Exploring Matter

K-5 The student will demonstrate an understanding that objects can be described by their observable properties. (Physical Science)

K-5.1 Classify objects by observable properties (including size, color, shape, magnetic attraction, heaviness, texture, and the ability to float in water).
Taxonomy level: 2.3-B Understand Conceptual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. Students will further study this concept in 2nd grade when they classify matter (2-4). Students will further investigate magnetic attraction in 2nd grade (2-5).

It is essential for students to classify objects by their observable properties. *Observable properties* are properties that can be distinguished through observing with the senses, including:

Size
- When classifying an object by size, the object is categorized as large or small in comparison with another object.

Color
- When classifying an object by color, the object is categorized as light or dark, bright or dull, or if it is a particular color such as red or green.

Shape
- Shape can be used to describe how objects are alike or different.

NOTE TO TEACHER: Students at this grade level should have an understanding of basic shapes, for example circle, triangle, square, etc. They may use shape words to categorize observable properties of objects.

Magnetic attraction
- Magnets are attracted to objects that contain iron.
- Objects can be classified as magnetic or not magnetic based on whether or not a magnet is attracted (sticks) to it.

NOTE TO TEACHER: Students may have the misconception that magnets are attracted to all metal looking objects. This misconception can be corrected by giving students experiences with different types of metals, some that attract, and some that do not.

Heaviness
- Heaviness is not an exact measurement (for example, one pound).
- Heaviness is more of a "feeling" property.
- Objects can be classified based on how their heaviness compares to objects about the same size.

Texture
- Texture is used to describe the way something feels to the touch.

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- Examples of texture words may be soft, hard, rough, or smooth.

Floating

- Floating means to stay near the top of a liquid.

It is not essential for students to give exact measurements for size or heaviness or go beyond this level of knowledge at this time.

Assessment Guidelines:

The objective of this indicator is to *classify* objects by their observable properties; therefore, the primary focus of assessment should be to determine that something belongs to a category based on its descriptions. However, appropriate assessments should also require students to *exemplify* observable properties of objects; or *illustrate* observable properties using pictures or words.

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K-5.2 Compare the properties of different types of materials (including wood, plastic, metal, cloth, and paper) from which objects are made.
Taxonomy level: 2.6-B Understanding Conceptual Knowledge

Previous/Future knowledge: As with other indicators at this grade level, students will experience their first formal introduction to important science concepts. Students will further study this concept in 2nd grade when they classify matter (2-4).

It is essential for students to know that objects are made of different materials. These materials have different properties.

- Properties that can be used to compare objects are texture, shape, color, size, magnetic attraction, heaviness, or the ability to float in water.
- Materials from which objects are made include wood, plastic, metal, cloth, and paper.
- Similarities and differences between these materials can be made based on their properties.

It is not essential for students to go beyond this level of knowledge at this time.

Assessment Guidelines:
The objective of this indicator is to *compare* the properties of materials; therefore, the primary focus of assessment should be to detect ways that objects made of wood, plastic, metal, cloth, and paper are alike and different. However, appropriate assessments should also require students to *identify* examples of each material based on its description; or *infer* what an object is made of based on its properties.