

# Science 7

*Foundational Outcomes*

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## Science 7

**EECD has made suggestions for prioritizing outcomes to assist teachers as they support student learning. Teachers will need to make their professional decisions based on the needs of their students.**

The Foundational Outcomes identified in this document represent outcomes determined to be relevant for future learning in the discipline. Decisions about foundational outcomes were made in consultation with teachers, science specialists and post-secondary institution expectations. The foundational outcomes are meant to guide teachers in making decisions about creating learning experiences that will prepare and engage their learners in a responsive way. However, a teacher's professional judgment remains the most crucial factor for responding effectively to the needs of learners.

It might be relevant for teachers to review or to seek out learning outcomes from an earlier curriculum or grade level in order to support learners moving forward with current curriculum. Sometimes, however, current curricular learnings do not directly rely on learning from the previous year and current curriculum can be engaged in without additional review.

The learning environment (face-to-face, blended, online) will continue to be an important factor that will impact the types of learning experiences with which learners are able to engage. While learning science in a hands-on, experimental way is preferred, should laboratory experiments not be possible due to public health concerns, teachers are encouraged to offer online experiment simulations, to record scientific phenomena to discuss, notice, observe and unpack with learners, to support simple, safe experiments that could be done at home, to provide authentic data that can be analysed etc...

Integrated, project-based learning and inquiry-based learning (especially in areas that connect STSE) allow for learner choice and flexible pacing which is particularly effective for students to not only learn new concepts but also for demonstrating their learning.

It is suggested that the focus for science in grades 7-12 be on using the foundational outcomes to focus on foundational understandings for future learning, encouraging cross-cutting scientific themes and application of learning. Weighting for course modules should be reflective of the amount of time spent exploring the outcomes in the module.

**NOTE: The following outcomes refer to the existing science 7 curriculum, if you are teaching the renewed science 7 curriculum, please see the Scope and Sequence document for guidance.**

### **Unit: Earth and Space Science: Earth's Crust**

#### Subtopic: GEOLOGICAL PLATE TECTONICS AND TIME SCALE

- analyze and compare data to determine patterns and trends on some catastrophic events that occur on or near Earth's surface (210-6, 311-1, 311-4, 311-5)

#### Subtopic: ROCKS AND MINERALS

- classify minerals and rocks on the basis of their characteristics and method of formation, and compare with classification keys (210-1, 310-2)
- explore and describe the composition of Earth's crust, using common samples, scientific studies, and society's needs (109-7, 111-2, 310-1)

Subtopic: WEATHERING, SOIL, AND THE ROCK CYCLE

- investigate and explain various ways in which rocks can be weathered and explain the rock cycle (311-2, 208-2)

**Unit: Physical Science: Mixtures and Solutions**

Subtopic: MIXTURES

- examine and separate the components of a variety of mixtures, safely using materials in a laboratory (209-6, 307-2)

Subtopic: SOLUTIONS

- distinguish between pure substances and mixtures, using the particle theory of matter (307-1)

Subtopic: CONCENTRATION OF SOLUTIONS

- describe qualitatively and quantitatively the concentrations of solutions (307-4)
- design and carry out procedures to study the effect of temperature on solubility and explain the results (208-6, 209-1, 210-7)
- predict the solubility of a solute by interpolating or extrapolating from graphical data (210-4)

**Unit: Physical Science: Heat**

Subtopic: TEMPERATURE AND MATTER

- explain how each state of matter, including changes of state, react to changes in temperature, using the particle model of matter (308-3, 308-4)
- explain temperature, using the concept of kinetic energy and the particle model of matter (308-2)

Subtopic: HEAT TRANSFER

- compare transmission of heat by conduction, convection, and radiation (308-5)

- demonstrate and compare qualitatively, the heat capacities and heat absorption of common materials by investigating and evaluating how the surfaces absorb heat and what potential variables produce errors (308-7, 210-11, 210-12)

### **Unit: Life Science: Interactions Within Ecosystems**

#### Subtopic: COMPONENTS OF AN ECOSYSTEM

- identify the roles of producers, consumers, and decomposers in a local ecosystem and describe both their diversity and their interactions (304-2)
- describe interactions between biotic and abiotic factors in an ecosystem (306-3)

#### Subtopic: FOOD CHAINS, FOOD WEBS, AND DECOMPOSERS

- describe how matter is recycled in an ecosystem and evaluate potential applications of energy transformations (306-2, 210-2)
- describe how energy is supplied to, and how it flows through, the structures and interactions in a natural system, using charts, diagrams, and terminology (306-1, 111-6, 210-3)

#### Subtopic: ACTION

- research individuals/groups in Canada that focus on the environment, using various print and electronic sources (112-4, 112-8, 209-5)