

Quebec - Achievements and Competencies

Learning Outcomes

Cycle 2 (Gr. 9-10)
Survival of Species

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

GENERAL EDUCATION PATH

CYCLE 2 (Gr. 9-10) — Secondary 3

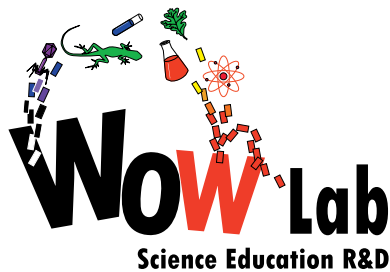
LIVING WORLD

- E. Survival of Species
 - 2. Cell division
 - a. DNA
 - i. Describes the shape of DNA (double helix)
 - ii. Explains the role of DNA

This activity teaches students about properties of DNA and DNA analysis. Students will perform gel electrophoresis to determine which suspect is guilty. Students will discover how gel electrophoresis is used to separate DNA, RNA or protein. Students also explore the various careers which use gel electrophoresis as a technique of DNA analysis, including fields such as the pharmaceutical industry, evolutionary biology, zoology, medicine, and forensics.

Techniques

- B. SCIENCE
 - a. Safely using laboratory materials and equipment



a WOW Lab

BLUEPRINT

Gel Electrophoresis - Quebec - Achievements and Competencies

Strategies

A. EXPLORATION STRATEGIES

2. Distinguishing between the different types of information useful for solving the problem
4. Becoming aware of preconceptions
6. Formulating questions
7. Putting forward hypotheses (e.g. individually, in teams, as a class)
11. Taking into account the constraints involved in solving a problem or making an object (e.g. specifications, available resources, time allotted)
13. Using different types of reasoning (e.g. induction, deduction, inference, comparison, classification)
15. Ensuring that the procedure is appropriate and safe and making the necessary adjustments
16. Collecting as much scientific, technological and contextual information as possible to define a problem or predict patterns
19. Considering various points of view on scientific or technological issues

B. INSTRUMENTATION STRATEGIES

4. Using different tools for recording information (e.g. diagrams, notes, graphs, procedures, logbook)
5. Using a variety of observational techniques and tools
6. Selecting suitable techniques or tools for observation

C. ANALYTICAL STRATEGIES

3. Using different types of reasoning (e.g. inductive and deductive reasoning, comparison, classification, prioritization)
4. Reasoning by analogy

D. COMMUNICATION STRATEGIES

3. Exchanging information
4. Comparing different possible explanations for or solutions to a problem in order to assess their relevance (e.g. full-group discussion)
5. Using tools to display information in various formats (e.g. data tables, graphs, diagrams)