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Grocery Store Botany

Objectives

Students will:

- create a classification system for common fruits and vegetables.
- develop an understanding of the complexity and importance of plant classification.

Standards Addressed: [click here](#)

Central Concepts

- Botanists develop classification systems to make it easier to study and understand groups of plants.
- There are many different ways to group plants.
- Botanists group plants based on physical characteristics (especially leaf, flower, fruit and seed) and growth habit.

Materials

- Common fruits and vegetables from the grocery store (10 to 15 different types; enough of each to divide your class into small groups and provide each group with samples -- contact the produce manager of your local grocery for possible donations); or pictures of common fruits and vegetables cut from catalogs and magazines
- paper and pencils
- chalkboard or dry erase board

Discussion Topics

- How many plants are there in the world? (There are thousands of plants in the world – so many that we don't even know about all of them.)
- Botanists are scientists who study plants. If you were a botanist, what would you do to help you study all the plants in the world? (Divide them into groups to organize your studies.)
- What kind of things would you look at to decide how to group plants into different categories? (Plant parts, growth habit, etc.)

Activity

1. Divide students into small groups of 3 or 4. Tell them that today they are going to be botanists. Use the discussion questions to get them thinking about plant classification.
2. Give each group one of each of the fruits and vegetables (or pictures). Tell them that botanists develop plant classification systems to help them study all the plants in the world by grouping plants with similar characteristics and growth habits. Ask them to come up with a way to group these fruits and vegetables into different categories based on the evidence in front of them. Encourage them to carefully examine all the characteristics of the produce to help them with their assignment. Give them time to develop their own systems, but if they need a starting point, ask them one or more of these questions: *What colors are they? Are they different sizes? Do they have different shapes?*
3. At the end of the exercise, ask each group to explain the classification system they came up with. When they notice that different groups have created different systems, point out that the same is true for botanists. Sometimes botanists come up with different classifications, and then they will study and debate their perspectives until they reach a compromise. Repeat the exercise as a class, building on individual group suggestions.
4. After coming up with a classroom classification system, share the methods used by botanists and gardeners presented in the [Teacher Background Information](#).

Extensions

Science: Bring in a group of fruits and vegetables that scientists classify into the same family. The apple

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or squash families are easy to investigate because samples are usually available year round:

- Apple Family (Rosaceae) – apples, cherries, plums, peaches, raspberries, strawberries, almonds, apricots, nectarines, and blackberries
- Squash Family (Cucurbitaceae) – watermelon, squash, cucumbers, gourds, cantaloupe, pumpkins, and honeydew

Begin by making careful notes and observations about the outside of the fruits and vegetables, then dissect them to study flesh and seeds. Create a chart to help organize your observations (e.g., what they have in common; what's different). Ask students to research additional plant characteristics of each plant (leaf shape, flower type, growth habit) and add the findings to your chart for further discussion.

Math: Fruit and vegetables are sold by weight (usually price per pound), volume (sold in a container of a certain size), or by the piece (one price for each fruit or vegetable). Collect the pricing information for the samples you used in the classification activity (amount; and if it was priced by weight, volume or by the piece). Use the original price to determine how much it would cost using the other two methods. For example if you bought a pint of strawberries (volume), weigh them to determine the cost per pound (weight) and then count them to determine the price per item (piece).

English: Ask students to research a fruit or vegetable and learn about its place of origin, native habitat, and various uses. Have them use their findings to write a first person story told from the perspective of their fruit or vegetable.

Nutrition (Food Systems): Contact the store manager and produce manager to schedule a class trip to your grocery store. Ask him/her to explain where the different fruits and vegetables come from and how they get to the store.

Additional Resources

[The World of Botany](#) – There's more to botany than identifying plant parts! Find out about all the different areas of study that spring from this single discipline.

[Plant Classification](#) – A brief overview of plant classification from the Brooklyn Botanic Garden.

[Classification of Plants and Animals](#) - More background and engaging, hands-on activities involving classification.

[Seed to Seed: Botany for K-8 Educators](#) – NGA's online course is an engaging way to develop a strong foundation for teaching plant-related topics. (**FREE** to [NGA Supporters](#))

[Food is Elementary](#) – an award-winning curriculum integrating nutrition, food preparation, botany and other sciences, cultural studies, and gardening.

[Botany for Kids](#) – a compilation of links to kid-focused Web sites.