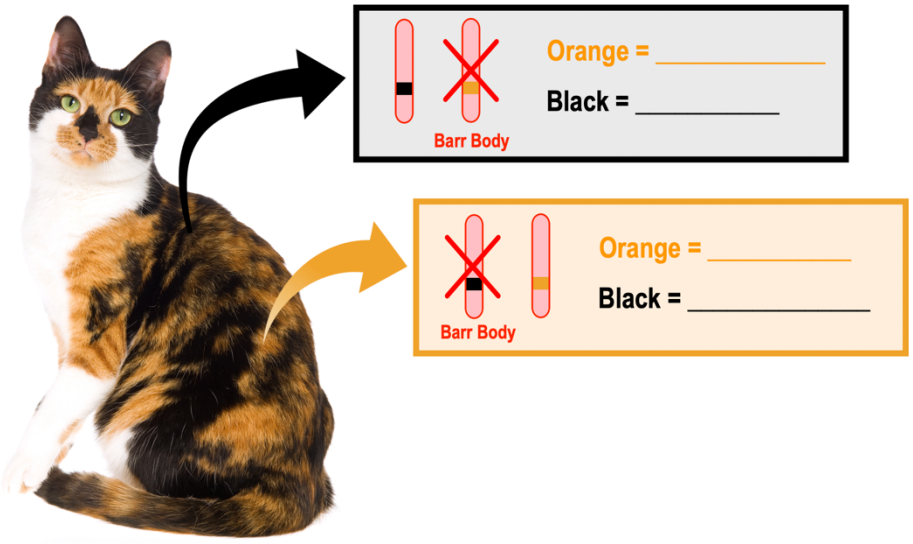
**CONCEPT:** X-INACTIVATION

●Females (XX) inherit "*double*" the number of X-linked genes, but do _____ have double expression of those genes.

- □ Female cells *randomly* turn _____ (or *inactivate*) one of their X-chromosomes during early development.
- □ **Barr Body**: the highly condensed, _____ X-chromosome in female cells.
- □ Random X-inactivation can result in a female expressing different alleles of an X-linked gene in different cells.

**EXAMPLE:** Calico Cats Have Color Patches Due to X-Inactivation.




**PRACTICE:** A Barr body is:

a) An inactive Y chromosome.
b) An active X chromosome.
c) An inactive X chromosome.
d) An active Y chromosome.

**PRACTICE:** In cats, fur color is determined by an X-linked gene; There are two alleles for this gene, one allele is for black fur and the other is for orange fur. In cats, a heterozygote female has calico (black and orange patches) colored fur. What kinds of offspring would you expect from the mating of a black female and an orange male?

a) Calico females & calico males.
b) Black females & orange males.
c) Calico females & black males.
d) Orange females & black males.