

Botany and Biology Information Sheet

Program Overview

The Botany and Biology program allows your class to explore the science behind the organic materials used in craft! Through various hands-on activities and experiments, you may discover how plants are turned into fabric, how to make dyes from organic matter, or how to tell the difference between natural and synthetic fibres.

Duration

2 hours

Grades

This program is suitable for grades 1 & 3 and 9-10.

Presentation Topics

1. *Organic Observations* (Grades 1 & 3)

Students will explore the ways in which flora and fauna are considered to be paramount in certain craft techniques. Presented with both plants and animal materials in their organic form as well as their crafted forms, students will examine the physical properties of each to determine how certain organic materials can be manipulated into craft by changing their texture, colour, and shape.

2. *The Art of Organic Dye* (Grades 1 & 3)

The Art of Organic Dye allows students to observe the process of natural textile dyeing using organic materials like onion skins, blueberries, or turmeric. Participants will gain an understanding of the types of materials used for natural dyes, how natural dyes are created, and how they work. At the end of this program your class will have its very own sample of fabric dyed with natural materials!

3. *Natural and Synthetic Fibres* (Grades 9-10)

Students will critically examine different textile fibres provided by the Manitoba Crafts Museum and Library. Natural or synthetic fibres will be identified through the examination of the physical properties of the fibres and their burning qualities. A brief history of the uses and production of the different textiles will also be discussed to develop a nuanced understanding of how humans use or manipulate raw materials. The second experiment will involve investigating the differences between natural and synthetic fibres and their interactions natural dyes.



Learning Objectives:

- To understand the use of organic materials in craft.
- To analyze and interpret the physical properties of an object.
- To determine the difference between natural and synthetic materials.
- To better understand the craft process of dyeing.

Activities

1. Organic Observations (Grades 1 & 3)

Material Investigation: A series of raw materials and crafted items will be presented to the class. Students will record basic observations (colour, texture) of these items and then match up which raw material was used to create each crafted item.

2. Art of Organic Dye (Grades 1 & 3)

Material Investigation: A series of raw materials and dyed textiles will be presented to the class. Students will match up which raw material created the colour for each dyed textile.

Painting with Natural Dyes: Students will be able to work directly with the natural dyes to create paintings.

3. Natural and Synthetic Fibres (Grades 9-10)

Textile Identification Test: Students will be presented with a number of unidentified natural and synthetic textile samples. To determine which samples are natural and which are synthetic students will perform a series of tests to analyze the physical properties and the textiles reaction to a burn test.

Contact Us!

For more information or to book a school program please contact mcml@c2centreforcrafter.ca or call 204-615-3951.

Curriculum Links

Organic Observations/Art of Organic Dye (Grades 1 & 3)

GRADE 1 SCIENCE		
<u>CLUSTER 1:</u> Characteristics and Needs of Living Things	<u>CLUSTER 2:</u> The Senses	<u>CLUSTER 3:</u> Characteristics of Objects and Materials
<p>1-1-01 Use appropriate vocabulary related to their investigations of characteristics and needs of living things. Include: characteristic, human, animal, plant, living things, needs, as well as descriptive words relating to life processes.</p> <p>1-1-03 Identify and describe common characteristics of humans and other animals they have observed. Examples: number of limbs, eyes, ears, skin...</p> <p>1-1-05 Recognize that plants, as living things, come in different forms.</p> <p>1-1-06 Observe and identify similarities in life processes between themselves and other living things.</p> <p>1-1-10 Describe how humans and other living things depend on their environment to meet their needs.</p>	<p>1-2-01 Use appropriate vocabulary related to their investigations of the senses. Include: senses, sight, smell, hearing, taste, touch, eye, nose, ear, tongue, skin, eyelash, eyebrow, eyelid, nostril, cartilage, nose hair, as well as descriptive words related to shape, colour, lustre, wetness, temperature, taste, odour, size, texture, pitch.</p> <p>1-2-03 Use their senses to sort and classify objects.</p> <p>1-2-05 Recognize that their fingertips are especially sensitive to touch.</p> <p>1-2-07 Use smell to identify familiar substances following safe procedures.</p> <p>1-2-11 Explore to determine ways that the appearance, texture, sounds, smell, and taste of objects can be altered.</p>	<p>1-3-01 Use appropriate vocabulary related to their investigations of objects and materials.</p> <p>1-3-02 Explore and describe characteristics of materials using their sensory observations.</p> <p>1-3-03 Distinguish between an object and the materials used to construct it.</p> <p>1-3-04 Identify materials that make up familiar objects.</p> <p>1-3-05 Explore to identify characteristics of common materials.</p> <p>1-3-10 Use the design process to construct a useful object by selecting, combining, joining, and shaping materials.</p> <p>1-3-11 Demonstrate ways to reduce, reuse, and recycle materials during classroom learning experiences.</p>

GRADE 3 SCIENCE	
<u>CLUSTER 1:</u> Growth and Changes in Plants	<u>CLUSTER 2:</u> Materials and Structures
<p>3-1-02 Observe, compare, and contrast the structure and appearance of several types of plants.</p> <p>3-1-07 Identify basic parts of plants and describe their function.</p> <p>3-1-16 Identify how humans from various cultures use plant parts for food and medicine.</p> <p>3-1-17 Investigate to determine how humans from various cultures make useful products from plant materials.</p>	<p>3-2-03 Explore to determine ways to strengthen a material used for building.</p> <p>3-2-04 Explore to determine an appropriate method for joining two materials for a specific use.</p> <p>3-2-07 Identify shapes that are part of natural and human-built structures from various cultures and describe how these shapes help to provide strength and stability.</p> <p>3-2-09 Use the design process to build a structure that meets given criteria related to strength, stability, and function.</p>

Natural & Synthetic Materials (Grades 9-10)

SCIENCE CURRICULUM	
Grade 9	Grade 10
<p>S1-2-11 Investigate properties of substances and explain the importance of knowing these properties.</p> <p>S1-2-12 Differentiate between physical and chemical changes</p> <p>S1-2-13 Experiment to determine indicators of chemical change. Examples: colour change, production of heat and/or light, production of a gas or precipitate or new substance.</p>	<p>S2-2-08 Experiment to classify acids and bases using their characteristic properties. Include: pH, indicators, reactivity with metals.</p> <p>S2-2-09 Discuss the occurrence of acids and bases in biological systems, industrial processes, and domestic applications.</p>