

OVERVIEW OF THE TASK

The heart and circulatory system

Target audience:	1 st year of cycle two
Team or individual work:	4
Class time required:	4 to 5 - 75 minute periods

Educational Aim
 Allow the students to understand the repercussions of poor lifestyle habits on the cardiovascular system.
 To allow the contribution of different scientific and technological disciplinary fields.

Targeted disciplinary competencies:
C-2 Makes the most of his/her knowledge of science and technology
C-3 Communicates in the languages used in science and technology

Two competencies are targeted at different times in the LES. The student is at the heart of the steps of observation (workings of the pump), investigation (research for pertinent articles), and opinion forming (presentation of solutions to remedy the problem) to which is added a technological analysis step (analysis of pumps and design of valves). The student must appropriate information cooperatively, in laboratory and through the production of the elements of the presentation.

Targeted cross-curricular competencies :
C-3 Exercises critical judgment : choice of solutions
C-9 Communicates appropriately: summary of acquired knowledge and consistent presentation.

These two competencies are targeted at different times during the LES. He/she approaches a complex situation where a variety of stakes are at play. He must outline the problem and explore different options regarding lifestyle. He adopts a position as to possible lifestyles changes. In the teamwork component, he compares his opinion to others' and may reconsider his own. In the oral presentation, he articulates his point of view and justifies his position.

Broad Area of Learning	<p>Health and Well-Being Development Axis:</p> <ul style="list-style-type: none"> - Awareness of the consequences of his personal choices on his health and well-being. - Awareness of the consequences of collective choices on the well-being of individuals. <p>The problem allows the student to relate lifestyle habits to good performance of the circulatory system.</p>
-------------------------------	--

INVOLVED WORLDS

Material World

Compulsory concept(s)

- Compressible and incompressible fluids
- Fluids; pressure
- Pressure/volume relationship
- Homogenous and heterogeneous mixtures
- Forms of energy; chemical, thermal and radiation

Living World

Compulsory concept(s)

- Types of foods
- Energy value of different foods
- Tissues, organs and systems
- Circulatory system
- Types of blood vessels
- Muscles

Technological World

Compulsory concept(s)

- Types of links in mechanical parts
- Sections
- Standards and representations (diagrams and symbols)
- Forms of representation
- Basic lines

Community resources

- Institut de cardiologie de Montréal
- Institut de cardiologie de Québec
- Fondation des maladies du cœur
- Défi Santé
- Acti-menu
- Directions régionales de la santé publique

Possible evaluation:

The evaluation of competencies 2 and 3 is appropriate and desired in this learning situation. An evaluation framework is suggested for disciplinary competency #2. This learning situation also allows for the evaluation of targeted cross-curricular competencies.

Global Context:

Following a rigorous study in your school, we wish to understand why such a worrisome rate of poor physical condition exists and the consequences this involves. In addition, we require consultant-teams to determine the optimal approach to remedy this phenomenon locally.

Working Document