

Savvy Sorting

Standards of Learning

Science K.1, K.2, K.4, K.7, K.9, 1.1, 1.4, 2.1, 2.4, 2.8, 3.1, 3.8, 4.1, 4.4

Mathematics K.1, K.14, K.15, 1.14, 1.15, 1.16

Objective

The student will be able to:

- use a variety of fruits, vegetables, gourds, seeds or other plant material to practice describing and sorting items by identifying and using various characteristic properties.
- use these vegetable manipulatives to work with physical Venn diagrams.

Materials

- Plant material with a variety of colors, textures, and shapes – fruits, vegetables, gourds, seeds
- Rings – such as large embroidery hoops, small hula hoops, metal wreath rings

Background Knowledge

Elementary students need to learn the skills of observing, describing, sorting, and classifying. Using agricultural materials as manipulatives works well since they have a huge variety of colors, textures, and shapes; are easily obtainable from the grocery store or farmer's market and are non toxic. In addition, they are high interest – students love food!

This activity can be used with students of all ages and skills. It is easily modified for practice with concepts from the simple to the complex and encourages higher level thinking. Venn diagrams are often used with students in English, social studies, science and math. They are taught in many study skills units. Introducing students to Venn diagrams in a very physical, concrete way helps young students more easily transfer this skill to paper and pencil.

Procedure

1. Divide the class into small groups of 3-4 students each.
2. Give each group a selection of 8 – 10 pieces of vegetables, fruits, gourds, or seeds. Each group should also get two rings – embroidery hoops, small hula hoops, wreath hoops.
3. The teacher can direct the activity starting as simply as needed, depending on the age of the students by calling out the following directions. These were used with gourds, but can be modified depending on the agricultural materials utilized. The activities could require students to evaluate the items based on color, shape, texture, relative sizes, uses, parts of plants, etc.
 - Hold up a gourd with some orange on it.
 - Hold up a gourd which is the same shape as a pear.
 - Find a gourd which is bumpy.
 - Hold up two which are similar. WHY DID YOU DECIDE ON THOSE TWO? (Introduce the concept of a CHARACTERISTIC.)
 - Take 1 ring. Put all the round gourds in the ring.
 - Now use 2 rings. Put all the big ones in one ring and the small gourds in the other ring. You decide what is big and small.



- Use 2 rings. Put the green ones in one ring and the striped ones in the other ring. Two problems arise – some gourds do not fit either characteristic (these are EXCLUSIONS – and are part of the null set) and some gourds have both characteristics (show students how to overlap rings – these belong in the INTERSECTION)

Extension

1. With students who are readers, the teacher can begin the lesson by making up a list of traits which can be written on cards and drawn out of a box by the groups. The students can organize the produce using these traits. Example of traits which can be used with fruits and vegetables include: red, yellow, green, multi-colored, round, oblong, irregular shape, edible skin, smooth skin, round skin, grows under ground, contains seeds. An interesting example would be to use “yellow” and “red” as the traits. See if students would interpret the intersection of those traits as “orange”.
2. Increase the complexity to three rings.
3. Encourage students to come up with categories on their own. Within the group one student can list two characteristics and the other students can work together to complete the Venn diagram.
4. With older students, move from the physical rings to paper rings and the actual vegetables to just words.

