

Spring Camp- Curriculum Connections  
**Youth University Natural Science Camp**  
Relevance to Ontario Curriculum



Brock University

Activities: Ecology, Rocks and Minerals, Solar Energy, Water and Soil Investigation, Urban Planning, Nature Hike, GPS Adventure

**Grades 6-8 Science and Technology (2007 Ontario Curriculum)**

**Goals of Science and Technology Curriculum**

1. To relate science and technology to society and the environment
2. To develop the skills, strategies, and habits of mind required for scientific inquiry and technological problem solving
3. To understand the basic concepts of science and technology

**Ecology**

*For this module we will enter the university science department and have the opportunity to conduct experiments in a professional lab. Participants experience hands on through activities and experiments how habitats sustain life and interact.*

**Grade 6: Science and Technology (2007)**

- 2.2 Investigate the organisms found in a specific habitat and classify them according to a classification system
- 3.1 Identify and describe the distinguishing characteristics of different groups of plants and animals and use these characteristics to further classify various kinds of plants and animals
- 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
- 3.5 Describe interrelationships within species between species

### **Grade 7: Science and Technology (2007)**

2.1 Follow established safety procedures for investigating

2.4 Use appropriate science and technology vocabulary

3.1 Demonstrate an understanding of an ecosystem as a system of interactions between living organisms and their environment

3.5 Describe how matter is cycled within the environment and explain how it promotes sustainability

### **Grade 8: Science and Technology (2007)**

2.1 Follow established safety procedures for handling apparatus and materials

2.4 Use scientific inquiry/experimentation skills

### **Rocks and Minerals:**

*During the Rocks, Minerals, and Soils modules you will travel across campus testing soil in different locations from the wooded Bruce Trail to the inner courtyard. Along the way you will look for evidence of the history of the Niagara escarpment and identify found rocks through mineral testing. This module will help us consider the effects of air and water pollution on our planet.*

### **Grade 6: Science and Technology (2007)**

2.6 Use a variety of forms to communicate with different audiences and for a variety of purposes

### **Grade 7: Science and Technology (2007)**

2.5 Use appropriate science and technology vocabulary in oral and written communication

3.4 Explain how heat is transmitted through conduction and describe natural processes that are affected by conduction (*e.g., the formation of igneous and metamorphic rocks and diamonds*)

### **Grade 8: Science and Technology (2007)**

2.1 Follow established safety procedures for working with apparatus, tools and materials

2.2 Investigate the work done in a variety of everyday activities and record the findings quantitatively

## Solar Energy

*During the Atmosphere and Weather module you will learn how the sun's energy affects the air around us. You'll learn the basic properties of gases and to identify cloud patterns and use your new found knowledge to predict the weather. This module will serve to generate questions about our planet's weather patterns, the sun, the green house effect and the possibilities represented by alternative energy sources.*

### **Grade 6: Science and Technology (2007)**

- 1.1 Assess the short and long-term environmental effects of the different ways in which electricity is generated in Canada, including the effect of each method on natural resources and living things in the environment
- 3.4 Describe how various forms of energy can be transformed into electrical energy

### **Grade 7: Science and Technology (2007)**

- 2.5 Use appropriate science and technology vocabulary in oral and written communication
- 3.5 Explain how heat is transmitted through convection, and describe natural processes that depend on convection
- 3.6 Explain how heat is transmitted through radiation, and describe the effects of radiation from the sun on different kinds of surfaces
- 3.7 Describe the role of radiation in heating and cooling the earth, and explain how greenhouse gases affect the transmission of radiated heat through the atmosphere

### **Grade 8: Science and Technology (2007)**

- 2.5 Use scientific inquiry/experimentation skills
- 2.7 Use a variety of forms to communicate with different audiences and for a variety of purposes

## Water and Soil Investigation

*Roughly one billion trillion liters of water can be found on our planet but only .036% is accessible for drinking water. The Water Systems module gives you the chance to consider water in our world as you create your very own water filter. We will collect water samples from locations around our campus to test out our creations. This module will help us think about one of the world's most important issues - sustainable drinking water.*

### **Grade 6: Science and Technology (2007)**

- 2.1 Follow established safety procedures for outdoor activities and field work
- 2.4 Use appropriate science and technology vocabulary in oral and written communication

- 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: Science and Technology (2007)**

- 2.3 Use scientific inquiry/research skills to investigate occurrences
- 3.3 Describe the roles and interactions of producers, consumers, and decomposers within an ecosystem
- 3.7 Explain why an ecosystem is limited in the number of living things that it can support
- 3.8 Describe ways in which human activities and technologies alter balances and interactions in the environment

#### **Grade 8: Science and Technology (2007)**

- 1.2 Assess the impact on local and global water systems of a scientific discovery or technological innovation
- 2.1 Follow established safety procedures for the use of apparatus and chemicals
- 2.3 Test water samples for a variety of chemical characteristics
- 2.6 Use appropriate science and technology vocabulary in oral and written communication
- 3.3 Explain how human and natural factors cause changes in the water table

#### **Urban Planning**

*Strategize and debate urban planning as it impacts our environment and natural resources. Using your skills as a master debater present your ideas and persuade your team mates to make the best decisions for your YU Sim City.*

#### **Grade 6: Social Studies (2004)**

- Describe some influences of other countries on contemporary Canadian society and the lifestyles of Canadians

### **Grade 7: History and Geography (2004)**

- Formulate questions to guide and synthesize research on an environmental issue (e.g. What role does an environmentalist play in the planning of an urban community?)
- Use appropriate vocabulary
- Describe ways in which technology has affected our use of natural resources
- Use appropriate vocabulary, including correct geographic terminology to describe their inquiries and observations.

### **Grade 8: History and Geography (2004)**

- Identify and explain the factors affecting population distribution
- Compare the characteristics of places with high and low population densities;
- Explain how site and situation influence settlement patterns
- Construct and examine population pyramids to make predictions about future trends in population characteristics.
- Summarize the factors that affect patterns of urbanization, industrialization, and transportation

### **Nature Hike**

*Our natural backdrop setting of the Niagara Escarpment and our access to the Bruce Trail provide students with the opportunity to experience science in a unique natural setting.*

### **Grades 7 - 8 History and Geography (2004)**

- Investigate the physical features and climate of a variety of popular tourist destinations and use a decision-making model to select an ideal travel destination.
- Explain the geographic concept of region
- Explain the geographic concept of interaction

### **Team Building Initiatives**

#### **Grade 6-8 Health and Physical Education (2010 Revised Edition Ontario Curriculum)**

*Students will use a wide variety of communication, collaboration and critical thinking skills to work together to solve team-building challenges. These challenges are facilitated by our instructors and will help students develop their interpersonal skills.*

- 1.4 Apply relationship and social skills as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living to help them interact positively with others, build healthy relationships, and become effective team members

1.5 Use a range of critical and creative thinking skills and processes to assist them in making connections, planning and setting goals, analyzing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education

A3.1 Demonstrate behaviours and apply procedures that maximize their safety and that of others during physical activity

### GPS adventure

*Using your newly acquired GPS navigation skills to work as a team to collectively communicate different ideas and solve challenges the face along the way.*

### **Grade 6-8 Health and Physical Education (2010 Revised Edition Ontario Curriculum)**

1.6 Use a range of critical and creative thinking skills and processes to assist them in making connections, planning and setting goals, analyzing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education

A3.1 Demonstrate behaviours and apply procedures that maximize their safety and that of others during physical activity