

Grade 1 Science

Classification

Unit overview:

This unit is intended to identify properties of objects, and then to group or categorizes the objects according to those properties.

Suggested themes:

color, matter, shapes

Science foundational and learning objectives:

1. Distinguish attributes of matter which can be used to help describe it.
 1. Describe an object as completely as possible.
 2. Compare the properties of two objects.
 3. Realize that one object can have many properties.
 4. Use as many of the senses as possible in identifying properties.
2. Classify objects by a common property.
 1. Sort objects into two groups according to one characteristic.
 2. Compare two objects within a defined group to see how they are similar and how they are different.
 3. Recognize that the same set of objects may be classified in more than one way.

Suggested Activities:

1. Collect a variety of familiar objects. Describe an object orally to students. Give clues that indicate use of more than one sense. Have students guess what the object is. Continue the activity in small groups as children become familiar with

using more than one sense to describe an object. This activity can also be done with students having a group of pasta, buttons, etc. on the table before them. The teacher then gives negative attributes of the object to be identified: e.g.; It is not yellow. (Student will remove all yellow objects from the set.) It is not big. (Remove all big objects.)..... The elimination process continues until the desired object is identified. Students may then describe that object.

2. Use attribute blocks (mathematics manipulatives) to have children sort a collection of shapes. See how many different ways children individually or in small groups are able to sort the same set of materials (color, shape, size). Have children discuss and record their groupings. This same activity can be used for sorting buttons (by color, size, number of holes, etc.); for sorting small plastic animals; rocks; stickers; pattern blocks; a mixture of beans and lentils; pictures of flowers; etc. The ideas can vary depending on themes being used and materials available. For inexpensive manipulatives, a variety of types of pasta (shells, bows, macaroni, rotini, fusilli, penne, rigatoni, etc.) can be dyed using alcohol and a few drops of food coloring in a plastic bag. Swish around and remove with a slotted spoon. After drying on several layers of newsprint, pasta can be used to sort by color, shape, or size. Try making yellow, red, blue, green, orange, and purple pasta.
3. As a follow-up to classification of objects by shape, students might trace and cut out geometric shapes (use attribute blocks and various containers to trace) from colored paper to create a picture of another object (animal, house, rocket, etc.). This could involve using a certain number of each shape, only one shape but no limit to number or size, only one size but a variety of shapes or colors, etc. Students might later share and explain what shape, color and size attributes they used to create their picture (e.g.; I used five red circles and three yellow triangles to make a bunny).
4. Go on a scavenger hunt in the school, schoolyard or surrounding neighbourhood. Put found materials in a bag. Back in class have children each create a "feeling" bag by placing one of the found objects in a small brown bag. Allow classmates to feel the object and describe what they touched. Children can help develop a word list of descriptors for objects. After guessing what the object is by touch, add other descriptors when the object is viewed- -color, perhaps smell if applicable, sound (?), etc. This activity could be done as part of a nutrition study with fruits and vegetables used in the "feeling" bag. These could be tasted, classified by outer

appearance or inside once they are ready to serve. Even the pits of fruits allow for unique ways to classify some fruits.

5. Discuss (using pictures of foods) or use real foods to help children recognize that objects may be classified in more than one way. Crackers may be square, round, triangular, or other shapes. They might also be various colors and sizes. Other foods such as fruits, cheese, breads, and buns come in a variety of shapes, colors, and textures. Provide discussion time so students have an opportunity to describe attributes of objects and ways of classification. Sense of smell and taste can be integrated into this unit on Classifying Matter when real foods are available and students get an opportunity to try different types of foods. Foods might also be classified by likes and dislikes. Follow-up with writing, drawing, graphing, and making charts allows for extension beyond science.
6. Classifying might be integrated with mathematics by having children use their own pairs of shoes to identify how they are fastened (velcro, laces, buckles, etc.), types of soles (smooth, cross-hatched, patterns, etc.), or some other attributes such as color or size. These attributes may be discussed, physically graphed in lines on the floor and/or recorded by the students in individual or class graphs. This is also an opportunity to discover symmetry as students examine pairs. This activity could be repeated with mittens/gloves, and using color, size, pattern, material (leather, woollen, etc.).
7. Students can collect objects from home to use in classifying. Tubes, boxes of different sizes and colors, marbles, balls, etc. can be left at a centre for students to classify. Large laminated charts with headings could be provided for student use. (Size: large, small; Shape: round, square, other; Color: list some.) This provides for vocabulary extension. An alternative would be to have students use magazines to cut out pictures of objects. Ask that they sort their pictures by size (large or small objects), color, shape (squares, triangles, circles, others), or by living or non-living. These can then be labelled and made into large charts.
8. Classifying matter can be as easy as identifying whether objects are living or non-living. Have children use a hoop or length of string to make a confined area on the playground. On a notepad have students record everything they find within their hoop (plants, bugs, ants, soil, rocks, bits of garbage, etc.). They may use their own

spelling or use pictures to record. A master list might later be made from the students' findings. Have students identify how many living and non-living things they found. This activity often leads to discussion of where a piece of grass, wood, etc. might fit. It was living, but may not be at present. These same objects might also be reclassified as garbage or natural environment objects. A simple note pad can be made by cutting the top and bottom off a two-liter milk carton, slitting it down one corner, attaching a pencil on a string, and inserting and stapling newsprint. This acts as a carrying case with sufficient firmness to record observations out-of-doors.

9. Use objects such as sandpaper of varying textures (fine to coarse); fabric samples with different textures; rocks with different colors, surfaces and mass; pieces of wood; string of different sizes, lengths and material; or even plants. Have children sort a set of objects by smoothness, by mass, by length, by texture, by size, etc. Share with the group. Describe orally how the set of objects was sorted. Record in pictures and/or words. These could easily be set up as centers and children work through each centre sorting objects by different attributes. Students may choose the attributes by which to sort objects, but should be able to explain how they sorted.

10. An extension to classifying matter by physical attributes, would be to have students discuss and/or collect objects for classification on the basis of how they move. This could be limited to three-dimensional shapes (balls, cubes, pyramids, etc.), toy vehicles (float, roll, fly, etc.), representations or pictures of animals (hop, walk, crawl, etc.), different kinds of seeds (spin, float, hitchhike, etc.), or a variety of found materials which roll or slide. Other attributes such as size and color can certainly be included as classification is extended into other thematic work. Have students record their classifications and share in small groups or as a whole class. These could be organized as centers for students to use in free time or as a specific activity.

11. A social studies extension would be to have students describe themselves by physical attributes--hair color, eyes, size, male or female, height, etc. These attributes may be used to physically graph class members, or students might draw pictures to represent their personal attributes. Families can also be discussed and classified by one- or two-parent families, numbers of children, etc.

A class big book with each student's family drawn and labelled makes a popular reading book for grade one students.

12. A variety of nuts or seeds are useful for beginning classification by colour, texture, size, etc. They can be classified and reclassified as a centre activity or whole class lesson. Discussion of attributes and recording of how the items were sorted could follow. Use of magnifying glasses to examine nuts and seeds adds an interesting dimension to this activity. An extension would be to grow different seeds and classify by time taken to sprout; size of plant after a certain period of time, etc.

13. Make up two bags or boxes of items that are either exactly the same or similar except for size or color (crayons, pencils, cars, blocks, popsicle sticks, books, etc.). In each box or bag put a number of items equal to the number of students (or half that number if they are paired and work as partners). Give each student (or pair of students) an object from the first bag or box. Have them describe the item. Pass around the second bag or box and ask that the students feel inside to choose an item which will be similar to their initial object. When all have chosen a second object, have students describe how the second item is similar or different from the first. These containers may be left at a centre for further use by the class, perhaps titled "Find a Match".

14. Classification of objects as solids, liquids, and gases could also be used at the grade one level depending on the interests of the class. This leads to lively discussion as objects like honey, syrup, molasses are experimented with and discussed. Can they be both solid and liquid? Use sugar, salt, flour, cornstarch, etc. to engage more than one sense and to provide opportunities for describing attributes of each item. Recording may also be an expectation.