Science 10

Outcomes

NOVA SCOTIA
NOUVELLE-ÉCOSSE

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Science 10

Prepared by the Department of Education and Early Childhood Development

This is the most recent version of the current curriculum materials as used by teachers in Nova Scotia.

Science 10

General Curriculum Outcomes

STSE

1. Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

Skills

2. Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Knowledge

3. Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science and will apply these understandings to interpret, integrate, and extend their knowledge.

Attitudes

4. Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Specific Curriculum Outcomes

Students will be expected to

Earth and Space Science: Weather Dynamics (25%)

WEATHER: OBSERVATIONS AND MEASUREMENTS

- use weather instruments effectively and accurately for collecting local weather data and collect and integrate weather data from regional and national weather observational networks (213-3, 213-6, 213-7)
- identify questions and analyze meteorological data for a given time span and predict future weather conditions, using appropriate technologies (214-10, 331-5, 212-1)

Water Cycle

- use scientific theory, identify questions about, illustrate, and explain heat energy transfers that occur in the water cycle (331-1, 214-3)
- describe how the atmosphere and hydrosphere act as heat sinks in the water cycle (331-3)

Weather Dynamics: Heat and Energy

- use weather data to describe and explain heat transfers in the hydrosphere and atmosphere, showing how these affect air and water currents (331-2)
- illustrate and display how science attempts to explain seasonal changes and variations in weather patterns for a given location (215-5)

Weather Forecasting

- describe examples of Canadian contributions to weather forecasting and satellite imaging, showing how scientific knowledge evolves (117-10, 115-6)
- identify and report the impact of accurate weather forecasting from the personal to the global point of view (118-2, 117-6, 114-6)
- analyze and report on the risks, benefits, and limitations of society's responses to weather forecasting (118-7, 214-11, 116-1)

Physical Science: Chemical Reactions (25%)

Investigating Chemical Reactions

- investigate chemical reactions while applying WHMIS standards, using proper techniques for handling and disposing of materials (213-9, 117-5)
- perform experiments, using appropriate instruments and procedures, to identify substances as acids, bases, or salts, based on their characteristic properties (212-8, 213-5)
- describe how neutralization involves tempering the effects of an acid with a base or vice versa (321-2)

Formula Writing

- name and write formulas for common ionic compounds and molecular compounds and describe the usefulness of the IUPAC nomenclature system (319-1, 114-8)
- classify simple acids, bases, and salts based on their characteristics, name, and formula (319-2)

Chemical Reactions

- represent chemical reactions and the conservation of mass using balanced symbolic equations (321-1)
- design and carry out experiments, controlling variables and interpreting patterns, to illustrate how factors can affect chemical reactions (212-3, 213-2, 321-3, 214-5)

STSE Connections

- investigate and collaborate to describe science and technology relationships and their functions (116-3, 117-7, 215-6, 116-5)

Physical Science: Motion (25%)

Motion: Position, Distance, Displacement

- use instruments and terminologies effectively and accurately for collecting data in various experiments (212-9, 213-3)

Graphs of Speed and Velocity

- using linear experimentation with appropriate technologies, analyze graphically and quantitatively the relationship among distance, time, and speed (scalar quantities) and the relationship among position, displacement, time, and velocity (vector quantities) (325-1, 212-7, 325-2)

Motion: Graphs and Formulas

- distinguish among constant, average, and instantaneous speed and velocity of an object (325-3, 212-2)
- describe and evaluate the design and functions of motion technology (114-3, 115-4, 118-3)

Research in Science and Technology

- identify and imagine questions that could be investigated using relevant research in science and technology (114-6, 117-8)
- describe examples of Canadian contributions to science and technology in the area of motion (117-10)

Life Science: Sustainability of Ecosystems (25%)

Sustainability

- question and analyze how a paradigm shift in sustainability can change society's views (114-1)

Sustainability of an Ecosystem

- distinguish between biotic and abiotic factors, determining the impact on the consumers at all trophic levels due to bioaccumulation, variability, and diversity (318-2, 318-5)
- describe how the classification involved in the biodiversity of an ecosystem is responsible for its sustainability (214-1, 318-6)
- predict and analyze the impact of external factors on the sustainability of an ecosystem, using a variety of formats (212-4, 214-3, 331-6)
- diagnose and report the ecosystem's response to short-term stress and long-term change (213-7, 215-1, 318-4)

STSE and Sustainable Development

- describe how different geographical locations can sustain similar ecosystems (331-7, 318-3)
- identify, investigate, and defend a course of action on a multi-perspective social issue (118-9, 215-4, 118-5)
- identify and describe peer review, Canadian research, and global projects where science and technology affect sustainable development (114-5, 116-1, 117-3, 118-1)