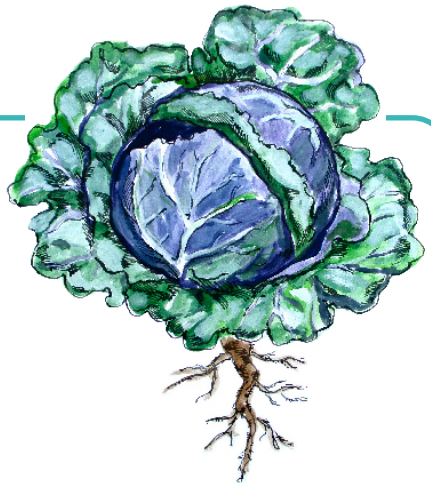
MONTANA Harvest of the Month

Classroom Bites

Brassicas

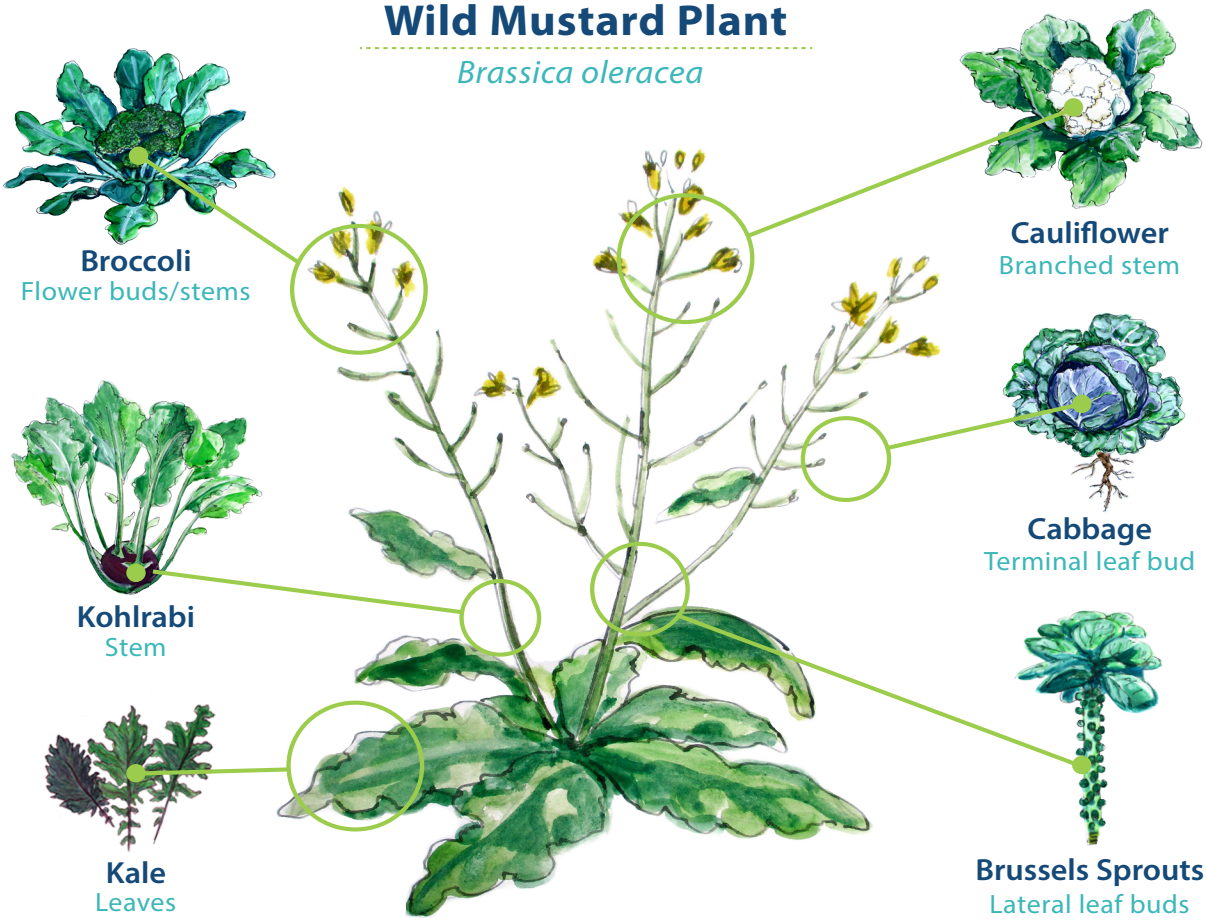


Did You Know

- "Brassica" is a genus, or group of closely related plants in the mustard family. There are 3700+ species of Brassicaceae, or the Brassica plant family, ranging from cauliflower to kohlrabi. There are several subcategories of Brassicas known as "cole crops" or cruciferous vegetables. Several of these vegetables were derived from the same ancestor, wild mustard or *Brassica oleracea*. This includes: broccoli, cabbage, cauliflower, collards, Brussels sprouts, and others. *See the illustration below.*
- Brassicas are diverse and depending on the variety, we eat different parts of the plant: roots, stems, leaves, flowers, and seeds.
- Many of the Brassicas that we enjoy as food today either originated in northwest Europe or the Mediterranean but over the past 2,000 years, Brassicas were most likely domesticated in the Mediterranean region. The ancient Greeks recorded medicinal and culinary uses of Brassicas.
- Cabbage, a popular Brassica grown in Montana, has roughly 400 varieties. Although they all share certain structural features and properties, cabbage varieties vary greatly in shape, size and color. Look for purple, green, and white cabbages!

Wild Mustard Plant

Brassica oleracea



Gardening

Brassicas are a perfect addition to any Montana garden! They enjoy cooler weather and can be planted as early as April in Montana. Cabbages take 50 to 100 days to mature. The right timing and temperature are imperative for healthy, flavorful, and beautiful Brassicas. Here are some special considerations when planting Brassicas:

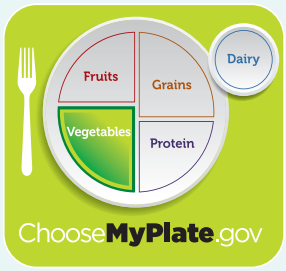
- Because some Brassicas can be susceptible to pests, it is important to cover cabbages, broccoli, and cauliflower with row covers.
- Be sure to pick a sunny spot when planting, as Brassicas need at least 5 hours of sun daily but prefer full sun.
- All Brassicas grow best in firm, fertile, free-draining soil, so be sure to amend your garden with compost when growing these diverse crops.
- Rotating Brassica crops with other crops will help avoid a buildup of pests or diseases particular to one plant family. It will also help balance the nutrients being used, as Brassicas require nutrient-dense soil to grow well.

Selection

When selecting Brassicas, it is important to make sure the vegetable is dense and firm. Avoid Brassicas that are limp, discolored, or bruised.

Nutrition Information

Although the Brassica genus is extremely diverse, most Brassicas are excellent sources of vitamin C and good sources of potassium, vitamin A, and vitamin B6. Vitamin A is important because it helps maintain good vision and keeps skin healthy. All Brassicas are rich in phytochemicals, meaning they are antioxidant-dense and have anticarcinogenic and anti-inflammatory properties.



Brassica








	Bok Choy	Broccoli	Brussels Sprouts	Cabbage	Cauliflower	Collards	Kohlrabi	Turnips
Plant Part Commonly Eaten	Leaves	Flower bud	Axillary buds	Leaf bud	Stem, cauliflower heads are fleshy, branched ends of stems.	Leaves	Stem, the "bulb" is an enlarged stem, is typically what is eaten, although the entire plant is edible.	The root is typically what is eaten, but the top greens can also be eaten.
Selection	When buying bok choy, look for compact, firm, fresh ribs with no brown spots. It is fine if leaves are slightly wilted, especially if they are being cooked.	Choose broccoli that is firm and evenly colored. Broccoli with flowers or wilted buds should be avoided because it's neither fresh nor tender.	Buy Brussels sprouts that are compact and firm. They should be bright green without any yellowing leaves.	Select a cabbage that is heavy and compact. It should have crisp, well-colored, and shiny leaves that are free from bruises and cracks.	When buying cauliflower, be sure to find one with a firm and compact head. Determine freshness by how bright green the outer leaves look.	Choose collards with brightly colored, firm, relatively small leaves that are unblemished.	Look for kohlrabi that is smooth and unblemished, and if there are leaves, make sure they are firm and bright green. Smaller specimens tend to be less fibrous, so keep in mind your preference when selecting kohlrabi.	When buying turnips, the smaller the better because it means they are sweet and have the best texture. They should be firm and heavy for their size, and free from any nicks or cuts.
Storage	Bok choy will only keep in the fridge for a couple days so to ensure freshness, wash it at the last minute. When storing, put it in a perforated bag in the vegetable drawer of the refrigerator.	Broccoli is very perishable, so store it in the vegetable drawer for up to 5 days if fresh. Blanched and frozen, broccoli can be kept in the freezer for up to one year.	Brussels sprouts will keep for 3-4 days unwashed in a perforated bag in the vegetable drawer of the fridge. Blanched and frozen, Brussels sprouts can be kept in the freezer for up to one year.	Cabbage will keep for about 2 weeks in the vegetable drawer or in a perforated bag in the fridge. Store it away from other foods, because over time the odor from cabbage can become more noticeable. Blanched and frozen, cabbage can be kept in the freezer for up to one year. It can also be dried.	Unwashed, cauliflower can be kept in a perforated bag in the fridge for up to 10 days. Cooked, cauliflower will only keep for 2-3 days in the fridge. Blanched and frozen, cauliflower can be kept in the freezer for up to one year.	Store unwashed collards in the fridge wrapped in a damp paper towel and a perforated bag. They will keep for several days but are tastier when fresh. Blanched and frozen, collards can be kept in the freezer for up to one year.	If stored in a perforated bag, kohlrabi will keep for up to a week in the refrigerator. The leaves should be stored separately from the bulb, because they only keep for a day or two. When frozen, kohlrabi's texture changes so freezing is not the best storage method.	Tightly wrapped in the refrigerator, turnips will last up to 2 weeks. Peel them and trim the tops right before cooking to preserve freshness.

Activities

Plant Families

Source: Adapted from School Gardens Lesson Plans (https://www.wholekidsfoundation.org/assets/documents/school-garden-lesson-plans.pdf)

Grades

3-5

Objectives

Students will:

- Explore common plant families
- Look at the characteristics and sort plants into the correct families through matching cards
- Discuss what they know about their characteristics and how that relates to members of their families

Standards

- Inheritance and variation of traits (NGSS: 3-LS3)
- Structure, function, and information processing (NGSS: 1-LS1)

Supplies

Download the listed supplies on the Harvest of the Month Portal, which is free to access for registered sites.

- Plant Family Characteristics Cards
- Plant Family Picture Cards

Directions

- Prepare: Determine the number of groups the students will be divided into and prepare copies of the Plant Family Pictures and Plant Family Characteristic Cards for each group. Cut out the characteristic boxes and plant pictures into separate cards. Keep a copy of the entire sheet so you have an answer key.
- Share: *Today we will learn about the different ways scientists group plants by using their characteristics.*
- Explain: *Characteristics are attributes that describe something.*
- Have students brainstorm different characteristics of plants. If students need help, ask how different plants look or grow.
- Next, pass out a set of Plant Family Characteristic cards to each group and review the different plant families together as a class.
- Now pass out a set of Plant Family Picture cards to each group and explain that their job is to sort the plant photos into groups using the Plant Family Characteristic cards.
- Once they're finished, review the cards and pictures together to determine the correct grouping of the plant.
- Discuss:
  - *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.)
  - *How are plant families good for our health?* (By eating different plant families, you can get a variety of vitamins and minerals that your body needs.)
  - *How are plant families and human families the same?* (Plant and human families inherit characteristics from their families.)
  - *What characteristics do you share with your parents? Siblings? Grandparents? Cousins?*
- Optional:
  - Nutrition: Incorporate a taste test into the lesson. Bring fruits and vegetables from the different plant groups to taste and compare.

Cooking

Fresh. Many Brassicas are delicious served raw. Broccoli, cauliflower, and cabbage are tasty options that require little preparation. Shredding those Brassicas create a dynamic component to any salad.

Frozen. Brassicas can be stored frozen for up to 1 year after being blanched. To blanch Brassicas, briefly boil the prepared vegetables until the leaves are slightly soft and then dunk in ice water.

Steamed. Steaming can be a great solution for some Brassicas, including collards, cauliflower, and broccoli. Boil about an inch of water in a pot then add the trimmed and cleaned vegetable in a steamer basket over the boiling water. Cover and steam until tender to bite, about 3-5 minutes.

Roasted. Roasting Brassicas is a delicious option to add flavor and accentuate the texture of the vegetables. Kale, Brussels sprouts, and turnips are delicious when tossed with oil and seasoning then roasted in the oven. Kale can be roasted or dehydrated to make tasty kale chips!

Fermented. Making sauerkraut is an excellent way to enjoy a bounty of cabbage throughout the year! Visit https://store.msuextension.org/Products/Canning-Pickles-and-Sauerkraut__MT200902HR.aspx to learn how to ferment this Brassica.

Preserved. For information on preserving Brassicas, look for Extension MontGuides on Home Canning Pressures and Processing Time. Visit https://nutrition.msuextension.org/ and click on the food preservation link or contact your Extension Office.

Recipe

Gingered Cabbage Salad

Developed by: Vermont FEED New School Cuisine Cookbook

Servings

6

Ingredients

2 2/3 cups Red cabbage, *shredded*
1 1/3 cups Green cabbage, *shredded*
1 cup Apples, *thinly sliced*
1 Tbsp Lemon juice
1 Tbsp Olive oil
1 Tbsp Cider vinegar
1 tsp Fresh ginger, *peeled, minced*
1/2 tsp Honey
1/2 tsp Dijon mustard
1/4 tsp Garlic, minced
1/3 cup Dried cranberries
3 Tbsp Sunflower seeds

Preparation

1. Cut cabbage into wedges and remove the core. Shred in a food processor or by hand, and set shredded cabbage aside in a bowl.
2. Core and peel apples. Cut into wedges, then thinly slice wedges. Toss with lemon juice in a bowl to prevent browning.
3. Whisk oil, vinegar, ginger, honey, mustard, garlic, salt, and pepper until well combined.
4. Add apples and lemon juice to the cabbage. Drizzle with dressing and toss to coat.
5. Add cranberries and toss again. Sprinkle with sunflower seeds.
6. Cover and let stand for 15 minutes before serving. If preparing more than 30 minutes before service, refrigerate.

Book Nook

Katie's Cabbage, by Katie Stagliano

The Trouble with Cauliflower, by Jane Sutton

Brussels Sprouts For Breakfast, by Rhonda Herrington Bulmer and Kent Bulmer

Alex McGreen and the Tale of the Mysterious Kale, by Rayna R Andrews

The Turnip, by Jan Brett

Oh Joy, Bok Choy & Other Greens for Me!, by Dawn Noelle Archer

The Montana Harvest of the Month program showcases Montana grown foods in Montana communities. This program is a collaboration between Montana Farm to School, Office of Public Instruction, Montana Team Nutrition Program, National Center for Appropriate Technology, Montana State University Extension, Gallatin Valley Farm to School, FoodCorps Montana, and Montana Department of Agriculture. More information and resources are available at: mtharvestofthemonth.org.

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