



the BC Spaces for Nature Wilderness Education Program

NATURE IS OUR CLASSROOM!

## CURRICULUM OUTLINE FOR TEACHERS Senior High (Grades 11 & 12) Detailed Listings



### Links to Learning Outcomes

### Topic: Knowing and Caring for Our Wilderness

#### Social Studies 11

##### Human Geography

- assess environmental challenges facing Canadians, including global warming, ozone layer depletion, fresh water quality and supply

#### Science and Technology 11

##### Natural Resources and the Environment

- describe the major natural resources found in British Columbia
- discuss the impact of society on natural resource management and the environment

#### Physical Education 11

##### Active Living

- adapt physical activities to minimize environmental impact

##### Movement

- plan and participate safely in a variety of activities and environments

#### Biology 11

##### Ecology

- analyse the functional inter-relationships of organisms within an ecosystem

##### Plant Biology

- analyse how the increasing complexity of algae, mosses, and ferns represent an evolutionary continuum of adaptation to a land environment

#### Earth Science 11

##### Earth Materials (rocks and minerals)

- differentiate between rocks and minerals

##### Internal Processes and Plate Tectonic Theory

- explain the significance of seismology
- compare extrusive and intrusive volcanic features and action

##### Surface Processes and the Hydrosphere

- explain the characteristics and significance of the atmosphere
- describe the function of the hydrologic cycle
- relate the processes associated with weathering and erosion to the resulting features

#### Sustainable Resources 11

##### Fisheries

- analyse the environmental, social, and economic significance of fisheries at the local, provincial, and global levels
- outline the dynamics of ecosystems related to fisheries
- analyse challenges and opportunities faced by fishery industries in British Columbia

##### Forestry

- analyse the environmental, social, and economic significance of forestry and related industries at the local, provincial, and global levels
- outline the dynamics of forest ecosystems
- assess current practices related to the management of sustainable forest resources in British Columbia
- analyse challenges and opportunities faced by forest industries in British Columbia

##### Mining

- analyse the environmental, social, and economic impacts of acquiring mineral resources, and hydrocarbons from fossil fuels, at the local, provincial, and global levels
- assess current practices related to the sustainable management of hydrocarbon and mineral resources in British Columbia
- analyse challenges and opportunities facing hydrocarbon and mineral resource industries in British Columbia

#### Resource Sciences: Forests 11

##### Forests and Society

- define resource and forest
- demonstrate awareness of a variety of perspectives and values related to forests and forest use
- demonstrate awareness of and appreciation for Aboriginal peoples' relationship with the forest in British Columbia
- compare historical and current forest practices
- assess the importance of forests to British Columbians

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## Resource Sciences: Forests 11 (con't)

### Forest Ecology

- define ecology, environment, and ecosystem
- describe processes in and components of ecosystems
- demonstrate awareness of forests as complex ecosystems
- describe the roles that fungi, microbes, and lichens play in a forest ecosystem
- define structural diversity and biological diversity
- assess the effects of natural and human forces on the forest
- describe a variety of food chains and food webs

### Plants

- use a key to identify a variety of local plants with their scientific and common names
- describe the habitat requirements of a variety of local plants

### Trees

- use a key to identify a variety of local trees with their scientific and common names
- describe the habitat requirements of a variety of local trees

### Animals

- identify a variety of local animal species and their habitat requirements
- describe factors affecting local animal populations and behaviours
- demonstrate awareness of the social and economic value of forest animals

### Forest Resources

- describe the origins, development, and trends of forest resource use in British Columbia

### Land Use Planning

- describe sustainable development and its relationship to land use
- relate public involvement to land-use planning decisions

### Forest Management

- demonstrate awareness of the processes involved in forest resource management
- demonstrate understanding of integrated resource management
- demonstrate awareness of a variety of perspectives on forest health

## Geography 12

### Themes and Skills

- describe the major interactions of the four spheres: atmosphere, biosphere, hydrosphere, lithosphere
- demonstrate geographic literacy through interpretation of topographic maps and aerial and satellite images

### Tectonic Processes

- describe the features and processes associated with plate tectonics, including the Earth's layers, volcanism, folding and faulting, earthquakes
- explain the effects of volcanism and earthquakes

### Gradational Processes

- describe the features and processes associated with weathering and mass wasting
- describe the features and processes associated with running water, ground water, glaciers, wind, waves

### Weather and Climate

- describe the characteristics of the world's climate regions, including: equatorial, tropical wet/dry, Mediterranean, desert, continental interior, humid continental (including humid sub-tropical), west coast marine, sub-arctic, tundra,
- explain how climate affects human activity
- analyse interactions between human activity and the atmosphere, with reference to global climate change, ozone depletion, acid precipitation

### Biomes

- outline characteristics of the Earth's major biomes, including: tropical rainforest, tropical grasslands/savanna, Mediterranean/schlerophyll, desert, temperate grasslands/prairie/steppe, deciduous/mixed forest, temperate rainforest, coniferous forest/boreal/taiga, tundra
- describe how vegetation adapts to environmental conditions
- analyse the interactions between human activity and biomes, with reference to: deforestation, desertification, soil degradation, species depletion,

### Resources and Environmental Sustainability

- assess the various considerations involved in resource management, including: sustainability, availability, social/cultural consequences, economic consequences, political consequences
- assess the environmental impact of human activities, including: energy production and use, forestry, fishing, mining, agriculture, waste disposal, water use

## BC First Nations Studies 12

### Skills and Processes

- apply critical thinking - including questioning, comparing, summarizing, drawing conclusions, hypothesizing, and defending a position - to make reasoned judgments about a range of issues, situations, and topics

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## BC First Nations Studies 12 (con't)

### Skills and Processes

- demonstrate skills and attitudes of active citizenship, including ethical behaviour, open-mindedness, respect for diversity, and collaboration

### Land and Relationships

- analyse the relationship of First Nations peoples with the natural world
- explain the significance of traditional education with respect to land and relationships

## Physical Education 12

### Active Living

- design, evaluate, and monitor plans for a balanced, healthy lifestyle, taking into consideration factors that affect the choice of physical activity, including: environment
- demonstrate a willingness to use community-based recreational and alternative-environment opportunities to develop a personal functional level of physical fitness

### Personal and Social Responsibility

- consistently demonstrate safety practices in a variety of activities and environments

## Resource Science: Forests 12

### Management Perspectives

- analyse forest-related issues from a variety of perspectives

### Forest Ecology

- describe nutrient cycles and energy flow in forest ecosystems
- relate climatic factors to plant distribution
- describe forest succession
- identify uses of the Biogeoclimatic Ecosystem Classification in British Columbia

### Insects and Diseases

- identify agents that have an impact on forest health
- identify the roles of various insects and diseases in forest ecosystems
- describe how forest management decisions are affected by insects and diseases

### Fire Management

- assess the role of fire in the forest ecosystem
- describe the social, economic, and ecological effects of fire suppression
- explain how prescribed burns can be used to achieve forest management objectives

## Sustainable Resources 12

### Agriculture

- investigate the role of climate in agricultural production
- discuss environmental issues as they relate to agricultural practices

### Fisheries

- examine the biotic and abiotic components of a variety of aquatic ecosystems
- investigate interactions found within aquatic ecosystems
- determine environmental issues and challenges related to fisheries
- analyse sustainability issues and challenges related to fisheries
- assess issues and challenges related to aquaculture

### Forestry

- assess the importance of forest resources to British Columbia and Canada
- report on the distribution of different types of forests found in Canada, with emphasis on British Columbia
- analyse current forest management practices
- examine the components of forest ecosystems
- investigate the interactions found within a forest environment
- assess the impact of environmental components and changes on a forest ecosystem
- analyse current local and global issues in forest management
- outline the challenges impacting the health and sustainability of forest resources in British Columbia

### Mining

- examine the relationship between resource exploration and the development of Canada with emphasis on British Columbia
- analyse environmental impacts of various activities related to hydrocarbon and mineral resource extraction, processing, and use

## Geology 12

### Earth Materials (rocks and minerals)

- differentiate between igneous, sedimentary, and metamorphic rocks
- compare igneous features
- relate sedimentary features to their depositional environments

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## Geology 12 (con't)

### Internal Processes and Plate Tectonic Theory

- analyse and evaluate applications of seismology
- relate rock formations and structures to the forces that create them
- analyse structures, processes, and evidence that support plate tectonic theory

### Surface Processes and the Hydrosphere

- analyse features and processes associated with weathering and erosion
- analyse features and processes associated with stream erosion and deposition
- evaluate the importance of ground water
- explain the processes and features associated with glaciation

*Actual lesson plans can vary according to group age, size, time constraints, and by request.*