

Biology Modules



Module 1: Measurements

Students explore measurement, including units of length and pH values. The module activity takes place at a virtual carnival. Students earn tickets for successfully completing educational mini games at carnival booths; they must earn a set amount of tickets to complete the activity.

Module 2: Microscope

Within a virtual laboratory, students study compound and dissecting microscopes by interacting with large-scale microscope models. Using what they have learned, they then solve a crime in a CSI-style investigation by collecting, examining and identifying evidence collected at the crime scene.

Module 3: Cellular Organelles/ Structures

Students are tasked with locating and identifying ten different organelle/cellular structures inside a typical animal cell. The module takes the form of a treasure hunt. They are assisted by their HUD, which offers clues and hints as they explore the giant cell's interior.

Module 4: Osmosis and Diffusion

In the same virtual lab, students learn about passive transport in

cells, including osmosis, diffusion and tonicity. Their avatars sit at a lab bench and are guided through the experiments via a HUD (Heads-Up Display).

Module 5: Enzymes

This module, which also takes place at a virtual lab bench, enables students to experiment with enzymes by measuring the rate of enzyme activity at various pH levels and temperatures.

Module 6: Cellular Respiration

Cellular respiration is demonstrated inside a giant cell, which students walk around as if they have been miniaturised, guided by their HUD. They collect various organic compounds, then enter a mitochondrion. Students combine the compounds they collected in the matrix to synthesise ATP.

Module 7: Mitosis

In this module, students return to the giant cell to explore the cell cycle and mitosis, and learn how these two processes function within an organism.

Module 8: Meiosis

In this module, students return to the giant cell to explore the process of Meiosis and how it functions to produce gametes.

Modules 9-10: Mendelian Genetics 1 & 2

Students visit a desert canyon where an extra-terrestrial race is carrying out agricultural studies; these extra-terrestrials are succumbing to a genetic disease. Over two modules, students are introduced to monohybrid/ dihybrid crosses, Punnett squares, sex-linked inheritance and pedigrees, and use what they learn find a cure for the extra-terrestrials' sickness.

Module 11: DNA Synthesis, Transcription and Translation

Returning to the giant cell, students discover how DNA is replicated, and explore the ways in which genetic information is used to make proteins, by interacting with virtual representations of cell components. These modules cover the processes of DNA synthesis, Transcription, and Translation.

To discuss our virtual world solutions, please contact us via email, phone, or use the contact form at univirtual.com/contact

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