

# Anoka Hennepin K-12 Curriculum Unit Plan

**Department:** Science

**Course/Grade Level:** Kindergarten

**Unit Title:** Materials in Our World (Physical Science)

**Number of Lessons/Days:** 16 Days

**Unit Summary:** Students use their five senses to observe, describe, sort, and compare the properties of various woods, paper, and fabrics. Students engage in hands on experiences that heighten students’ awareness, curiosity, and understanding of the physical world. They discover some objects are found in nature and some objects are designed by people.

## DESIRED RESULTS (STAGE 1)

**Program Understanding and/or Minnesota State/Local/Core Standards and Technology Standard(s) addressed:**

- III. Students will understand that scientists use the properties and interactions of energy and matter to explain how the physical world works.
- V. Students will understand that the process of inquiry is the collection of information verified through observation and experimentation which allow scientists to critically analyze, draw conclusions and make inferences about the natural world.
- VI. Students will understand that scientists use various communications to share knowledge and promote understanding about our natural world.
- VIII. Students will understand that scientists use and design technology to answer questions, share information and solve problems.

**MN Standards and Benchmarks**

- 0.1.1.2. Scientific inquiry is a set of interrelated processes used to pose questions about the natural world and investigate phenomena.
  - 0.1.1.2.1 Use observations to develop an accurate description of a natural phenomenon and compare one’s observations and descriptions with those of others.
- 0.1.2.1. Some objects occur in nature; others have been designed and processed by people.
  - 0.1.2.1.1 Sort objects into two groups: those that are found in nature and those that are human made. *For example:* Cars, pencils, trees, rocks.
- 0.2.1.1. Objects can be described in terms of the materials they are made of and their physical properties.
  - 0.2.1.1.1 Sort objects in terms of color, size, shape, and texture, and communicate reasoning for the sorting system.

**Overarching Understanding(s) from Curriculum Map/Course Understandings:**

*Students will understand that....*

- all physical objects have properties that we use to describe and sort them.
- scientists ask questions and make observations to gather data and learn about their world.
- scientists work individually and collaboratively to understand the natural world and learn from one another.

**Essential Question(s) from Curriculum Map/Course Essential Questions:**

*To understand, student will need to consider such questions as...*

- How and why is sorting done?
- How do I make an observation?
- How do I work with others?
- How do I share ideas and ask questions?
- How do engineers design objects?

- some objects occur in nature; others have been designed by people and are used to learn about the world and solve problems.

**Topical Understanding(s) Specific to Unit:**

***Students will understand that....***

- objects can be described in terms of the materials they are made of and their physical properties, and those characteristics can be used to separate or sort a group of objects or materials.
- scientists use their five senses to observe, describe, and sort objects by their characteristics.
- scientists work individually and collaboratively to ask questions, make observations, and gather data to learn about the natural and designed world.
- there are natural and human made materials in our world.

**Topical Essential Questions for Unit:**

***To understand, student will need to consider such questions as...***

- How do I describe and sort objects?
- How do I use my five senses to make observations?
- How do I work with others to share ideas and ask questions?
- How are human made objects different from nature made objects?

***To understand, student will need to...***

**know...** Student will need to know the following in order to...(e.g. facts, concepts, generalizations, rules, theories, principles)

- properties are characteristics used to describe objects (color, size, etc.).
- some objects occur in nature and others have been designed and processed by people.
- designed objects are created from one or more natural materials such as paper, wood, or metal.
- objects have many observable properties, including size, weight, shape, color, temperature, and the ability to react with other substances.
- observations include words, pictures, and labels.
- scientists work together to share and compare information.

Essential new vocabulary:

- **change** – to make or cause something to be different
- **compare** – to look at what is the same
- **describe** – to tell how something looks, feels, smells, sounds or tastes

**be able to...**(Students will be able to DO...skills, procedures, processes)

- sort objects into two groups: those that are found in nature and those that are human made.
- describe objects in terms of the materials they are made of (ex. clay, cloth, paper, etc.).
- sort objects based on their physical properties (ex. color, size, shape, weight, texture, flexibility, etc.) and communicate reasoning for the sorting system.
- describe and compare things in terms of their number, shape, texture, size, weight, color, and motion.
- make observations with words, pictures and labels.
- share and compare observations with others.

- **different** – not the same
- **five senses** - touch, taste, smell, sight, hearing
- **human made** – objects made by people
- **material** – something an object is made of
- **nature made** – made in nature (not by people)
- **observe** – using your senses to tell what an object is like
  
- **properties** – something you can observe about an object or material; size, color, shape, texture, and smell are properties
- **scientist** – a person who studies the natural world
- **same** – things that are alike
- **sort** – to put like objects together
- **texture** – the way something feels when you touch it

Common misunderstanding(s):

- All materials respond the same way when something is done to them.
- All objects are made of only one material.
- All similar objects are made of the same materials (all tables are made of wood).
- All materials stay the same.
- A scientist and an artist do the same job.