

Biology: From Cells to Organisms Syllabus

Students will learn the foundations of biology as they study the types of life, kingdoms, types of cells, and explore the interactions between animals and plants. Students will learn about classification of living things and the major kingdoms. They will explore prokaryotic and eukaryotic cells, cell structures and the similarities and differences of plant and animal cells. Students will examine photosynthesis, chloroplasts and the ability of plants to use solar energy and carbon dioxide and convert it to chemical energy and oxygen. They will investigate protozoa and learn the main types and how they move. Students are introduced to the parts, function and use of a microscope, including preparing slides. They will conduct experiments to observe cells and protozoa. Course themes include: Types of life, classification, cells and cell structures, plant and animal cells, plants and photosynthesis, protists, microscopes

Week 1: The World We Live In

- Introduction
- Students learn about the taxonomy of living things and the different kingdoms
- Students use their classroom as an analogy to reinforce the understanding of the taxonomy

Week 2: Animalia

- Students review the taxonomy of living things and the different kingdoms
- Students focus on the kingdom Animalia

Week 3: Microscopes

- Students are introduced to the different parts of a microscope
- Students learn how microscopes work and will use them in the remaining classes

Week 4: Cells – Part 1

- Students are introduced to cell theory and prokaryotic and eukaryotic cells
- Students explore cell structure the difference between plant cells and animal cells
- Students work on three different cell models and compare and contrast the differences

Week 5: Cells – Part 2

- Students review the parts of a cell
- Students learn about the kingdom Plantae as they review plant cells
- Students learn about osmosis and diffusion

Week 6: Single-Celled Organisms

- Students are introduced to the kingdom Protista
- Students learn about the three main types of protists
- Students explore the different methods of nutrition

Week 7: Prokaryotic Cells

- Students are introduced to the kingdom Monera
- Students review the parts of prokaryotic cells
- Students learn why prokaryotes are important to our environment
- Students explore bacteria and bacterial growth

Week 8: Photosynthesis

- Students explore plants and the parts of plants
- Students learn what is needed for plant growth
- Students delve into photosynthesis

