- Analyze competing factors (social, ethical, and sustainable) to meet individual, family, and community needs for preferred futures.
- Evaluate the influences of social, cultural, and environmental (for example: land, natural resources) conditions on the development and use of tools and technologies

Chemistry 11

Content:

-green chemistry

-development of sustainable processes and technologies that reduce negative impacts on the environment (e.g., reducing toxicity, designing benign solvents, increasing energy efficiency)

Competencies:

-Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources

-Consider social, ethical, and environmental implications of the findings from their own and others' investigations

-Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems

-Assess risks in the context of personal safety and social responsibility

-Contribute to care for self, others, community, and world through individual or collaborative approaches

-Co-operatively design projects with local and/or global connections and applications

-Contribute to finding solutions to problems at a local and/or global level through inquiry

-Implement multiple strategies to solve problems in real-life, applied, and conceptual situations

-Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations

Earth Sciences 11

Big idea: Earth materials are changed as they cycle through the geosphere and are used as resources, with economic and environmental implications.

Content:

-economic and environmental implications of geologic resources within B.C. and globally

-economic feasibility (e.g., price, concentration, accessibility, environmental concerns)

-exploration methods (e.g., use of geochemical and geophysical data, field work, remote sensing, mapping, drilling)

-extraction methods (e.g., open-pit versus underground mining, fracking of oil and gas reservoirs, methods of concentrating and refining ore minerals and fossil fuels)

-site remediation (e.g., government regulations, failed tailings ponds, acid rock drainage, land reclamation)

-evidence of climate change

both historical and recent (i.e., the last 100 years) climate change (e.g., ice core data, deep sea sediments, First Peoples knowledge)

- First Peoples knowledge of climate change and interconnectedness as related to environmental systems

- First Peoples knowledge and perspectives of water resources and processes
- effects of climate change (for example, ocean acidification, changes to ocean currents, loss of glaciers, rising sea levels)

Competencies:
-Contribute to care for self, others, community, and world through individual or collaborative approaches
-Co-operatively design projects with local and/or global connections and applications
-Contribute to finding solutions to problems at a local and/or global level through inquiry
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Environmental Sciences 11

Big idea: Human practices affect the sustainability of ecosystems.

Humans can play a role in stewardship and restoration of ecosystems.

Content:
- First Peoples knowledge and other traditional ecological knowledge in sustaining biodiversity
    (e.g. agriculture, ethnobotany, forestry, fisheries, mining, energy, controlled burning, harvesting cycles)
-benefits of ecosystem services
    (e.g. water purification, pollination, climate regulation, medicines, food production, waste management
-human actions and their impact on ecosystem integrity
    (e.g. harvesting, resource extraction and consumption, population growth, urbanization, habitat loss and fragmentation, climate change, pollution, introduced species, invasive species, forest fires)
- resource stewardship
    (e.g. sustainable use of, and care for, local resources (e.g., school garden, shoreline cleanup, citizen science projects)
- restoration practices
    -the process of renewing and recovering a degraded, damaged, or destroyed ecosystem
    (e.g., riparian zone recovery, invasive species removal, native species planting, ecological engineering, dam removal, hatcheries, wildlife, forestry and fisheries management)

Competencies:
-Contribute to care for self, others, community, and world through individual or collaborative approaches
-Co-operatively design projects with local and/or global connections and applications
-Contribute to finding solutions to problems at a local and/or global level through inquiry
-Implement multiple strategies to solve problems in real-life, applied, and conceptual situations

-Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations

Science for Citizens 11

Big idea: Scientific understanding enables humans to respond and adapt to changes locally and globally.

Content:
-human impact on Earth's systems:
    -natural resources
        -including availability (e.g., food, water, energy, minerals) and responsible development and use
    -effects of climate change
        -impact on food production
        -impact on climate (e.g., desertification, changing range of plants and animals)
        -impact on weather
        -sea level rise (e.g., infrastructure changes in coastal communities)
        -ocean acidification
- actions and decisions affecting the local and global environment, including those of First Peoples
    -ethical, cultural, social, economic, environmental, and political implications
    -waste recycling and disposal including limitations of recycling
    -agriculture/aquaculture practices and processes (e.g., hydroponics, food crops, feed crops, fuel crops, animal husbandry, fish farms, new technologies, use of chemicals, environmental impacts)
    -energy generation, use, and efficiency (e.g., production, economics, environmental impacts)
    -sustainability of resources (e.g., impacts of personal choices, product life cycles)

Competencies:
-Contribute to care for self, others, community, and world through individual or collaborative approaches
-Co-operatively design projects with local and/or global connections and applications
-Contribute to finding solutions to problems at a local and/or global level through inquiry
-Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
-Communicate scientific ideas and information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations

Environmental Science 12

Big idea:
-Human actions affect the quality of water and its ability to sustain life
-Human activities cause changes in the global climate system.
-Sustainable land use is essential to meet the needs of a growing population.
-Living sustainably supports the well-being of self, community, and Earth.