Water Quality Activity

Grade 9 Academic Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate scientific questions about observed relationships, ideas, problems, and/or issues, make predictions, and/or formulate hypotheses to focus inquiries or research
A1.6 gather data from laboratory and other sources, and organize and record the data using appropriate formats, including tables, flow charts, graphs, and/or diagrams
A 1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions

B. Biology: Sustainable Ecosystems
B1 Relating Science to Technology, Society and the Environment
B1.1 assess, on the basis of research, the impact of a factor related to human activity (e.g., urban sprawl, introduction of invasive species, overhunting/overfishing) that threatens the sustainability of a terrestrial or aquatic ecosystem
B2 Developing Skills of Investigation and Communication
B2.1 use appropriate terminology related to sustainable ecosystems, including, but not limited to: bioaccumulation, biosphere, diversity, ecosystem, equilibrium, sustainability, sustainable use, protection and watershed
B3. Understanding Basic Concepts
B3.5 identify various factors related to human activity that have an impact on ecosystems (e.g., the introduction of invasive species; shoreline development; industrial emissions that result in acid rain), and explain how these factors affect the equilibrium and survival of ecosystems (e.g., invasive species push out native species and upset the equilibrium in an ecosystem; shoreline development affects the types of terrestrial and aquatic life that can live near lake shores or river banks acid rain changes in the pH of water, which affects the type of aquatic life that can survive in a lake)

Grade 9 Applied Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate scientific questions about observed relationships, ideas, problems, and/or issues, make predictions, and/or formulate hypotheses to focus inquiries or research
A1.6 gather data from laboratory and other sources, and organize and record the data using appropriate formats, including tables, flow charts, graphs, and/or diagrams
A 1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions

B. Biology: Sustainable Ecosystems and Human Activity
B1 Relating Science to Technology, Society and the Environment
B1.1 analyze, on the basis of research, how a human activity (e.g., urban sprawl, use of pesticides and fertilizers, creation of pollution, human interaction with wildlife) threatens the sustainability of a terrestrial or aquatic ecosystem Sample Questions: How does the draining of wetlands for new subdivisions affect local water birds and plants that thrive in marshes? How does untreated waste released into rivers or lakes affect fish

and animals that eat the fish? How does the introduction of Atlantic Salmon or other sport fish affect indigenous lake trout and brook trout?
B2. Developing Skills of Investigation and Communication
B2.1 use appropriate terminology related to sustainable ecosystems and human activity, including but not limited to: biodiversity, biotic, ecosystem, equilibrium, species diversity, sustainability, and watershed
B3. Understanding Basic Concepts
B3.5 identify some factors related to human activity that have an impact on ecosystems (e.g. the use of fertilizers and pesticides; altered shorelines; organic and conventional farming; urban sprawl) and explain how these factors affect the equilibrium and survival of populations in terrestrial and aquatic ecosystems (e.g., fertilizers change the fertility of soil, affecting what types of plants can grow in it; pesticides leach into water systems, affecting water quality and aquatic life; shoreline development affects the types of aquatic life and terrestrial vegetation that can live by lake shores or river banks urban sprawl wipes out fields and woods, destroying wildlife habitats)

Grade 11U/C Environmental Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate educated hypotheses to focus inquiries or research
A1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions with reference to scientific knowledge
C. Human Health and the Environment
C3. Understanding Basic Concepts
C3.2 describe the effects of a variety of environmental factors on human health (e.g., air pollutants are associated with disorders such as asthma; consumption of fish products from contaminated water may lead to increased levels of heavy metals in the human body; the thinning of the ozone layer may lead to increased incidence of skin cancer; noise pollution may impact hearing)

Grade 11 Workplace Environmental Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate educated hypotheses to focus inquiries or research
A1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions with reference to scientific knowledge
B. Human Impact on the Environment
B3. Understanding Basic Concepts
C3.2 describe the effects of a variety of environmental factors on human health (e.g., air pollutants are associated with disorders such as asthma; consumption of fish products from contaminated water may lead to increased levels of heavy metals in the human body; the thinning of the ozone layer may lead to increased incidence of skin cancer; noise pollution may impact hearing)

Human Impact Activity

Grade 9 Academic Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate educated hypotheses to focus inquiries or research
A1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions with reference to scientific knowledge
B. Biology: Sustainable Ecosystems
B1. Relating Science to Technology, Society, and the Environment
B1.1 assess, on the basis of research, the impact of a factor related to human activity (e.g., urban sprawl, introduction of invasive spices, overhunting/overfishing) that threatens the sustainability of a terrestrial or aquatic ecosystem
B2. Developing Skills of Investigation and Communication
B2.1 use appropriate terminology related to sustainable ecosystems, including, but not limited to: bioaccumulation, biosphere, diversity, ecosystem, equilibrium, sustainability, sustainable use, protection and watershed
B3. Understanding Basic Concepts
B3.5 identify various factors related to human activity that have an impact on ecosystems (e.g., the introduction of invasive species; shoreline development; industrial emissions that result in acid rain), and explain how these factors affect the equilibrium and survival of ecosystems (e.g., invasive species push out native species and upset the equilibrium in an ecosystem; shoreline development affects the types of terrestrial and aquatic life that can live near lake shores or river banks; acid rain changes the pH of water, which affects the type of aquatic life that can survive in a lake)

Grade 9 Applied Science

A. Scientific Investigation Skills and Career Exploration
A1. Scientific Investigation Skills
A1.1 formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate hypotheses to focus inquiries or research
A1.6 gather data from laboratory and other sources, and organize and record the data using appropriate formats, including tables, flow charts, graphs and/or diagrams
A1.10 draw conclusions based on inquiry results and research findings, and justify their conclusions with reference to scientific knowledge
B. Biology: Sustainable Ecosystems
B1. Relating Science to Technology, Society, and the Environment
B1.1 analyse, on the basis of research, how a human activity (e.g., urban sprawl, use of pesticides and fertilizers, creation of pollution, human interaction with wildlife) threatens the sustainability of a terrestrial or aquatic ecosystem
B2. Developing Skills of Investigation and Communication
B2.1 use appropriate terminology related to sustainable ecosystems, including, but not limited to: biodiversity, biotic, ecosystem, equilibrium, species diversity, sustainability, and watershed
B3. Understanding Basic Concepts

B3.2 describe the interdependence of the components within a terrestrial and an aquatic ecosystem, and explain how the components of both systems work together to ensure the sustainability of a larger ecosystem

Grade 11 Workplace Environmental Science

B Human Impact on the Environment
B1. Relating Science to Technology, Society, and the Environment
B1.1 propose possible solutions, on the basis of research, to a current practical environmental problem that is caused, directly or indirectly, by human activities
B2. Developing Skills of Investigation and Communication
B2.1 use appropriate terminology relating to the environmental impact of human activity, including, but not limited to: carbon footprint, carbon neutral, biodegradable, biodiversity, carrying capacity, sustainability, and invasive and native species
B3. Understanding Basic Concepts
B3.6 explain how human activities (e.g., agriculture, travel, the purchase of exotic pets, importing and exporting, releasing domesticated fish into fresh water environments, the use of live bait) have led to the introduction of invasive species, and why it is important to measure and monitor the impact of invasive species on native species

<u>Amazing Amphibians Activity- Science</u>

Grade 1- Understanting Life Systems: Needs and Characteristics of Living Things
1. Relating Science and Technology to Society and the Environment
1.1 identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures and human practices during science and technology investigations (e.g. show care and concern when handing animals)
2.2 investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources
2.3 investigate and compare the physical characteristics of a variety of plants and animals, including humans
3. Understanding Basic Concepts
3.2 identify the physical characteristics (e.g., size, shape, colour, common parts) of a variety of plants and animals
Grade 2- Understanding Life Systems: Growth and Changes in Animals
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures and humane practices specific to the care and handling of live animals, where appropriate, during science and technology investigations
2.2 observe and compare the physical characteristics, and the behavioural characteristics of a variety of animals, including insects, using student-generated questions and a variety of methods and resources
2.3 investigate the life cycle of a variety of animals using a variety of methods and resources
2.4 observe and compare changes in the appearance and activity of animals as they go through a complete life cycle

3.Understanding Basic Concepts
3.1 identify and describe major physical characteristics of different types of animals
Grade 4- Understanding Life Systems: Habitats and Comunities
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures for working with soils and natural materials
2.4 use scientific inquiry/research skills to create a living habitat containing a community, and describe and record changes in the community over time
2.5 use appropriate science and technology vocabulary, including habitat, population, community, adaptation and food chain, in oral and written communication
3.Understanding Basic Concepts
3.1 demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)

Insect Investigation Activity- Science

Grade 1- Understanting Life Systems: Needs and Characteristics of Living Things
1. Relating Science and Technology to Society and the Environment
1.1 identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures and human practices during science and technology investigations (e.g. show care and concern when handing animals)
2.2 investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources
2.3 investigate and compare the physical characteristics of a variety of plants and animals, including humans
3. Understanding Basic Concepts
3.2 identify the physical characteristics (e.g., size, shape, colour, common parts) of a variety of plants and animals
Grade 2- Understanding Life Systems: Growth and Changes in Animals
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures and humane practices specific to the care and handling of live animals, where appropriate, during science and technology investigations
2.2 observe and compare the physical characteristics, and the behavioural characteristics of a variety of animals, including insects, using student-generated questions and a variety of methods and resources
3.Understanding Basic Concepts
3.1 identify and describe major physical characteristics of different types of animals
Grade 4- Understanding Life Systems: Habitats and Comunities
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures for working with soils and natural materials
2.4 use scientific inquiry/research skills to create a living habitat containing a community, and describe and record changes in the community over time
2.5 use appropriate science and technology vocabulary, including habitat, population, community, adaptation and food chain, in oral and written communication
3.Understanding Basic Concepts

3.1 demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)
Grade 6- Understanding Life Systems: Biodiversity
1. Relating Science and Technology to Society and the Environment
1.2 assess the benefits that human societies derive from biodiversity and the problems that occur when biodiversity is diminished
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures for outdoor activities and field work (e.g., stay with a partner when exploring habitats; wash hands after exploring a habitat
2.2 investigate the organisms found in a specific habitat and classify them according to a classification system
2.4 use appropriate science and technology vocabulary including classification, biodiversity, natural community, interrelationships, vertebrate, invertebrate, stability, characteristics, and organism, in oral and written communication
3. Understanding Basic Concepts
3.2 demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them
Grade 7- Understanding Life Systems: Interactions in the Environment
2. Developing Investigation and Communication Skills
2.1 follow established safety procedures for investigating ecosystems (e.g. stay with a partner, wash hands after investigating an ecosystem
2.4 use appropriate science and technology vocabulary including sustainability, biotic, ecosystem, community, population, and producer, in oral and written communication
3. Understanding Basic Concepts
3.1 demonstrate an understanding of an ecosystem as a system of interactions between living organisms in their environment
3.8 describe ways in which human activities and technologies alter balances and interactions in the environment

Party Like it's 1829 Activity-Social Studies

Grade 1- Heritage and Identity: Our Changing Roles and Responsibilities
A1 Application: Why Roles and Responsibilities Change
A1.1 describe how and why a person's roles, relationships, and responsibilities may change in different places or situations and at different times
Grade 3- Heritage and Identity: Communities in Canada, 1780-1850
A1. Application: Life in Canada- Then and Now
A1.1 describe some of the similarities and differences in various aspects of everyday life of selected groups living in Canada between 1780 and 1850
A1.2 compare some of the roles and challenges facing people in Canada around the beginning of the nineteenth century with those in present day