Grade 11

Hearts, heart disease and research

Students will learn how research labs and hospitals investigate heart disease with an emphasis on heart cells in research, heart anatomy, and risk factors for heart disease.

Activity: Students will explore how scientists study heart cells and tissues to understand heart disease. Observe live cells and participate in a pig heart dissection.

Time required
Half day (2.5h)

Heart disease is the leading cause of death worldwide. Lifestyle choices represent significant risk factors for the likelihood of events like heart attacks and strokes in Canada. Grade11 students are learning how integral the cardiovascular system is in maintaining systemic homeostasis. We demonstrate with visuals and hands on dissection the changes a heart undergoes after heart attack; from cell behaviour to tissue and organ restructuring and the potential for heart failure. Risk factors, and possible treatments are discussed such as surgery, transplant and stem cell therapy.

Specific learning outcomes addressed: B11-1-06; B11-3-16; B11-1-01; B11-3-17; B11-3-06; B11-6-05

Time Required	Student Experience
30 min	Introduction to the Research Centre and research interests, explain risk factors for heart disease such as lifestyle choices, environmental factors, and family history
5 min	Break for washrooms
15 min	View live cardiac fibroblasts under phase contrast microscope with attention to cell specialization
1 hr 15 min	Participate in a pig heart dissection with focus on major blood vessels and chambers of the heart and how heart disease can affect these areas.
15 min	Questions, wrap-up, and clean up