Grade 8 Science Outline

Textbook: Science and Technology 8

Goals: According to the Manitoba Science Curriculum, science education will...

* encourage students to develop a critical sense of wonder and curiosity about scientific and technological endeavors
* enable students to use science and technology to acquire new knowledge and solve problems, so that they may improve the quality of their own lives and the lives of others
* prepare students to critically address science-related societal, economic, ethical, and environmental issues
* provide students with a proficiency in science that creates opportunities for them to pursue progressively higher levels of study, prepares them for science-related occupations, and engages them in science-related hobbies appropriate to their interests and abilities
* develop in students of varying aptitudes and interests a knowledge of the wide variety of careers related to science, technology, and the environment

Topics of Study:

Unit 1: Cells and Cell Systems

Unit 2: Optics

Unit 3: Fluids

Unit 4: Water Systems on Earth

Assessment:

Student progress will be measured throughout the year in the following categories:

**50% - Knowledge and Understanding**

**30% - Scientific Inquiry**

**20% - Design Process / Problem-solving**

Students will compile work throughout the year to contribute toward a **final, portfolio-based assessment project**. Portfolios will be completed in June, and students will use these to self-assess and reflect on their progress throughout the year.

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| **ASSESSMENT CATEGORY** | **INDICATORS–GRADES 5 to 8** |
| **KNOWLEDGE & UNDERSTANDING OF SCIENCE CONCEPTS**  Student demonstrates understanding of grade-specific science concepts and skills. | * demonstrates knowledge of life science, physical science, or earth and space science, and applies this knowledge to understand our world. |
| **SCIENTIFIC INQUIRY PROCESS**  Student asks questions, generates possible explanations, collects and analyzes evidence, and reaches conclusions based on evidence. | * formulates questions that lead to investigations makes predictions/hypotheses * designs a fair test or a plan to answer questions manipulates instruments appropriately and in a safe manner * makes relevant observations, collects data and information, measures, classifies * analyzes and interprets data to draw conclusions that explain data * identifies possible sources of error as well as strengths and weaknesses of the experimental protocol |
| **DESIGN PROCESS AND PROBLEM SOLVING**  Student applies science knowledge to seek solutions to practical problems. | * identifies practical problems to solve * seeks solutions to problems and selects and justifies a method to be used to find a solution * creates a written plan which includes materials, steps to follow, safety considerations, and detailed diagrams * develops criteria to evaluate a prototype or consumer product * constructs and tests a prototype or consumer product using pre-determined criteria * identifies and makes improvements to a prototype and justifies the changes * evaluates a consumer product based on predetermined criteria |

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