

Grade 8

Brain research from cell to system

Students will experience the ways in which research labs and hospitals investigate brain disease with an emphasis on different cell types in medical research

BIOLab Experiences Diagnose a patient with Alzheimer’s disease, use an EEG machine, view live cells using a research-grade microscope, examine brain tissue under the microscope, dissect a sheep brain.

Time required
Half day (2h)

Grade 8 students receive their first introduction to cell theory in the Cells and Systems cluster, and the BIOLab will show them how important cells are in the study of disease. By working with live cells and tissues from our labs, students will experience how basic medical scientists observe the mechanisms of disease and how these findings relate to the health of the whole organism.

Specific Learning Outcomes Addressed

What students will experience in the BIOLab

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| 8-1-01 | Use appropriate vocabulary related to their investigations of cells and systems. | Meet scientists, discuss the relevance of cells in research Importance of cells in various human diseases, how disease at the cell level relates to disease at the organism level. |
| 8-1-03 | Describe cell theory. | |
| 8-1-04 | Identify major events and technological innovations that have enabled scientists to increase our understanding of cell biology. | Use light and phase-contrast microscopy to view live cells in culture. |
| 8-1-06 | Demonstrate proper use and care of the microscope to observe the general structure of plant and animal cells. | Use microscopes to view different tissue samples. |
| 8-1-09 | Describe why cells and tissues are specialized in multicellular organisms, and observe examples. | Observe different cell types related to their role in disease, dissect a sheep brain to observe neural tissue. |
| 8-1-18 | Research and describe disorders/diseases that affect body systems, and identify possible preventative measures. | Examine an Alzheimer’s disease patient case related to activities and identify risk factors for disease, run common tests (EEG, cognitive tests) to understand their connection to disease. Identify regions of brain involved in certain diseases. |

