Grade 8

Cells & Systems – Live cell activity

Students will experience the ways in which research labs and hospitals investigate heart disease with an emphasis on changes in cell characteristics and activity.

Activity: Observe live heart cells under a phase contrast microscope to understand the scale and dynamics of cells in health and disease. Use a chemical technique to lift cells from a culture dish, count them and centrifuge them to visually compare with cell count in an organ or body.

Time required
Half day (2.5h)

Grade 8 students receive their first introduction to cell theory in the Cells and Systems cluster, and the BIOlab will show students how important cells are in the study of disease. By viewing 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: 8-1-01; 8-1-03; 8-1-04; 8-1-06; 8-1-09; 8-1-10; 8-1-18

Time Required	Student Experience
30 min	Introduction to the Research Centre and research interests, connect Research Centre labs to cells and systems topics
10 min	Break for washrooms
15 min	View live cells under phase contrast microscope with attention to scale, size, specialization and cell culture techniques
1 hr 15 min	Cell passaging activity using droppers and a series of different reagents to safely lift cells off of cell culture dish viewing after each step under phase contrast microscope to check the cell health. Cells are counted using a hemacytometer as a group and we estimate the total number of cells form the dish before centrifuging to see a visible pellet. 5 groups
15 min	Questions, wrap-up, and clean up

times are approximate, and can be scaled to whatever time you have available!