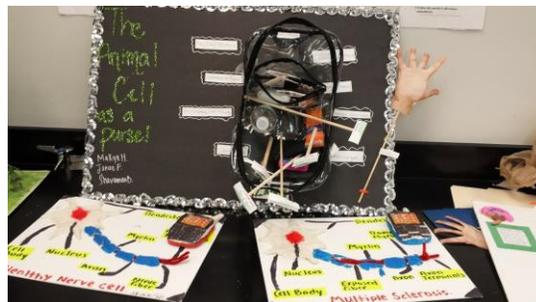


Mini-Project #1

Cell Representation, Cell Cycle & Meiosis [Gametogenesis]



Topic: -Cell Representation, Cell Cycle & Gametogenesis {Meiosis}

Content Area/Topic: -AP Biology & Anatomy & Physiology

Grade Level(s): - 10 - 12

General Objective(s): -

1. List the three major regions of a generalized cell and indicate the function of each.
2. Discuss the structure and function of organelles within the cell.
3. List the phases of the cell cycle and describe the events within each phase.
4. Describe, and compare, the processes of spermatogenesis and oogenesis.
5. Discuss the role of meiosis within spermatogenesis and oogenesis.

Description: - This activity requires students to create a labeled 3D model of a structure that can be used to represent the cell, a 3D model illustrating the process of the cell cycle and a 3D model illustrating the process (steps) of gametogenesis (including meiosis) in males and females.

Instruction: -Students are to thoroughly study and investigate the cell, the process of gametogenesis in both males and females. Students are to then create a 3D labeled representation model of the cell and indicate why the areas of the model was used to illustrate an organelle. Students are to create a 3D model to illustrate how somatic cells, non-sex cells, are reproduced in the body via the cell cycle. Students should provide detail steps of the cell cycle. Students are to create a 3D model illustrating gametogenesis in **males AND females**, resulting in a haploid gamete (sex cell – sperm (males) and eggs (females)). Students should provide detailed information, on their

model, about the process of meiosis (which is the driving force of gametogenesis). Please note, students are NOT to build a cell model but a structure, like a factory, that represents the cell and working organelles within the cell. NONE of the models provided are to be drawn on a presentation board – the model must be 3D.

Assessment: -Models will be assessed with a teacher-developed rubric based on quality of research, collaboration and quality of their structures. Originality and creativity on the cell representation model is highly recommended. Students will also be assessed on their knowledge of the cell and process of gametogenesis (including meiosis) in males and females. Students will be evaluated on their knowledge of the similarities and differences of the cell cycle and meiosis.