

Objective

By the end of this lesson, the student will be able to understand and explain the stages of mitosis, including prophase, metaphase, anaphase, and telophase, and their significance in cell division and growth.

Materials and Prep

- Notebook and pen for taking notes
- Colored pencils or markers
- Access to a computer or device for research (optional)
- Whiteboard or large paper for drawing (optional)

Before the lesson, ensure the student has a basic understanding of cell structure and the concept of cell division. Review any relevant vocabulary terms such as chromosomes, spindle fibers, and cytokinesis.

Activities

- **Draw the Stages of Mitosis:**

Using colored pencils or markers, the student will draw each stage of mitosis on separate sheets of paper. They should label each stage and include key features such as chromosome alignment and separation.

- **Mitosis Role Play:**

The student can act out the stages of mitosis. They can use household items to represent chromosomes and spindle fibers, moving around to illustrate how the cell divides.

- **Research and Present:**

If the student has access to a computer, they can research mitosis and create a short presentation. They can include interesting facts such as the duration of each stage and how mitosis differs in plant and animal cells.

Talking Points

- "Mitosis is the process that allows a single cell to divide into two identical daughter cells. It's essential for growth and repair."
- "In prophase, the chromosomes condense and become visible. This is when the nuclear envelope starts to break down."
- "During metaphase, chromosomes line up in the middle of the cell. This ensures that each new cell will get the right number of chromosomes."
- "Anaphase is all about separation. The sister chromatids are pulled apart to opposite sides of the cell."
- "Finally, in telophase, the cell starts to split, and new nuclear envelopes form around each set of chromosomes, completing the division."
- "Mitosis is crucial not just for growth, but also for healing wounds and replacing dead or damaged cells."