Build Your Own Terrarium (Grade 5+) - Curriculum Connections

Suggested Grades: 5-12
Curriculum Connections: Matter (Gr 6), Energy (Gr 5, 6)**,** Earth Systems (Gr 5, 6), Living Systems (Gr 6), Scientific Methods (Gr 5), Interactions and Ecosystems (Gr 7), Plants for Food and Fibre (Gr 7), Planet Earth (Gr 7), Electrical Principles and Technologies (Gr 9), Energy Flow in Global Systems (Science 10), Changes in Living Systems (Science 20), Energy and Matter Exchange in the Biosphere (Biology 20), Ecosystems and Population Change (Biology 20), Photosynthesis and Cellular Respiration (Biology 20), Energy and the Environment (Science 30)

Specific Learning Outcomes:

Grade 5

- *Energy* - Students investigate and analyze various energy resources (oil).
- *Earth Systems* - Students analyze climate and connect it to weather conditions and agricultural practices.
- *Scientific Methods* - Students investigate how evidence is gathered and explain the importance of ethics in science (variables - light, temperature, moisture).

Grade 6

- *Matter* - Students investigate how particles of matter behave when heated or cooled and analyze effects on solids, liquids, and gases.
- *Energy* - Students investigate energy resources and explain factors that influence their use (oil).
- *Earth Systems* - Students investigate climate, changes in climate, and the impact of climate change on Earth.
- *Living Systems* - Students investigate the characteristics and components of and interactions within ecosystems (photosynthesis, abiotic/ biotic components of ecosystems).

Grade 7

- *Interactions & Ecosystems* - Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions; trace and interpret the flow of energy and materials within an ecosystem; describe the relationships among knowledge, decisions and actions in maintaining life-supporting environments.
- *Plants for Food & Fibre* - Investigate plant uses and identify links among needs, technologies, products and impacts; analyze plant environments, and identify impacts of

specific factors and controls; identify and interpret relationships among human needs, technologies, environments, and the culture and use of living things as sources of food and fibre.
- *Planet Earth* - Students will describe and demonstrate methods used in the scientific study of Earth and in observing and interpreting its component materials (describe methods used in oil and gas exploration - seismographs).

Grade 9

- *Electrical Principles and Technologies* - Students will describe and discuss the societal and environmental implications of the use of electrical energy (connect to oil).

Science 10

- *Energy Flow in Global Systems* - Students will describe how the relationships among input solar energy, output terrestrial energy and energy flow within the biosphere affect the lives of humans and other species; students will investigate and interpret the role of environmental factors on global energy transfer and climate change.

Science 20

- *Changes in Living Systems* - Students will analyze ecosystems and ecological succession in the local area and describe the relationships and interactions among subsystems and components (society and technology have consequences for humans and the environment; need for habitat reclamation).

Biology 20

- *Energy and Matter Exchange in the Biosphere*
    - Students will explain the constant flow of energy through the biosphere and ecosystems.
    - Students will explain the cycling of matter through the biosphere.
    - Students will explain the balance of energy and matter exchange in the biosphere, as an open system, and explain how this maintains equilibrium.
- *Ecosystems and Population Change*
    - Students will explain that the biosphere is composed of ecosystems, each with distinctive biotic and abiotic characteristics (human impacts).
- *Photosynthesis and Cellular Respiration*
    - Students will relate photosynthesis to storage of energy in organic compounds

Science 30

- *Energy & the Environment* - Students will explain the need for balancing the growth in global energy demands with maintaining a viable biosphere.