**Standard 7 – Genetics**

Authors:

**Leading Question**:  ***We are all humans, just look around. We are all different or vary in some way. Why?***

**Activity #1** Students will work in groups to discuss and answer the leading question. Students will then whiteboard their answers to the leading question. Students will also be asked to look at genetics in the world around them while examining physically exhibited traits and also include this information on their whiteboard as well. A board meeting will be held to discuss ideas.

* 1. **Dominant vs. Recessive. What does it mean to you?**

**Activity #2** Students will create a trait survey of class genetics with a follow-up whiteboard.

Use information gained in survey to introduce terms dominant and recessive, phenotype and genotype, and traits within a family.

* 1. **Follow up activities to illustrate inheritance patterns.**

**Activity #3** Puzzle model of Standard 7.2 terms. What do you think it means? What does the term really mean? What would be an example of the term? How does this term apply to information you gathered while examining physical traits?

* 1. **Dueling whiteboards with Punnett squares and pedigree practice using case studies.**

Discuss predicting outcomes. Introduce Punnett squares. Use worksheets to practice using Punnett Squares.

**Activity #4** Punnett Square multiple case studies. Use whiteboarding, perhaps even dueling whiteboards.

Teach pedigrees as another tool to predict outcomes and organize genetic data.

**Activity #5** Students will create a pedigree for multiple case studies. Use white-boarding, perhaps even dueling whiteboards.

Case study leads to mutation discussions.

* 1. **Introduce mutations.**

Students will do a worksheet to look at DNA mutations and protein change.

* 1. **Specific disorders relating to DNA mutations. Are the mutations beneficial, harmful, or have little or no effect.**

**Activity 2 – Traits Survey**

**Leading Question**

What traits are the most common in our classroom? Which traits are most dominant? What is the relevance of traits not seen as often?

**Summary of Investigation**

Students take an inventory of their own easily-observable genetic traits and compare those inventories with other students in groups. Students then make data tables and bar graphs showing the most and least common traits in their group.

**Description of Procedure**

1. Have the students complete “An Inventory of My Traits” survey.
2. Students should then get in groups of four and share their data. They should complete “An Inventory of My Traits” data table.
3. Students should graph their data as a bar graph.
4. Bar graphs should be whiteboarded.
5. As a class discuss the bar graphs and trends.
6. Collect an overall class data list.
7. Create another bar graph of class data.

\*Teacher should utilize questioning draw attention to dominant and recessive traits.

\* Additional information can be found in attached lesson plan.

**Discussion**

1. Do the same trends exist?
2. What traits do you think are dominant?
3. Discuss dominant versus recessive.