

Examining Cells from the Five Kingdoms

Summary

Students will prepare and observe slides of cells from each of the five kingdoms. They will use a microscope to observe the cells and make labeled drawings of each and compare the structure and function of cells.

Time Frame

3 class periods of 60 minutes each

Group Size

Small Groups

Materials

- [student sheet](#)
(attached)
- microscope slides
- medicine droppers
- tap water
- coverslips
- toothpicks
- paper towels
- forceps
- compound microscopes
- elodea leaves
- yeast suspension
- methylene blue stain
- iodine solution
- prepared slides of animal, plant, fungal, protist and moneran cells
- microscope camera if available
- laptop computer for viewing if available

Background for Teachers

Safety Issues:

Students should use caution when handling the microscopes. They should also be careful handling the glass slides and coverslips. You may want to mention that the methylene blue and iodine both stain skin and clothing.

Student Prior Knowledge

Students should know how to use a microscope and how to measure objects on low and high power. Students should be able to name the 5 kingdoms. They also should be able to identify major organelles and their functions.

Instructional Procedures

Obtain needed supplies.

Prepare yeast suspension by mixing yeast with warm water and sugar.

This lab is designed for as little teacher intervention as possible. Let students figure things out on their own. You should be wandering the classroom as a resource. Encourage students to use

their books to help them answer questions that they have. Also make sure students read the lab carefully and complete all sections.

Assessment Plan

Scoring Guide:

Prediction.....3 points
Drawings.....10 points (each drawing 2 points: 1 point drawn accurately, 1 point labeled)
Data Tables.....20 points (1 point per cell observed)
Analysis Questions.....14 points (2 points each)
Conclusions.....6 points
Total:.....53 points

Answers to Questions:

Data Table 1: When grading cell size make sure students have deduced that moneran cells are significantly smaller and usually protist cells are larger. When grading cell shape students should see that plant cells are usually block shaped, the other cells will vary.

Analysis Questions:

cytoplasm, cell membrane

It can often be used to identify monerans because they are significantly smaller but the other kingdoms have cells of all sizes.

Table 3:

Table 4:

The plant were autotrophic because they contained chloroplasts. The protists may have been also if they looked at algae. The rest were heterotrophic because they contained no chloroplasts.

All of the cells would undergo respiration. All need ATP for cellular functions.

Cell wall of a plant helps control what moves in and out of the cell it also helps it retain rigid structure.

Conclusions: Answers will vary.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)