Lesson Plan – Plate Activity (Mitosis)

Name: Molla Huq Mentor:

Grade Level: 9-12 Biology Date:

Content Standard: Biology—Genetics Element(s): 2

- **Describe desired outcomes**. Identify what students will know and be able to do. Specify key knowledge, skills and/or understandings that will result from this lesson.

This activity will provide students the opportunity to physically demonstrate mitosis. The following standard is directly addressed in this lesson:

2. Mutation and sexual reproduction lead to genetic variation in a population.

a. *Students know* mitosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division to produce gametes containing one chromosome of each type.

- **Identify evidence of learning**. Clarify how students will demonstrate their understanding, knowledge and/or skills. Determine the product or assessment that will be evidence of student learning.

Students will meet individually with the teacher to explain the stages of mitosis, using their plates as a physical demonstration of the various stages they are explaining.

- **List materials needed**. Determine what materials and resources you will need during the lesson.

Paper plates
String
Glue
Colored markers
Pasta

- **Open the lesson**. Connect students' prior knowledge, life experiences and interests with the learning goals of the lesson. Motivate, pique interest and engage the learner.

Review with students what they already know about genetics and cell division and multiplication.

- **Provide instruction and modeling**. Outline what you are going to teach and how. Sequence the instruction, and plan how you will differentiate the content and/or instructional methods to meet the learning needs of the students.

Explain the activity to students:

1. Create a parent cell by coloring the paper plate and gluing pasta onto it to represent the cell's chromatin.
2. Repeat the process, with one plate representing each of the Prophase, Metaphase, Anaphase, and Telophase stages.
3. Write a description on the back of each plate explaining that stage of mitosis.
4. Arrange plates in order and glue string to plate backs to connect them.

Give students a clear timeline for completing the activity.
Answer student questions.

- **Facilitate guided practice**. Plan student practice and interaction with the subject matter. Differentiate the process, content and/or product(s). Specify procedures, structures and time frames.

Monitor students as they work, checking on students' written explanations and answering questions. [Could differentiate by providing completed plates for students, having students type their explanations and glue them on the back of plates, partnering students, having students explain the stages to a peer while teacher observes, etc.]

- **Close the lesson**. Summarize, debrief the lesson and/or foreshadow next steps.

Give students a warning for when their class time is just about up, and leave time for students to clean up and practice their explanations with a partner.

- **Plan independent practice or review**. Create a follow-up that students could do as homework or that could be used as review the next day.

Have students finish the plates and written explanations for homework.
Schedule individual conference times for students to share their explanations with you.