

Biology

Name: \_\_\_\_\_

X Linked Genetics in the Calico Cat

Date: \_\_\_\_\_ Hour: \_\_\_\_\_

Background information:

Calico is a coat color found in cats, which is caused by a sex-linked codominant allele.

B = black

R = orange

BR = calico

The following genotypes are possible:

Female cats can be black ( $X^B X^B$ ), orange ( $X^R X^R$ ), or calico ( $X^B X^R$ )

Male cats can be black ( $X^B Y$ ) or orange ( $X^R Y$ )

Show each of the crosses below and include the **phenotypic** ratios of the offspring:

1. A black male crossed with an orange female
2. An orange male crossed with a calico female
3. A black male crossed with a black female
4. An orange male crossed with an orange female
5. A black male crossed with a calico female
6. If you are a cat breeder, what type of parents should you choose to have the MOST number of calico kittens?