Science 8

Foundational Outcomes

NOVA SCOTIA
NOUVELLE-ÉCOSSE

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Website References

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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 8

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 8 curriculum, if you are teaching the renewed science 8 curriculum, please see the Scope and Sequence document for guidance.

Unit: Earth and Space Science: Water Systems on Earth

Subtopic: WAVES, TIDES, AND SHORELINES

- explain how waves and tides are generated and how they interact with shorelines (311-10)
- describe processes of erosion and deposition that result from wave action and water flow (311-11)

Subtopic: OCEANS: SYSTEMS, DISTRIBUTION, SPECIES

- investigate and describe, with technological examples from various sources, processes that lead to the development of ocean basins and continental drainage systems (311-7)
- using data, including graphical, analyze and predict factors that affect productivity and species distribution in marine and fresh water environments (311-8, 210-4, 210-6)

Subtopic: Glaciers and polar ice caps

- identify and examine new questions and problems that arise from all water being connected (210-16)

Unit: Physical Science: Fluids

Subtopic: FORCES IN FLUIDS

- describe qualitatively the difference between mass and weight (309-1)
- describe and explain qualitatively the relationships among pressure, volume, and temperature of fluids when compressed or heated and quantitatively the relationships of force, area, and pressure (309-3, 309-4)

Subtopic: DENSITY: FLOATING AND SINKING

- question, investigate, and analyze qualitatively and quantitatively in a laboratory, the relationships among mass, volume, and density of solids, liquids, and gases using the particle model of matter (208-2, 211-3, 307-8)

Subtopic: VISCOSITY OF LIQUIDS

- design and perform an experiment to test the viscosity of various fluids and identify major variables (208-6)
- compare the viscosity of various liquids and describe factors that can modify the viscosity (307-6, 307-7)

Unit: Physical Science: Optics

Subtopic: PROPERTIES OF LIGHT

- identify and describe properties of visible light, using tools and apparatus safely (308-8, 209-6)

Subtopic: REFLECTION AND REFRACTION

- describe the laws of reflection of visible light and their applications in everyday life (308-9)

- state a conclusion, based on experimental data and evidence, of light and describe qualitatively how visible light is refracted (210-11, 308-10)

Subtopic: ELECTROMAGNETIC RADIATION

- compare properties of visible light to the properties of other types of electromagnetic radiation, including infrared, ultraviolet, x-rays, microwaves, and radio waves (308-12)
- describe, with examples, possible effects of science and technology associated with optics (112-8,113-2)

Unit: Life Science: Cells, Tissues, Organs, and Systems

Subtopic: CELLS

- distinguish between plant and animal cells ~~and use microscopes or microviewers to produce a clear image of cells~~ (304-5, 209-3) **due to public health concerns, this portion of the outcome may not be possible. If it is not possible for students to use microscopes at school, it is hoped that learners can distinguish between plant and animal cells using images taken with digital microscopes. Some images can be found in the image bank on the new Science 8 Sciences 8 Moodle.*

Subtopic: RELATIONSHIP AMONG CELLS, TISSUES, ORGANS, AND SYSTEMS

- relate the needs and functions of various cells and organs to the needs and functions of the human organism as a whole (304-8)
- explain structural and functional relationships between and among cells, tissues, organs, and systems in the human body (304-7)

Subtopic: BODY SYSTEMS

- describe the basic factors that affect the functions and efficiency of the human respiratory, circulatory, digestive, excretory, and nervous systems (304-9)
- describe examples of the interdependence of various systems of the human body (304-10)