

# Grade 10

## General Curriculum Outcomes

### STSE

GCO 1:

### Skills

GCO 2:

### Knowledge

GCO 3:

### Attitudes

GCO 4:

## Specific Curriculum Outcomes

*Students will be expected to*

### Earth and Space Science: Weather Dynamics

#### 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 analyse meteorological data for a given time span and predict future weather conditions, using appropriate technologies (214-10, 331-5, 212-1)

#### Water Cycle

- using scientific theory, identify questions, 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)

**General Curriculum Outcomes****Specific Curriculum Outcomes**

*Students will be expected to*

- analyse 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****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 formulae 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 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)

**General Curriculum Outcomes****Specific Curriculum Outcomes**

*Students will be expected to*

**Physical Science: Motion****Investigate Velocity**

- use instruments effectively and accurately for collecting data in various experiments (212-9, 213-3)
- describe the relationship among distance, time, and average speed of an object's linear motion (325-1, 212-7)
- analyse through experiments, graphically and quantitatively, the relationship among displacement, time, and velocity (325-2, 215-2)
- distinguish between instantaneous and average velocity (325-3)

**Velocity, Time, and Acceleration**

- design and perform experiments, predicting and hypothesising, identifying variables, estimating quantities, sources of errors, and uncertainty in measurements (212-4, 212-6, 213-4, 214-10)
- describe, interpret, and evaluate graphically and quantitatively, the relationship among velocity, time, and acceleration (325-4, 214-5, 214-8)

**STSE and Motion**

- describe and evaluate the design and functions of motion technology (114-3, 115-4, 118-3)
- using relevant research on motion, identify further questions and multidisciplinary studies that could be investigated (114-6, 117-8)
- describe examples of Canadian contributions to science and technology in the area of motion (117-10)

**General Curriculum Outcomes****Specific Curriculum Outcomes**

*Students will be expected to*

**Life Science: Sustainability of Ecosystems****Sustainability**

- question and analyse 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 analyse 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 impact sustainable development (114-5, 116-1, 117-3, 118-1)