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.
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| **SCIENTIFIC INQUIRY PROCESS**Student asks questions, generates possible explanations, collects and analyzes evidence, and reaches conclusions based on evidence. | * formulates questions that lead to investigationsmakes predictions/hypotheses
* designs a fair test or a plan to answer questionsmanipulates 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
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| **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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