December 16, 2018

**Dragon Genetics Lab- Analysis**

1. One double-sided popsicle stick represents one chromosome of the dragon. The letters on the two sides are the alleles of the dragon. When flipping the sticks, we couldn’t choose which chromosome to use because a chromosome carries specific alleles, not all of them. We also couldn’t use both alleles because only one of them passes on randomly to the offspring for each parent, making a pair.
2. No, they would not be more likely to inherit a back spike because all alleles are separate and don’t affect each other. It would be the exact same probability.
3. This can happen through breeding dragons that had fangs and not breeding the ones that don’t in previous generations. If they did that, then there would be many dragons that have fangs, and less dragons without. (pure breeding & cross breeding in a nutshell)
4. Our dragon is a male and we know this because the genes that got passed onto the offspring is a Y, and that makes it a male.
5. Sex-linked traits are genes that are carried in the X and Y chromosomes. They are mainly for determining your gender, but they do hold other genes that are not specific to your gender. The X chromosome however carries more gender-neutral genes because it appears in both males and females. And since there is only one X chromosome in males’ DNA, there is a higher chance that recessive traits will be shown because the allele will only require one gene ‘letter’, not two. It is more common to find all the recessive sex-linked genes in the X chromosome (pointed thigh, three toes, chest plate, tail spike, short arms & fire breather) since there is only one gene ‘letter’ to compete against, not the regular two.   
     
   Even though recessive genes might seem to be weaker, there is some recessive alleles in the X chromosome that are better than its dominant counterpart. The three ones that jump out to me immediately are the fire breather gene (obviously), the chest plate gene (for extra protection), and the tail spike gene (heavy whip). These genes seem the most practical when fighting, but not so much in everyday life. The fire breathing would be useful if you could control it, but the other two would just weigh you down while not fighting. It would seem male dragons were made for being tanks.
6. The phenotype of the offspring is 100% yellow wings in both questions a & b.

