Government of Newfoundland and Labrador
Department of Education
Programs and Services Division

Call for Submissions

Date **2023/09/15**

Reference Number **2023-7**

The Department of Education (Programs and Services) is conducting a call for submissions to identify resources that may be useful to support the following courses:

Science 7, 8, and 9 and Sciences 7, 8, and 9

Vendors who have materials currently available for purchase are invited to make submissions.

Vendors MUST comply with the ***Resource Submission Procedures*** in order to be eligible for inclusion in the environmental scan.

All submissions must be received by:
4:00 p.m. (Newfoundland Time Zone) October 4th, 2023

Resource Submission Procedures

1. Review the Appendices of this document. Vendors will confirm that the resource being submitted:
    a. aligns with the intent of the course description provided, and
    b. satisfies at least **60%** of the indicators listed.

2. Complete all sections of the ***Resource Summary Form***.

3. Email the ***Resource Summary Form*** to:

    To: toddwoodland@gov.nl.ca
    Subject: **Resource Submission - Reference Number 2023-7**

4. Ship 8 physical copies of each English resource and 4 physical copies of each French resource to:

    Learning Resources Distribution Centre
    Building 909, Pleasantville
    St. John's, NL
    A1A 1R1

    Clearly label the package(s), including grade level(s) if applicable:

    Resource Submission - Reference Number 2023-7

    Digital submissions will be considered, however, if available, at least one physical copy should be shipped to the mailing address above by the submission deadline. Digital submissions should be e-mailed to **toddwoodland@gov.nl.ca** with the subject line:

    Resource Submission - Reference Number 2023-7

5. If additional information is required, send an email request to:

    Todd Woodland
    Manager (A), Curriculum Section
    Division of Program Development
    Department of Education
    toddwoodland@gov.nl.ca

Appendix 1: Resource Requirements/Preferences

Requirements

- Needs to be evidence based that aligns with the draft curriculum indicators that are engaging, current, age and developmentally appropriate for diverse learners.
- English and French language teacher and student resources (print and digital) required.
- High quality French translation.
- Promotes scientific literacy through:
    - scientific inquiry, exploration, and investigation,
    - problem solving,
    - decision making, and
    - diverse learning experiences that supports STEM processes, skills and connections.
- Resource must be in an accessible format that is compatible with assistive technology.
- A digital pdf version of successful titles will be requested for alternate format materials (AFM) purposes.
- Estimated quantities required of student resources are 5000 for English language titles and 700 copies for French language titles per grade level.
- Open to the potential for some customization.
- Includes suggestions for remediation and additional challenge.
- Task presented and/or ideas given to teachers for feedback on what to do next (next steps).
- Professional learning built in.
- Available digitally and in hard copy (printable).
- Encompasses the principles of UDL.
- Built in ideas for formative and summative assessment.
- Culturally representative (Indigenous, multicultural).
- Suggestions for cross-curricular connections.
- Beyond worksheet based.
- Suggestions for manipulatives, games, and activities.

Appendix 2: Science 7-9 Draft Indicators

Number	Draft Indicators for Science 7, 8 and 9 and Sciences 7, 8 and 9 Strand A: STEM Processes, Skills and Connections
1	A1.1 use a scientific research process and associated skills to conduct investigations
2	A1.2 use a scientific experimentation process and associated skills to conduct investigations
3	A1.3 use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems
4	A1.4 follow established health and safety procedures during investigations
5	A1.5 communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes
6	A2.1 describe processes used in science and technology that enable us to understand natural phenomena and develop technological solutions
7	A2.2 describe the development of science and technology over time
8	A2.3 explain how science and technology interact with and advance one another
9	A3.1 explain how the needs of individuals, society, and the environment influence and are influenced by science and technology
10	A3.2 identify contributions to and support for science and technology from various communities
11	A3.3 describe practical applications of science and technology concepts in their home and community to address real-world problems
12	A3.4 describe practical applications of science and technology concepts in various careers
Number	**Draft Indicators for Science 7 and Sciences 7** **Strand B: Earth's Crust**
13	B1.1 analyze ways in which geological processes impact society and the environment
14	B1.2 assess social and environmental impacts of products derived from the Earth's crust and suggest solutions to the problems caused by these activities

15	B1.3 identify how First Nations, Métis and Inuit geological ways of knowing are used in the selection of different rocks and minerals for specific purposes
16	B2.1 describe Earth's layered structure and composition
17	B2.2 identify minerals using their properties
18	B2.3 classify rocks based on their method of formation and characteristics
19	B2.4 develop a chronological model or time scale of major events in Earth's history
20	B2.5 explain the theory of plate tectonics and relate to geological processes
21	B2.6 explain the processes of seafloor spreading, mountain formation, and the folding and faulting of Earth's surface
22	B2.7 examine earthquakes and volcanic eruptions and analyze data on their geographical and chronological distribution to determine patterns and trends
23	B2.8 explain various ways in which rock can be eroded and weathered
24	B2.9 relate the formation of soils to various meteorological, geological and biological processes
25	B2.10 classify soils according to their characteristics, and investigate ways to enrich soils
Number	**Draft Indicators for Science 7 and Sciences 7** **Strand C: Heat**
26	C1.1 identify examples of traditional and modern technologies that reduce heat loss
27	C1.2 analyze the social, economic and environmental impacts of technologies that reduce heat loss in enclosed spaces or heat transfer to surrounding spaces
28	C1.3 analyze various thermometers designed to measure human body temperature on the basis of their impact on daily life
29	C2.1 compare various instruments used to measure temperature
30	C2.2 use particle theory to explain the behaviour of matter and differentiate between heat and temperature
31	C2.3 use particle theory to explain how each state of matter reacts to heat, including changes of state
32	C2.4 explain transmission of heat by conduction, convection, and radiation

33	C2.5 distinguish between and investigate uses of thermal conductors and insulators
34	C2.6 describe how various surfaces absorb radiant heat
Number	**Draft Indicators for Science 7 and Sciences 7** **Strand D: Mixtures and Pure Substances**
35	D1.1 identify and assess the environmental and social impacts of separation, production, and disposal methods and technologies of pure substances and mixtures
36	D1.2 provide examples of how pure substances, mixtures and technology affect their lives and their community
37	D2.1 distinguish between pure substances and mixtures using the particle theory of matter
38	D2.4 describe qualitatively and quantitatively the concentration of solutions
39	D2.5 describe how different factors affect the solubility of a substance and rate at which it dissolves using the particle theory
40	D2.6 identify and separate the components of mixtures
Number	**Draft Indicators for Science 7 and Sciences 7** **Strand E: Interactions in the Environment**
41	E1.1 assess the impact of human activities and technologies on the environment to make informed decisions and propose a course of action related to environmental sustainability
42	E1.2 analyze how First Nations, Métis and Inuit practices and perspectives contribute to environmental sustainability by using approaches such as Two-Eyed seeing
43	E2.1 explain that an ecosystem is a network of interactions among living organisms and their environment
44	E2.2 identify biotic and abiotic components in an ecosystem, and describe the interactions between them
45	E2.3 explain how biological classification takes into account the diversity of life on Earth
46	E2.4 describe the roles and relationships between producers, consumers, and decomposers within an ecosystem
47	E2.5 describe the transfer of energy in a food web, and explain the effects of altering any part of the web

48	E2.6 describe how matter is recycled in an ecosystem, and explain how the cycling of matter promotes sustainability
49	E2.7 describe conditions essential to the growth and reproduction of plants and microorganisms in an ecosystem and relate these conditions to various aspects of the human food supply
50	E2.8 identify signs of ecological succession in a local ecosystem
Number	**Draft Indicators for Science 8 and Sciences 8** **Strand B: Water Systems on Earth**
51	B1.1 assess the impact of scientific discoveries and technological innovations on local and global water systems, and provide examples of problems that arise
52	B1.2 explain how different groups in society may have different needs, values and desires in relation to use of water systems, and explain why a practical solution requires a compromise
53	B2.1 describe processes that lead to the development of ocean basins and continental drainage systems
54	B2.2 analyse factors that affect productivity and species distribution in marine and fresh water environments
55	B2.3 describe the interactions of ocean currents, winds, and regional climates
56	B2.4 explain how waves are generated, and how they interact with shorelines
57	B2.5 describe how tides are generated, and distinguish between different types of tides
58	B2.6 describe factors that affect glaciers and polar icecaps, and describe their consequent effects on the environment
Number	**Draft Indicators for Science 8 and Sciences 8** **Strand C: Optics**
59	C1.1 analyse a technological device or procedure that uses the properties of light, evaluate its effectiveness, and explain how it has enhanced society
60	C2.1 identify and describe properties of visible light
61	C2.2 describe different types of electromagnetic radiation and their applications
62	C2.3 describe the laws of reflection of visible light and their applications in everyday life

63	C2.4 describe qualitatively how visible light is refracted
Number	**Draft Indicators for Science 8 and Sciences 8** **Strand D: Fluids**
64	D1.1 assess the environmental, social, and economic impacts of various innovations and technologies that are based on the properties of fluids
65	D1.2 assess the environmental and social impacts of fluid spills, including impacts on First Nations, Métis, and Inuit communities, and including the cost and technical challenges related to cleanup and remediation efforts
66	D2.1 demonstrate an understanding of the factors that affect viscosity, and compare the viscosity of various fluids, including flow rate
67	D2.2 describe the relationship between the density of solids, liquids, and gases using the particle theory of matter
68	D2.3 explain how the density of a substance can be changed
69	D2.4 apply the concept of balanced and unbalanced forces to the buoyancy and weight of an object to explain why it sinks or floats
70	D2.5 describe the factors that can affect pressure, including force, area, volume and temperature
Number	**Draft Indicators for Science 8 and Sciences 8** **Strand E: Cells, Tissues, Organs, and Systems**
71	E1.1 assess how various technologies have enhanced our understanding of cells, tissues, organs and organ systems
72	E1.2 analyse beneficial and harmful effects of developments in human biology and associated emerging technologies on human health, while taking different perspectives into consideration
73	E1.3 make informed decisions and propose a course of action on applications of human biology and technology, taking into account social issues
74	E2.1 explain how the cell is a living system, using the cell theory
75	E2.2 compare the structure and function of plant and animal cells
76	E2.3 explain that growth and reproduction depend on cell division
77	E2.4 describe the organization of cells into tissues, organs, and organ systems

78	E2.5 compare the needs and functions of cells and organs to that of the human body
79	E2.6 describe how lifestyle choices affect the functions and efficiency of various organ systems
80	E2.7 explain how the various systems in the human body are interdependent
Number	**Draft Indicators for Science 9 and Sciences 9** **Strand B: Space**
81	B1.1 evaluate social, environmental, and economic impacts of space observation and exploration
82	B1.2 evaluate how space observation and exploration technologies contribute to our understanding of climate change, natural disasters, and other phenomena
83	B1.3 assess ways in which technological innovations related to space observation and exploration are applied in various fields, including their contributions to sustainable practices on Earth
84	B2.1 describe theories on the formation of the solar system
85	B2.2 describe the composition and characteristics of components of the solar system
86	B2.3 describe and explain the apparent motion of celestial bodies
87	B2.4 describe theories on the origin and evolution of the universe
88	B2.5 describe and classify the major components of the universe
89	B2.6 describe the importance of the Sun, it's characteristics and the effects of solar phenomena on Earth
Number	**Draft Indicators for Science 9 and Sciences 9** **Strand C: Atoms ad Elements**
90	C1.1 assess social, environmental, and economic impacts of processes associated with the life cycle of consumer products, considering the elements and compounds used to make them, and suggest ways to enhance positive impacts and/or minimize negative impacts
91	C1.2 analyse impacts of using emerging chemical technologies in various fields and assess factors that influence the development of these technologies
92	C2.1 investigate metals, non-metals, and metalloids and describe their physical and chemical properties

93	C2.2 identify and write chemical symbols of common elements and use models to compare their atomic structure
94	C2.3 investigate and identify patterns in the periodic table based on its organization
95	C2.4 distinguish between elements and compounds and identify common compounds from their chemical formulas
96	C2.5 investigate and describe the difference between physical and chemical changes of common chemical reactions
Number	**Draft Indicators for Science 9 and Sciences 9** **Strand D: Electricity**
97	D1.1 assess social, environmental, and economic benefits and challenges resulting from the production of electrical energy from various sources
98	D1.2 evaluate how electrical energy production and consumption impact various communities locally or globally, and describe ways to achieve sustainable practices
99	D1.3 develop a plan of action to address a local or global electrical energy production or consumption issue, including strategies for energy conservation
100	D1.4 analyse social, environmental, and economic impacts of emerging technologies related to electrical energy production, consumption, storage, and conservation
101	D2.1 explain the behaviour of electric charges in static electricity, and relate the observed behaviour to the properties of subatomic particles and atomic structure
102	D2.2 describe current electricity and identify electrical quantities, their symbols, and their corresponding International System of Units (SI) units
103	D2.3 describe series and parallel circuits, and identify the components of a circuit and their functions
104	D2.4 relate electrical energy to domestic power consumption costs
105	D2.5 describe the conversion of energy from one type to another and determine the efficiency of the device
106	D2.6 describe the transfer and conversion of energy from a generating station to the home
Number	**Draft Indicators for Science 9 and Sciences 9** **Strand E: Reproduction**

107	E1.1 identify examples of genetic and reproductive conditions that can or cannot be solved based on current knowledge and technologies
108	E1.2 assess how various technologies have enhanced our understanding of reproduction at the cellular level
109	E1.3 analyze beneficial and harmful effects of developments in reproductive technologies on human health and the environment
110	E2.1 explain the relationship between the nucleus, genetic information, and cellular processes
111	E2.2 discuss factors that may lead to changes in a cell's genetic information
112	E2.3 illustrate and describe the process of mitosis
113	E2.4 compare the different forms of asexual and sexual reproduction, include the advantages and disadvantages of each
114	E2.5 illustrate and describe the process of meiosis
115	E2.6 identify the signs of pregnancy and identify the stages of human development from conception to early infancy
116	E2.7 compare the structure and function of the human reproductive systems