

Pass the Plant Parts, Please!

Objectives:

Students will:

- Learn about and compare different types of spices to develop sensory and cultural awareness.
- Identify plant parts, their roles, and uses
- Learn the historic significance and importance of plants and flavorings
- Use five senses to identify familiar and unfamiliar materials

Key Terms:

- Bud
- Stem
- Bark
- Leaves
- Nutrients
- Soil
- Roots
- Protective
- Bulb
- Produce
- Pod
- Bean
- Aromatic
- Valuable
- Flavorings
- Spices
- Seasonings
- Temperate Zone
- Succulent
- Herbs
- Flower
- Fruit
- Seeds



Academic Vocabulary:

Kindergarten: senses, shape, soil, water, plant, color, food, human, family

First Grade: community, country, globe, needs, past, map, location

Second Grade: custom, goods, heritage, privilege, vegetation, distance, tradition, climate, area, distance, individual differences,

observe, properties, similarities and differences, rural

Third Grade: agriculture, barter, borders, conflict, consumer, distribution, culture, economy, global, population, physical properties, observe, wants and needs, map, product, producer, photosynthesis, exports, imports

Fourth Grade: Supply and demand, ancient civilizations, edible (parts of plants), attributes, explorers, mission, traits/characteristics

Fifth Grade: boundaries, compare, point of view/perspective, species, properties

Sixth Grade: anthropologists, impact, historians, merchant/trader, civilization, barter, impact, properties

Seventh Grade: international, exploration, famine, scarcity, sexual reproduction (plant and animal), economic system

Eighth Grade: commerce, common sense, movement, interdependence, supply and demand, traits

Possible Standards to Incorporate:

- K-Inq. 1 Use senses and simple tools to make observations
- 1-7.2.1 Identify the basic characteristics of living things
- 2-Inq. 2 Communicate interest in simple phenomena and plan for simple investigations
- 3-7.3.3 Identify the structures used by different plants and animals to meet their basic energy requirements.
- 4-7.9.1 Use appropriate tools to measure and compare the physical properties of various solids and liquids.
- 5-Inq. 3 Maintain a science notebook that includes observations, data, diagrams, and explanations.
- 6-6.R.5 The students will predict outcomes, state reasonable generalizations and draw conclusions within academic areas.
- 7-12th 1.1 understand how values and beliefs influence economic decisions in different societies.
- 1.2 describe how the world economies are connected.
- 3.1 understand the importance of natural resources in modern (and ancient) economic decision making.

- 4.2 identify how cooperation and conflict among people influence the division and control of resources, rights, and privileges.

Did you know that at one time only kings and other wealthy people could afford such a delicacy as cinnamon and it was more valuable than gold? That people risked their lives traveling on wooden ships across uncharted oceans to find spices? That huge wars that lasted for years were fought over black pepper?

During the middle ages a pound of ginger was worth a sheep, a pound of mace was worth three sheep (or half of a cow), and pepper, the most valuable spice of all, was counted out in individual tiny peppercorns. A small sack of pepper was worth a man's life and had to be kept hidden. People would commit murder for small bags of spices!



Image from <http://www.stillad.com/mccormicks-your-food-will-get-prettier-2973.htm>

Today we take for granted black pepper and the other spices over which wars were once fought. Today if we want a spice or herb we can simply go to the nearest supermarket or grocery store.

So where do all these incredibly valuable flavorings come from? Plants!

The term "spices" is often used broadly to include all seasonings. Spices come from the bark, roots, leaves, stems, buds, seeds, or fruit of aromatic plants and trees which usually grow only in tropical areas of the world. Pepper, allspice, cloves, nutmeg, mace, cinnamon, ginger, saffron, and turmeric are spices.

Herbs are soft, succulent plants which usually grow in the temperate zone, milder areas of the world. Until recently cooks have had to make do with very few fresh herbs, such as sage, parsley, and thyme, and have only been able to

use dried versions for the rest of the herbs they want. Now you can also find fresh basil, coriander, chervil, tarragon, rosemary, and dill at local stores.

Quick Review: The Basic Parts of Plants

- ❑ Roots: the roots of the plant hold it firmly in place, preventing it from being washed away by the rains or blown away by strong winds. The roots are also responsible for drawing nutrients from the soil or water so the plant will be able to grow and thrive.
- ❑ Stem/bark: The stem allows all the nutrients gathered by the roots to be taken to other parts of the plant. The bark of a tree works the same way in addition to serving as a protective covering.
- ❑ Leaves: Make the food for the plant and are the green offshoots of the plant that are often dried and ground into little pieces to make spices.
- ❑ Bud and flower which may produce fruit/seeds: Buds are the part of the plant that envelope the undeveloped flower before it blossoms. The seeds are made by the plant flower and can be ground or replanted to grow another plant.

What Part Do I Get?

Bring an assortment of spices in, processed as well as in plant form, for students to examine and discuss.

Ask students to close their eyes. Hold the spice under each child's nose, giving each an opportunity to smell it. Invite children to guess where they have smelled this spice. Pass all the spices around the group. Remember: Children may not know the name of the spice, but they may be able to relate it to a familiar food or another experience.

Popular plant spices to bring might be:

1. Garlic: What is usually referred to as a “head of garlic” is a bulb, i.e., a underground cluster of leaves. The single leaves are known as “cloves of garlic.”
2. Cinnamon: made of bark of the cinnamon evergreen tree. Native to Sri Lanka.
3. Nutmeg: Nutmeg is not actually a nut, but the tree seed found in the middle of the apricot-like fruit from the evergreen nutmeg tree. Native to the Banda Islands in the Moluccas of Indonesia, or Spice Islands.
4. Mace: Mace is an arillus, a thin leathery covering of the seed that is found in-between the seed and the flesh of the nutmeg fruit. Native to the Banda Islands in the Moluccas of Indonesia, or Spice Islands.
5. Thyme: leaves of the thyme plant
6. Coriander: Tiny fruits (but also called seeds) of the coriander plant. Coriander is native to southern Europe and North Africa to southwestern Asia.
7. Cilantro: the leaves of the coriander plant. Coriander is native to southern Europe and North Africa to southwestern Asia.
8. Black Pepper : dried berries of the flowering pepper vine. Native to South India.
9. Bay Leaves: leaves of the bay laurel evergreen tree. Native to the Mediterranean.
10. Mint: the young leaves of the mint plant
11. Vanilla: The ripe fruit (pod), frequently (but wrongly) called bean of a type of vanilla orchid (flower). Native to Mexico.
12. Mustard: tiny seed grains of the mustard plant. Mild white mustard (*Sinapis hirta*) grows wild in North



Africa, the Middle East and Mediterranean. Brown or Indian mustard (B. juncea) is originally from the foothills of the Himalaya.

13. Onion: Onion forms a bulb, this is, a cluster of underground leaves.

14. Rosemary: The leaves of the piney rosemary plant.



15. Ginger: A rhizome (underground stem) of the ginger plant. Often sold as a powder or candied. Ginger cultivation began in Asia and has since spread to West Africa and the Caribbean.

16. Cayenne Pepper: Fruits (berries but usually called “pods”) of the cayenne pepper plant. They may be harvested ripe or unripe and are dried and ground up. Removals of seeds and veins results in a less pungent spice.

17. Cocoa/Chocolate: the seeds of the evergreen cacao tree. Native to Mexico and Central and South America.

Use the Clues Competition

Students will go around to various stations in classroom which have containers holding spices. Each container is labeled A, B, C... or 1, 2, 3... and students will compete to identify each by touch, sight, smell or taste. They will record their answers on a separate sheet. Students will also identify what part of the plant each spice comes from. The student that identifies the most spices correctly wins.

Option: Make it a team competition by having the students separated into teams and having your mystery spice up front. Students can gain points by identifying the



spice and telling what part of the plant it came from.

TasteBud Detective Agents

Students will participate in a taste test in class to identify the spices contained in a variety of food products which could range from chocolate milk, and apple pie to rye bread.

Extensions:

Invite students to graph the spices that they find the most appealing. Younger students can draw a smiling face under each spice that they like the scent of or taste of. Ask them to total the smiling faces under each spice to see which one was the least favorite and which was the most favorite. Later, try the exercise again using different spices. Invite children to compare and contrast the look and scents of the spices.

Spices at Home. Involve parents by asking them to show their child the different spices they use for cooking. Ask families to smell the spices with their child and describe how, why, and when they are used. Then, ask children to record the names of the spices and count how many spices they found in their home.