**EDST403-307-Education, Knowledge, and Curriculum-Iqbal**

**Assignment**: Representing (Lesson plan)

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**Lesson Plan**

* 1. **Topic**: the stages and features of the cell cycle, including mitosis and cytokinesis
	2. **What students struggled with**: The students had difficulty understanding how mitosis produces two genetically identical daughter cells
	3. **How I am hoping your revised plan will address these struggles of understanding**: I have used the theory of variation such that students can visualize how DNA is separated evenly during mitosis

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| Teacher: | Mr. Shin Young Pyo (teacher candidate) | Subject: | Science 9 |
| Unit:  | Cell Division, DNA, Cancer |  |  |
| Topic: | **Cell Cycle**  |

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| BC PLO | 􀂉 describe, in sequence, the stages and features of the cell cycle, including mitosis and cytokinesis  |

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| Time | Lecture & Activities | Resources & Notes |
| 10 | Try this: **Collect Try This** Why is it important that the nuclear membrane breaks down during cell division?What is the role of spindle during cell division?Why is it important that sister chromatids separate during anaphase?Homework check: Notes\_Cell Cycle | Try this handout |
| 5 | In groups of 6, students compare /complete notes  | Group listing |
| 35 | From activity sheet: In groups of 6, students will:1. Discuss with your group members to answer one of the following four questions. Group A answers question #A, group B answers question #B, etc.
2. **Based on your answer**, you will create a model of the cell cycle that shows what you think would happen.
	1. Using 6 pieces of blank paper, pipe cleaners, scissors, and tapes, make a model of the 6 stages of cell cycle: Interphase, Prophase, Metaphase, Anaphase, Telophase, and Cytokinesis/daughter cells (refer to Figure 2 from textbook pg. 50).
	2. Label centrioles, nucleus, chromosome, chromatids, spindle, and nuclear membrane.
	3. Use the same coloured pipe cleaners for each part of the cell.
	4. Using tapes vertically connect the 6 stages in order.
3. Be prepared to present your explanation to the class using your model of 6 stages.
4. Listen to other groups’ presentations to answer the remaining questions on this handout.

Each group answers one of the following questions:1. Create a model of a normal cell cycle.
2. Let’s say the nuclear membrane failed to break down during prophase. What would happen to later stages, and the daughter cells? Create a model of the 6 stages that shows what might happen.
3. Let’s say the spindle failed to from during prophase. What would happen to later stages, and the daughter cells? Create a model of the 6 stages that shows what might happen.
4. Let’s say one of the sister chromatids failed to separate during anaphase. What would happen to later stages, and the daughter cells? Create a model of the 6 stages that shows what might happen.

In your opinion, what is the most important goal of mitosis? (Hint: consider the relationship between DNA, proteins, and cell functions)  | Activity\_Cell Cycle HandoutWhite blank letter size papers18 tapes160 strands of pipe cleaner wires (5 different colours) |
| 30 | Pick four groups to answer four previous questions and show their models |  |

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| HW: | **Complete Notes\_Changes to Cell’s DNA** | **Notes\_Changes to Cell’s DNA** |

Notes for improvement:

References:

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| Smith, M. U., & Siegel, H. (2004). Knowing, believing, and understanding: What goals for science education?. *Science & Education*, *13*(6), 553-582. |
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