Recommended Grade Level:
3-5

Season:
All

Indoor

Plant Families

Description:

Students will explore some common plant families: Alliaceae, Asteraceeae, Belliferae, Brassicaceae, Cicirbotaceae, Graminae, Leguminosae, Solanaceae. Using pictures, students will look at the characteristics and sort plants into the correct families. Students will discuss what they know about their characteristics and how that relates to members of their families.

Background:

Scientists group the different species of plants and animals into families according to their physical attributes. Knowing about the hundreds of plant families on earth can help gardeners grow and care for them. Characteristics of plants come from their family, just like characteristics of humans come from their families.

Materials:

- Plant Family Picture Cards
- Plant Family Characteristics Cards

Preparation:

1. Determine how many groups the students will be divided into.
2. Make copies of the Plant Family Pictures and Plant Family Characteristic Cards for each group.
3. Cut out the characteristic boxes and plant pictures into separate cards. Keep a copy of the entire sheet so you have an answer key.

It may be helpful to show the Plant Families website from the Helpful Links section before you begin this activity to acquaint the students to the study of plant families.

Activity:

1. Tell students that they will learn about the different ways scientists group plants by using their characteristics. Explain that characteristics are attributes that describe something.
2. Have students brainstorm different characteristics of plants. If students need help, ask how different plants look or grow.
3. Review the Plant Family Characteristic Cards as a group.

4. Break the class into groups of 4-6 students. Explain that their job is to sort the plant photos using the Plant Family Characteristic Cards.
5. Once they're finished, review the cards and pictures together to determine correct grouping of the plants.
6. Then, ask students to brainstorm characteristics about themselves, each other and their family members. Find common characteristics within the class.

Tying it Together:

1. Why would you need to be able to group plants into families?
   Knowing about plant families can help you know what a plant looks like, where the seedpod will be, what the seeds will be like, how to germinate new seeds and what the seedling will look like. You will also know about the different growth needs for the plant.
2. How are plant families good for our healthy?
   By eating different plant families, you can get the vitamins and minerals to be healthy.
3. How are plant families and human families the same?
   Plant and human families inherit characteristics from their families.
4. What characteristics do you share with your parents? Siblings? Grandparents? Cousins?

Special Care:

You could write numbers on the back of the plant pictures so that each family had the same number. Students could check the back to sort them or use the numbers on the back to self-correct.

Digging Deeper:

Students can study and learn about the characteristics of less common plants.

National Standards:

NGSS: Inheritance and variation of traits.

NGSS: Structure, function and information processing.

Lesson Extensions:

Nutrition: Incorporate a taste test into the lesson. Bring fruits and vegetables from the different plant groups to taste and compare.

Science: Explore the study of taxonomy and grouping organisms. Use the following mnemonic device to help students learn the order that organisms are grouped.

King	Kingdom
Paul	Phylum
Came	Class
Over	Order
For	Family
Green	Genus
Salad	Species

Students research a plant family or other grouping in more depth and create a presentation.

Social Studies: Students research the origin of plants in a family and plot them on a map of the world.

Technology: Students create a Prezi or PowerPoint presentation to share the information that they learned from their study of plant families.

Literature Connections:

Botany Illustrated by Janice Glimn-Lacy

Plant Family Characteristics Cards

Alliaceae: Onion Family

Description:

These plants push up leaves from their base. They have long thin leaves. They grow swollen underground bulbs. They have long life cycles.

Growing Characteristics:

Cool weather helps grow their leaves. Hot, dry weather helps produce bulbs. They have very shallow roots. The onion family grows well in rich organic soil. Many plants in this family are used to flavor the foods that we eat.

Examples: Onion, garlic, leek, chive

Umbelliferae: Parsley Family

Description:

The parsley family is scented and has hollow leaves. Most of these plants are herbs. Their flowers have five petals. Some grow underground. The plant parts we eat from this family can be roots, stems, leaves or flowers.

Growing Characteristics:

They are usually a cooler season crop. They like well-drained soil. Their seeds are slow to germinate, which means it takes longer to pop out of the soil.

Examples: Carrot, parsley, coriander, fennel, celery

Brassicaceae: Mustard Family

Description:

Their leaves have tiny waxy hairs. The flowers have four petals. Plants have a sulfur odor.

Growing Characteristics:

Grows in cool seasons. Has shallow roots. Requires little amounts of water. Thrives in soil with added compost.

Examples: Broccoli, cabbage, cauliflower, kale, mustard, radish

Graminae: Grasses and Grains Family

Description:

This family has thin, flat roots. It's a large group and many of the plants are crops grown by farmers.

Growing Characteristics:

They need a lot of nitrogen in their soil. The fruit grows on stalks.

Examples: Corn, rice, wheat, lemon grass

Cucurbitaceae: Gourd Family

Description:

The gourd family likes to climb on things. They have small curly tendrils and large leaves.

Growing Characteristics:

They're very fast growing and need to be kept moist with lots of added compost. They do best when grown on a trellis or a fence.

Examples: Cucumbers, melons, winter squash, zucchini, gourds, luffa

Asteraceae: Sunflower and Aster Family

Description:

They're a large flower. The head of the flower is made of tiny seeds. They're good pollinator attractors.

Growing Characteristics:

They grow fast with shallow roots. These plants have few pests and attracts many beneficial insects.

Examples: Lettuce, artichoke, calendula, zinnia, marigold, sunflower

Solanaceae: Nightshade Family

Description:

These leafy plants have a strong odor. The flowers have five petals and the fruit is a berry.

Growing Characteristics:

This plant family likes rich, damp soil and lots of organic matter. Some produce fruit and tubers (underground vegetables).

Examples: Tomato, eggplant, peppers, potato

Leguminosae: Pea and Bean Family

Description:

These plants are grown as food plants. The fruit splits open with seeds along one side.

Growing Characteristics:

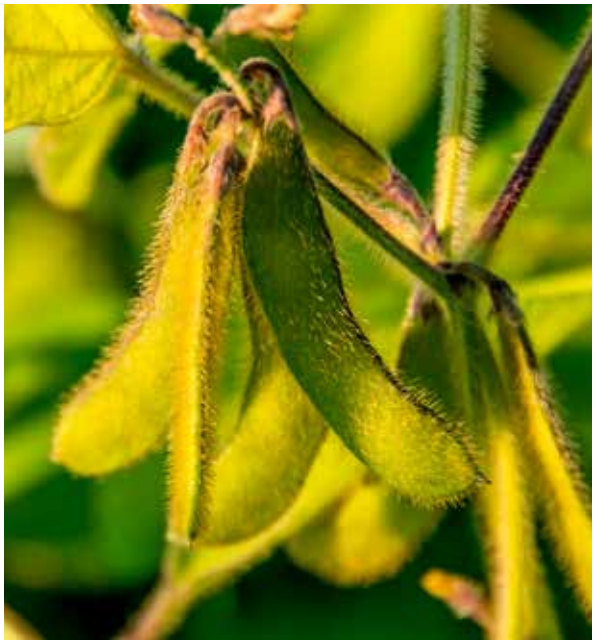
Their leaves and seeds contain high protein that gives us energy when we eat them.

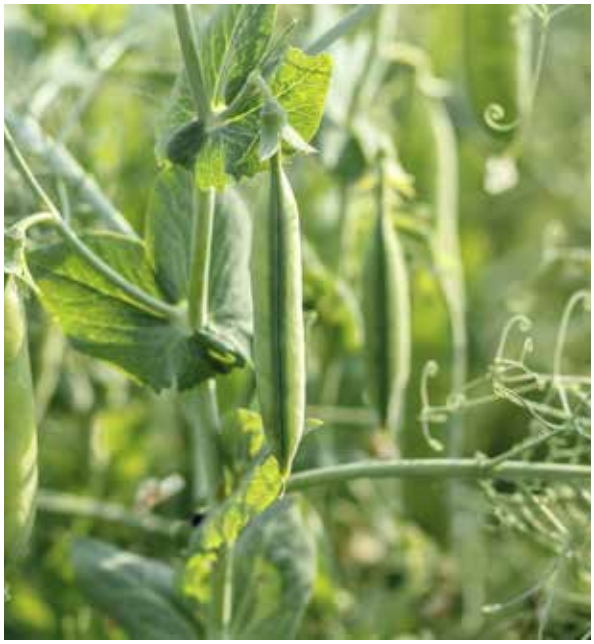
Examples: Soybean. chickpeas, green beans, alfalfa, peanut, sweet pea

Plant Family Picture Cards

Leguminosae Family

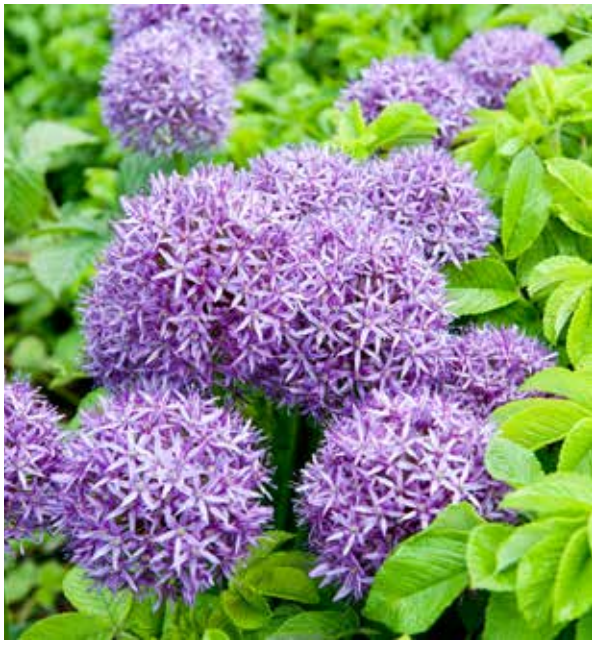
From top left corner to bottom right corner: green bean, peanut, bean, peas





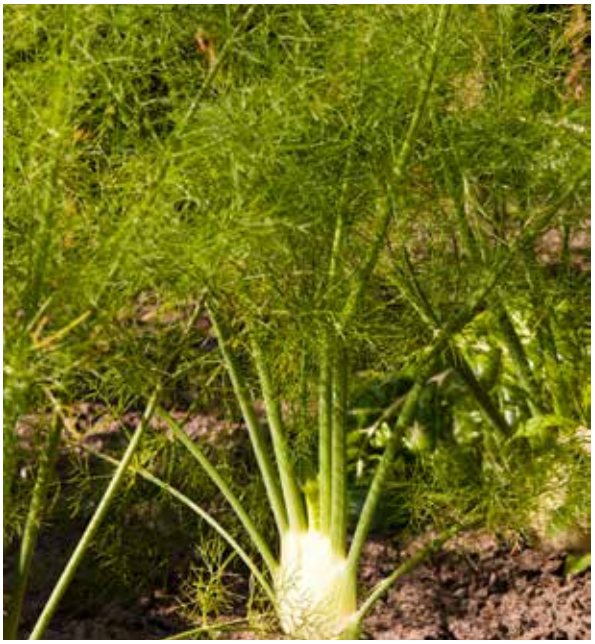
Alliaceae Family

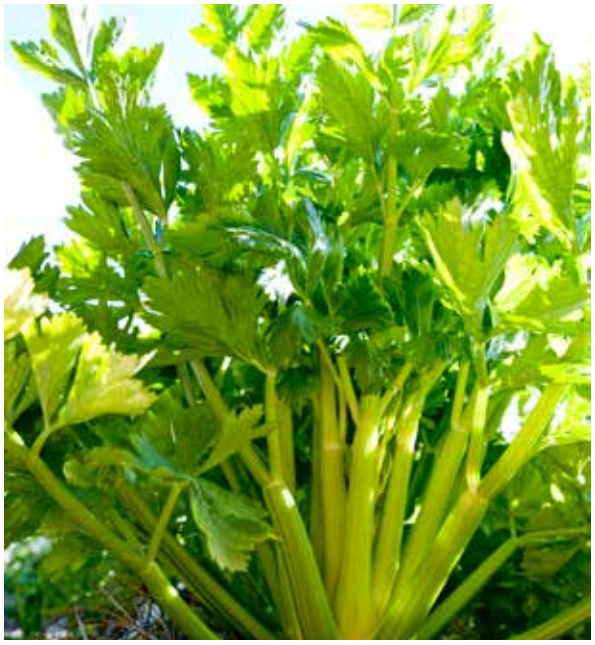
From top left corner to bottom right corner: leeks, onion, chives, garlic



Umbelliferae Family

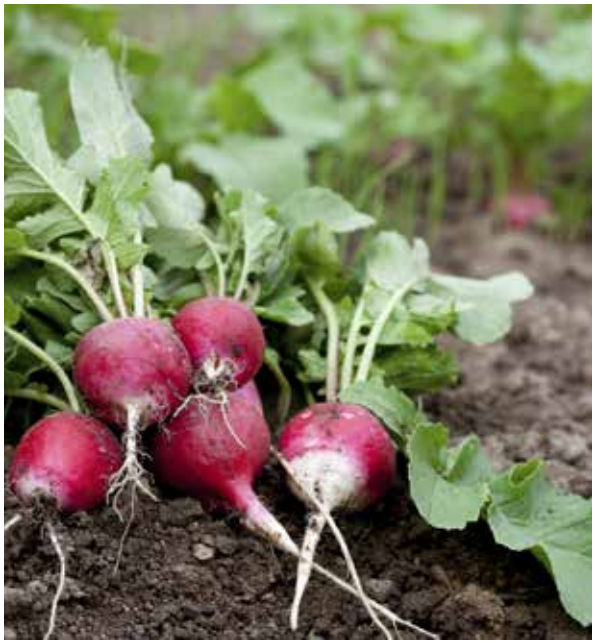
From top left corner to bottom right corner: parsley, fennel, celery, carrots

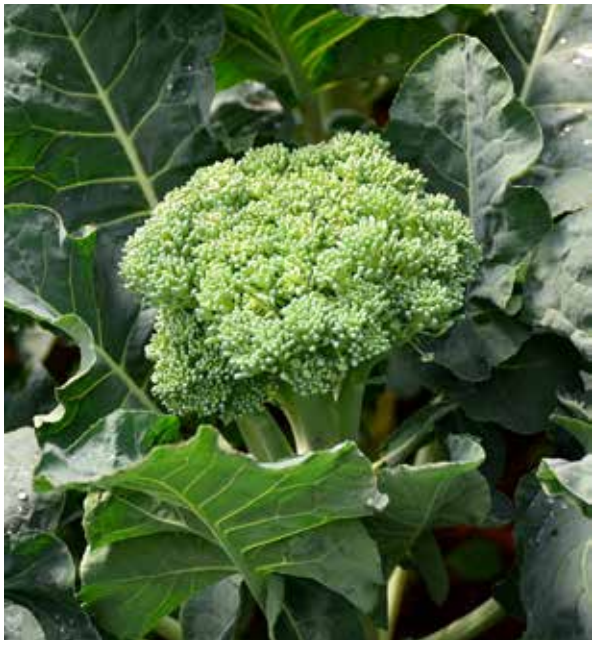




Brassicaceae Family

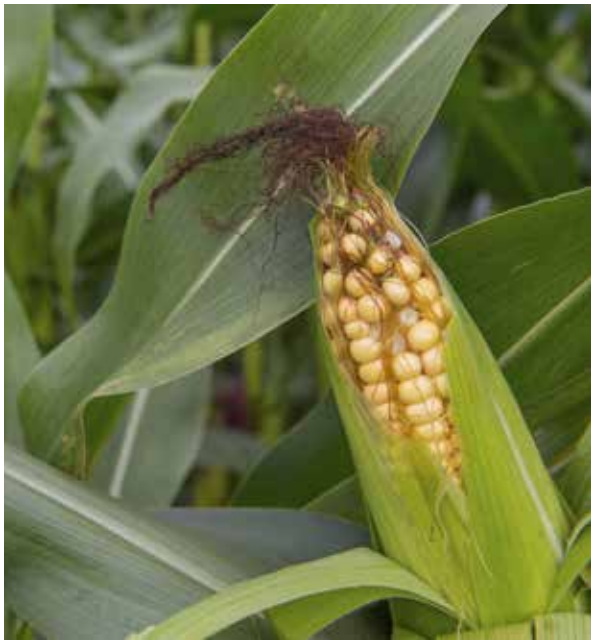
From top left corner to bottom right corner: radish, cabbage, broccoli, kale





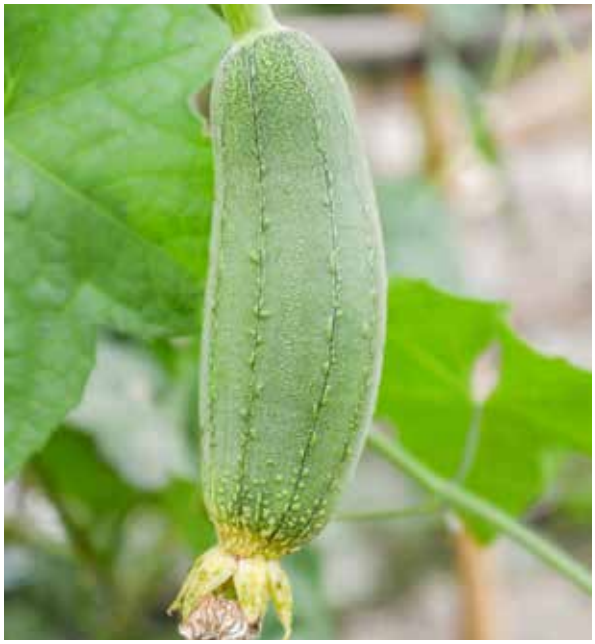
Graminae Family

From top left corner to bottom right corner: rice, corn, lemon grass, wheat



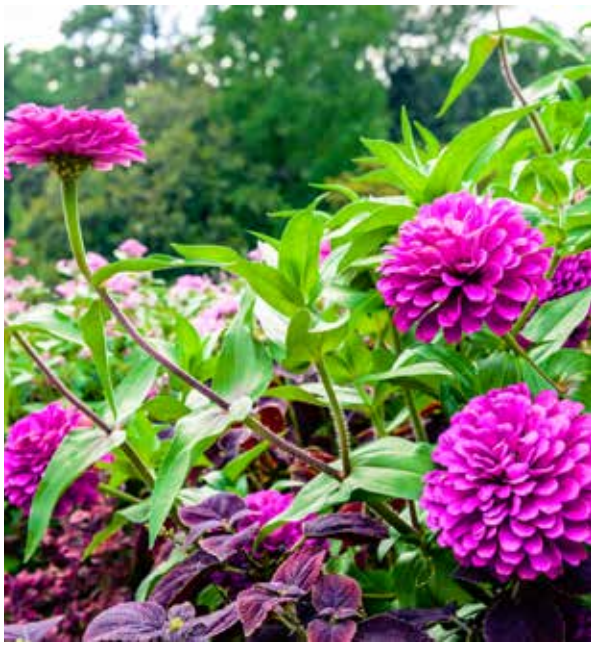
Cucurbitaceae Family

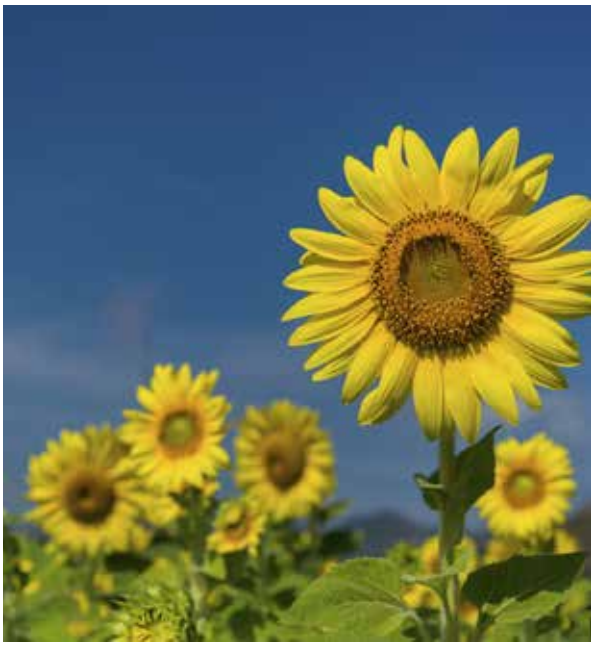
From top left corner to bottom right corner: luffa, melon, zucchini, cucumber



Asteraceae Family

From top left corner to bottom right corner: lettuce, artichoke, zinnia, sunflower





Solanaceae Family

From top left corner to bottom right corner: tomatoes, eggplant, peppers, potatoes