**SBI3U7 – Topic 4 – Ecology – What to know**

**4.1 – Species, Communities & Ecosystems**

* Define species, consumer, autotroph, heterotroph, Detritivore, Saprotroph, community
* Classify species by their mode of nutrition
* Most plants are autotrophic, but there are always exceptions
* Use of quadrats

**4.2 – Energy Flow**

**Essential Idea** – Ecosystems require a continuous supply of energy to fuel life processes and to replace energy lost as heat

* Using the concept of energy flow, explain the limited length of food chains
* Explain how energy is transferred through food chains
* Outline the ways in which energy is lost from an ecosystem
* Draw pyramids of energy given appropriate data. Proper units should be used and the pyraid should be fully labeled. Pyramid should be drawn to scale.

**4.3 – Carbon Cycling**

**Essential Idea** – Continued availability of carbon in ecosystems, depends on carbon cycling

* Draw a fully labeled diagram of the carbon cycle
* Outline the roles of fossilization, combustion, methanogensis, peat formation, and limestone deposits in the carbon cycle
* Identify sources of carbon and carbon sinks in the carbon cycle
* Explain current trends in atmospheric CO2 concentrations over time and annual fluctuations.

**4.4 – Climate Change**

**Essential Idea** – Concentrations of gases in the atmosphere affect climates experienced at the Earth’s surface

* List the greenhouse gases
* Explain how the greenhouse effect works. Include the roles of short wave and long wave radiation
* Discuss anthropogenic causes of the enhanced greenhouse effect
* Explain the relationship between greenhouse gases and global temperatures
* Explain the effect of increasing dissolved CO2 levels have on coral reefs