Name_____ per _____

[58] Creature Features + [59] Gene Combo - **Due Wednesday 10/2**

[58] Creature Features (D-22-->D-25). The trait tail color in critters follows a COMPLETE DOMINANCE inheritance pattern. Another name for this is Mendelian. This is the same one we have been studying so far in our unit.

1. Work as a pair or group to read and go through pages D-22 → D-25 in *Issue and Life Science*. You will not be doing the analysis questions for this activity. Use the information on these pages to complete #2.
2. In the space below:
    a. Identify the dominant and recessive traits
    b. Choose a letter to represent the alleles (T & t would work well)
    c. Do 1 punnett square for the original parents (Skye and Poppy - generation 1) and 1 punnett square for the generation 2 'grandpups' (Skye and Poppy's offspring).
    d. Show the genotype and phenotype possibilities (%) for both traits.
    e. Explain the evidence that proves critter tail color follows a COMPLETE DOMINANCE pattern.

Dominant phenotype = Recessive Phenotype =

Dominant allele letter _____ Recessive allele letter _____

[59] Gene Combo (D-27 → D-29)

PROCEDURE

1. Read D-27. In the description of the Coin-Tossing Model, they are using the word 'version' for 'allele'. After Skye and Poppy bred, there is now a blue allele for tail color and an orange allele for tail color.
2. Pair up with someone. FOLLOW THE PROCEDURE IN THE BOOK. (D-28 → D-29)
3. Collect your data on the attached sheet. Add a TOTALS column to your data sheet and fill it in.

Class	Blue	Orange	TT	Tt	tt
1st	224	75	64	156	77

Day 2

4. Add your pair data from yesterday to the class data on the board.
5. Once all of the class data is recorded, fill in your table.

ANALYSIS

1. What is the ratio of blue-tailed to orange-tailed critter pups? Use the <u>class data</u>.
   a. Divide the number of blue-tailed offspring by the number of orange tailed offspring.

   Ratio of tail colors $= \frac{number\ of\ blue\text{–}tailed\ offspring}{number\ of\ orange\text{–}tailed\ offspring} =$ _____

   b. Round this value to the nearest tenth (0.0). Then express it as a ratio → _____: 1

   blue : orange

2. Compare your data with what you would expect to see for a trait that follows a COMPLETE DOMINANCE inheritance pattern.
   " I expected to see a _____:1 ratio of blue tails to orange tails. Our class data shows a _____:1 ratio."
   a. Is the data what you expected? What would cause it to possibly be different?

3. Use the data as evidence that critter tail color follows a COMPLETE DOMINANCE inheritance pattern. You can also compare it to the other examples of COMPLETE DOMINANCE we have seen.

4. Highly Proficient
   a. Identify another critter trait (you make this up) that follows a COMPLETE DOMINANCE pattern.
   b. Identify the dominant and recessive alleles.
   c. Sketch and label the dominant trait and the recessive trait.
   d. Show 2 punnett squares and all genotype and phenotype possibilities
      i. Generation 1: Homozygous dominant + Homozygous recessive
      ii. Generation 2 offspring

Genetics:understand how genes work and pass on information to following generations

Highly Proficient (4)	Proficient (3)	Close to Proficient (2)	Developing (1)
❑ Critter trait is identified and explained correctly. ❑ Critter trait is sketched ❑ answers have evidence and detail.	❑ The genotype and phenotype of tail color is correct. ❑ Punnett squares are done correctly ❑ Ratio is done correctly ❑ **Data is used as evidence**	❑ Some knowledge of COMPLETE DOMINANCE is shown ❑ Data is collected. ❑ Some information is incorrect ❑ Work is incomplete or needs more detail.	❑ no understanding is shown ❑ Lab is mostly incomplete and/or incorrect.