

Quebec - Achievements and Competencies

Learning Outcomes

Cycle 2 (Gr. 3-4)	Cycle 3 (Gr. 5-6)
Characteristics of living things	Characteristics of living things

The Quebec Achievements and Competencies are based on the Progression of Learning Outcomes derived from the Quebec Education Plan set by the Ministère de l'Éducation, du Loisir et du Sport.

Specific Expectations

CYCLE 2 (Gr. 3-4)

LIVING THINGS

A. Matter

1. Characteristics of living things
 - a. Explains the basic needs of the metabolism of living things (e.g. nutrition, respiration)

Cardiac Pop Pump is a heart model that gives students the ability to gain a hands-on understanding of the movement of blood around the body by squeezing pop bottles that represent the chambers of the heart. The students will be able to describe the structure and function of the heart.

F. Appropriate Language

1. Terminology related to an understanding of living things
2. Conventions and types of representations specific to the concepts studied

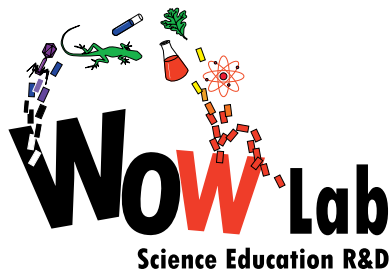
Students will be able to construct their own heart model using simple materials, such as balloons, plastic pop bottles and plastic tubing. Students will better understand the circulatory system and how it works through this hands-on, 3D model. They should use the appropriate terminology throughout the activity (e.g. aorta, heart, artery, valve, vein, blood vessel, capillary, ventricle, chamber, septum, atrium).

CYCLE 3 (Gr. 5-6)

LIVING THINGS

A. Matter

1. Characteristics of living things
 - b. Describes activities connected to the metabolism of living things (transformation of energy, growth, maintenance of systems and body temperature)



a WOW Lab

BLUEPRINT

Cardiac Pop Pump - Quebec - Achievements and Competencies

In *Cardiac Pop Pump*, students will gain a deeper understanding of the circulatory system. Through this hands-on model, students will learn how the lungs and heart interact with each other. They will also learn about the mechanism behind respiration. Teachers can discuss with students how the circulatory system is also used as a heating and cooling system.

F. Appropriate Language

1. Terminology related to an understanding of living things
2. Conventions and types of representations specific to the concepts studied

Students will be able to construct their own model heart using simple materials such as balloons, plastic pop bottles and plastic tubing. They should use the appropriate terminology throughout the activity (e.g. aorta, heart, artery, valve, vein, blood vessel, capillary, ventricle, chamber, septum, atrium, diaphragm, pulmonary artery, atrio-ventricular valves, pulmonary vein, vena cava).

Strategies

EXPLORATION STRATEGIES

- Becoming aware of previous conceptions
- Drawing a diagram for the problem or illustrating it
- Formulating questions
- Putting forward hypotheses (e.g. individually, as a team, as a class)
- Taking into account the constraints involved in solving a problem or making an object (e.g. location, specifications, available resources, time allotted)
- Using different types of reasoning (e.g. induction, deduction, inference, comparison, classification)
- Using empirical approaches (e.g. trial and error, analysis, exploration using one's senses)

STRATEGIES FOR RECORDING, USING AND INTERPRETING INFORMATION

- Using a variety of observational techniques and tools
- Using technical design to illustrate a solution (e.g. diagrams, sketches, technical drawings)
- Using different tools for recording information (e.g. diagrams, graphs, procedures, notebooks, logbook)

COMMUNICATION STRATEGIES

- Using different means of communication to propose explanations or solutions (e.g. oral presentation, written presentation, procedure)
- Using tools to display information in tables and graphs or to draw a diagram
- Exchanging information
- Comparing different possible explanations for or solutions to a problem in order to assess them (e.g. full-group discussion)