

CURRICULUM ALIGNMENT – From the Outside In: Biological Effects of Radiation

Ontario

Grade	Course Name and Number	Strand	Expectations
11	Biology, Grade 11 (SBI3C)	A. Scientific Investigation Skills and Career Development	Overall Expectation A1: Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing and interpreting, and communicating).
11	Biology, Grade 11 (SBI3C)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.3: Identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately.
11	Biology, Grade 11 (SBI3C)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.7: Select, organize and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation.
11	Biology, Grade 11 (SBI3C)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.10: Draw conclusions based on inquiry results and research findings and justify their conclusions with reference to scientific knowledge.
11	Biology, Grade 11 (SBI3C)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.11: Communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g. data tables, laboratory reports, presentations, debates, simulations, models).
11	Biology, Grade 11 (SBI3C)	B. Cellular Biology	Overall Expectation B1: Evaluate the impact of environmental factors and medical technologies on certain cellular processes that occur in the human body.
11	Biology, Grade 11 (SBI3C)	D. Genetics	Specific Expectation D2.1: Use appropriate terminology related to genetics, including, but not limited to: spindle, haploid, diploid, heterozygous, homozygous, haemophilia, gamete, ultraviolet radiation, carcinogen, cancer, trisomy, somatic cell, and zygote.
11	Biology, Grade 11 (SBI3C)	D. Genetics	Specific Expectation D3.4: Describe some genetic disorders that are caused by chromosomal abnormalities (e.g. non-disjunction) or other genetic mutations.
11	Environmental Science, Grade 11 (SVN3M)	A. Scientific Investigation Skills and Career Development	Overall Expectation A1: Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing and interpreting, and communicating).

11	Environmental Science, Grade 11 (SVN3M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.3: Identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately.
11	Environmental Science, Grade 11 (SVN3M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.7: Select, organize and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation.
11	Environmental Science, Grade 11 (SVN3M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.10: Draw conclusions based on inquiry results and research findings and justify their conclusions with reference to scientific knowledge.
11	Environmental Science, Grade 11 (SVN3M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.11: Communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g. data tables, laboratory reports, presentations, debates, simulations, models).
11	Environmental Science, Grade 11 (SVN3M)	C. Human Health and the Environment	Overall Expectation C2: Investigate environmental factors that can affect human health and analyze related data.
11	Environmental Science, Grade 11 (SVN3M)	C. Human Health and the Environment	Specific Expectation C3: Demonstrate an understanding of various environmental factors that can affect human health and explain how the impact of these factors can be reduced.
11	Environmental Science, Grade 11 (SVN3M)	C. Human Health and the Environment	Specific Expectation C2.1: Use appropriate terminology related to human health and the environment, including, but not limited to: contaminants, heavy metals, air pollution and pesticide.
11	Environmental Science, Grade 11 (SVN3M)	C. Human Health and the Environment	Specific Expectation C3.3: Describe ways in which a variety of environmental contaminants (e.g. volatile organic compounds in paints, carpets and cleaning products; mercury in fish; E. coli in the water at public beaches) can enter the human body (e.g. inhalation, ingestion, absorption).
11	Environmental Science, Grade 11 (SVN3E)	A. Scientific Investigation Skills and Career Development	Overall Expectation A1: Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing and interpreting, and communicating).

11	Environmental Science, Grade 11 (SVN3E)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.3: Identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately.
11	Environmental Science, Grade 11 (SVN3E)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.7: Select, organize and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation.
11	Environmental Science, Grade 11 (SVN3E)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.10: Draw conclusions based on inquiry results and research findings and justify their conclusions with reference to scientific knowledge.
11	Environmental Science, Grade 11 (SVN3E)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.11: Communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g. data tables, laboratory reports, presentations, debates, simulations, models).
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Overall Expectation C1: Analyze the effects on human health of environmental contaminants and a significant environmental phenomenon.
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Overall Expectation C2: Investigate how different environmental factors can affect people's health and their lifestyle choices.
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Specific Expectation C2.2: Investigate, using a research process, and report on an environmental factor that can have an impact on human health (e.g. smog, ultraviolet [UV] rays, bacteria, pesticide residue), and explain how their personal lifestyle choices can affect its impact (e.g. avoiding strenuous physical activity on days when there is a smog alert can reduce the severity of respiratory ailments; lying on the beach without sunscreen or sun protective clothing during peak UV hours can increase the risk of skin cancer).
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Overall Expectation C3: Demonstrate an understanding of the ways in which environmental factors can affect human health and how their impact can be reduced.
11	Environmental	C. Human Health and the Environment	Specific Expectation C3.1: Describe common environmental factors, including pollution

	Science, Grade 11 (SVN3E)		and environmental contaminants (e.g. air, noise, soil and water pollution; UV rays; heat; heavy metals; workplace chemicals; pathogens), and explain how they can affect human health.
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Specific Expectation C3.2: Describe various ways in which environmental contaminants can enter the human body (e.g. inhalation, ingestion, absorption).
11	Environmental Science, Grade 11 (SVN3E)	C. Human Health and the Environment	Specific Expectation C3.3: Explain how the human body can react to exposure to a variety of environmental factors (e.g. rashes, asthma, mercury poisoning, hearing loss, diseases such as malaria and cancer).
12	Science, Grade 12 (SNC4M)	E. Science and Public Health Issues	Specific Expectation E3.3: Explain the impact of various threats to public health, including infectious diseases (e.g. hepatitis, HIV/AIDS, tuberculosis, malaria, sexually transmitted diseases), chronic diseases (e.g. cardiovascular disease, diabetes, asthma), and environmental factors (e.g. climate change, air pollution, chemical pollutants, radiation).
12	Science, Grade 12 (SNC4M)	A. Scientific Investigation Skills and Career Development	Overall Expectation A1: Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing and interpreting, and communicating).
12	Science, Grade 12 (SNC4M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.3: Identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately.
12	Science, Grade 12 (SNC4M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.7: Select, organize and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation.
12	Science, Grade 12 (SNC4M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.10: Draw conclusions based on inquiry results and research findings and justify their conclusions with reference to scientific knowledge.
12	Science, Grade 12 (SNC4M)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.11: Communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g. data tables, laboratory reports, presentations, debates, simulations, models).

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12	Biology, Grade 12 (SBI4U)	A. Scientific Investigation Skills and Career Development	Overall Expectation A1: Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analyzing and interpreting, and communicating).
12	Biology, Grade 12 (SBI4U)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.3: Identify and locate a variety of print and electronic sources that enable them to address research topics fully and appropriately.
12	Biology, Grade 12 (SBI4U)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.7: Select, organize and record relevant information on research topics from a variety of appropriate sources, including electronic, print, and/or human sources, using suitable formats and an accepted form of academic documentation.
12	Biology, Grade 12 (SBI4U)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.10: Draw conclusions based on inquiry results and research findings and justify their conclusions with reference to scientific knowledge.
12	Biology, Grade 12 (SBI4U)	A. Scientific Investigation Skills and Career Development	Specific Expectation A1.11: Communicate ideas, plans, procedures, results, and conclusions orally, in writing, and/or in electronic presentations, using appropriate language and a variety of formats (e.g. data tables, laboratory reports, presentations, debates, simulations, models).
12	Biology, Grade 12 (SBI4U)	D. Molecular Genetics	Specific Expectation D3.4: Explain how mutagens, such as radiation and chemicals, can cause mutations by changing the genetic material in cells (e.g. the mechanisms and effects of point mutations and frameshift mutations).
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