

Cell Cycle Inquiry Lab: Background Information

Targeted *Standard Course of Study*: Goals and Objectives

Goal 1: The learner will develop abilities necessary to do and understand scientific inquiry.

1.02: Design and conduct scientific investigations to answer biological questions.

1.03: Formulate and revise scientific explanations and models of biological phenomena using logic and evidence to:

- a) Explain observations.
- b) Make inferences and predictions.
- c) Explain the relationship between evidence and explanation.

Goal 3: The learner will develop an understanding of the continuity of life and the changes of organisms over time.

3.02: Compare and contrast the characteristics of asexual and sexual reproduction.

Cell Cycle Inquiry Lab: Activity

Purpose

To study the different stages of the cell cycle

Materials (per person or lab group)

- microscope
- onion root tip slides
- five note cards
- pencil

Procedure

1. Obtain all needed materials: microscope, onion root tip slide, 5 note cards, and pencil.
2. Start your observation of the onion root tip slide on low power using the coarse adjustment. The slide should be scanned until the region directly behind the root cap can be viewed.

3. Increase the magnification of the microscope by switching to the medium power objective and use the fine adjustment to focus the microscope so that several different cells can be viewed clearly at once.
4. Observe the cells in the field of view very carefully. You should notice differences between the cells, especially with the nuclear material. Each of the different looking cells should be drawn on a separate note card. As you draw your cells, you may need to increase the magnification of your microscope to more clearly view the individual cells and their nuclear material. When you have completed your diagrams, you should have five different cells on five separate note cards.
5. Have your teacher approve all of your diagrams.
6. After your diagrams have been approved, write a description at the bottom of each note card of how each cell looks different. Be sure to emphasize the differences between the nuclear materials.
7. After carefully studying your note cards and descriptions, place your diagrams in a logical order to determine the steps involved in the cell cycle.
8. Once you have placed your cards in order, number them 1-5 in the upper right hand corner.

Lab Data

Students will turn in their note cards with the diagrams of the cells and their written description of the differences between the cells.