**Friday - Incomplete Dominance**

Period: 53 minutes

Subject: Biology I Date: January 2014

Objectives:

* TSW determine the predicted genotypic and phenotypic results of crossing organisms with traits that exhibit incomplete dominance (5b DOK 2).

Materials:

* PowerPoint, Dry Erase Markers, Incomplete Dominance WS

Bell Work (6 minutes):

* Have the students complete two Punnett squares. (see pdf of ppt presentation)
  + heterozygous tall x homozygous dwarf
  + homozygous dwarf x homozygous tall

Set (10 minutes):

* Review Mendelian genetics by reexamining what Mendel saw when crossing pea plants with purple flowers and pea plants with white flowers. Have the students complete a Punnett square to illustrate the fact that Mendel observed that the offspring of pea plants could only have purple flowers or white flowers.
* Explain that Mendel really lucked out, because pea plants demonstrated the simple patterns of inheritance that we now know as Mendelian genetics. Then go on to explain that there are other more complicated patterns of inheritance.
* Provide a similar example, but this time using snapdragon flowers and illustrating the point that red and white flowers can be crossed to produce offspring with pink flowers, a blend of gene expression due to incomplete dominance.

Procedures (32 minutes):

1. 6 minutes. Explain that incomplete dominance is a pattern of inheritance where neither allele is dominant over the other, resulting in the possibility of offspring appearing as a blended phenotype. Also mention that when doing a Punnett square no lowercase letters are used, due to the fact that there isn’t a recessive allele.
2. 14 minutes. Illustrate three different examples of this, highlighting different crosses that can be done and then discussing the genotypic and phenotypic percentages and ratios that would result.
3. 12. Have the students work on a worksheet that allows them to practice the concepts relating to incomplete dominance. If the worksheet is not finished in class, it is to be completed for homework and turned in the next day.

Closure (5 minutes):

* “Today we learned about our first complex form of inheritance, incomplete dominance. Here we saw that alleles do not necessarily have to be dominant or recessive, and that in some cases neither one is dominant over the other, resulting in a blend if they are both present. These complicated patterns of inheritance are what make people so unique, and why they don’t just have specific traits from each of their parents.”
* Orally question students on incomplete dominance, as well as material from previous genetics lesson.
* “Next we’re going to look at another pattern of inheritance that goes beyond the work of Mendel; we’re going to be taking examining codominance.”

Assessment/Evaluation:

Objective: TSW determine the predicted genotypic and phenotypic results of crossing organisms with traits that exhibit incomplete dominance (5b DOK 2).

* Informal: 1. Oral questioning will be done throughout the lesson as well as at the end of the lesson (M) to assess the students’ understanding of incomplete dominance (C). 2. While students are working on their independent practice worksheet (M), the teacher will be walking around and discussing the work with students individually to ensure that they have a grasp on the concepts of incomplete dominance (C).
* Formal: A test will be given at a later date (M) that covers incomplete dominance (C), and the grade will be recorded in a grade book (D).