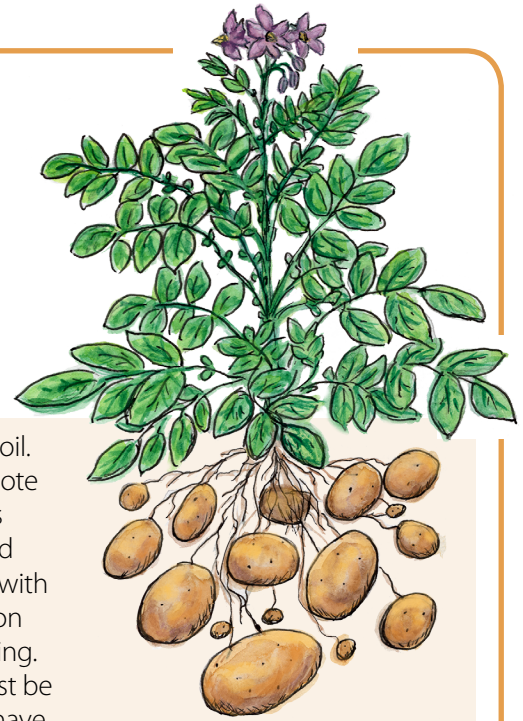


# Potatoes



## Did You Know

- The edible part of the potato grows underground and is called a tuber. Tubers are not roots; they are part of the plant's stem that stores nutrients to help the plant regrow in the spring. Potato stems and leaves are toxic and are not safe to eat. Potatoes are part of the nightshade family, alongside tomatoes and peppers.
- Potatoes represent the fourth largest crop grown worldwide, just behind corn, rice, and wheat crops. There are over 4,000 varieties of potatoes, making them the most abundant non-grain food product on earth.
- Montana is a leading state in seed potato production. Seed potatoes are sent to other states, such as Idaho and Washington to be planted and grown into full crops. The U.S. is the 5th largest producer of potatoes globally, following China, India, Russia, and Ukraine.
- What we call 'new' potatoes are young potatoes that are harvested before they fully mature.
- Potatoes were originally grown in South America, in the high Andes area around Peru and Bolivia. The first evidence of cultivated potatoes dates to 8000 B.C. That's close to 10,000 years ago! The potato became a global food when European settlers introduced it to Indigenous communities in North America in the 1700's.
- Researchers are growing potatoes on the International Space Station due to their high nutritional content and ease of growing.



## Gardening

Potatoes are a great addition to Montana gardens as they can be grown directly in the ground, raised beds, or containers. Plant seed potatoes two weeks before the last frost when soil temperatures are above 40 °F. Be sure to plant only seed potatoes from a reputable source to avoid introducing blight or other diseases. Potatoes do well in direct sunlight

and well-drained soil. It is important to note that seed potatoes should be chopped into 1-inch pieces with at least two "eyes" on them before planting. Seed potatoes must be sown deeply and have proper room to grow when planted both in the ground and containers. Water heavily for the first 8 weeks then begin watering regularly. New potatoes can be harvested 7-8 weeks after planting. Harvest mature potatoes once the green leaves and stems above ground have dried and turned brown. Potatoes are harvested by digging into the soil around the plant.

## Buying Tips

Select potatoes that are firm and fairly clean; a little dirt is okay! Avoid potatoes with a lot of sprouted eyes, wrinkled or wilted skin, discoloration, dark spots, soft areas, cut or bruised surfaces or areas that are greening. Store potatoes in a cool area, 42-48°F, with good ventilation, away from direct sunlight. Refrigeration is not recommended as cold temperatures change the sugar and starch content which changes the texture and flavor. Scrub off dirt and trim any rotted areas when ready to use.

## Cooking

**Bake.** Poke whole potatoes with a fork or knife to release steam. Bake in a 400°F oven for 30-60 minutes, depending on potato variety and size. Potatoes are done when they are soft and easily punctured by a fork. Chop or slice potatoes into smaller pieces for a faster roasting time. Coat chopped potatoes with oil and your choice of spices. Many flavors complement potatoes well including rosemary, sage, parsley, garlic, and onion. Store in the fridge for 3-4 days.

**Boil.** Boil potatoes for 10-20 minutes, depending on variety and size. Boiled potatoes can be mashed with



butter, cream, and spices. Add raw potato pieces to homemade soups and allow enough time for potatoes to cook. Cooked potatoes are a terrific addition to store bought soups or stews.

**Microwave.** Pierce potato with fork several times, place on a paper towel in the microwave. Cook on high for 4-6 minutes, or until tender.

**Freeze.** Freezing potatoes causes the water and starch in the potato to separate, resulting in a watery potato once thawed or cooked. Potatoes should be blanched before freezing. Blanching stops the enzymes in the potatoes from breaking down, which prevents rotting or discoloration. Boil small potatoes for 4 to 6 minutes, large potatoes for 8 to 10 minutes then cool quickly by immersing in an ice bath to stop the cooking process. Ensure potatoes are cool, drain thoroughly, process or leave whole and freeze.

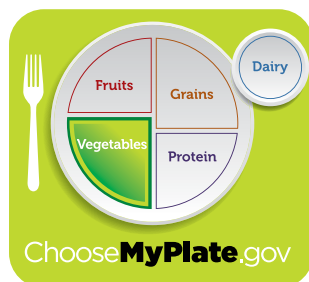
**Dry.** Potatoes can be dried in dehydrators or in an oven at 200°F. Dehydrators will have specific instructions for temperature and time control based on the design. To dehydrate in an oven wash and dry potatoes. Slice potatoes very thin, chop into cubes or shoestring strips. Spread potatoes onto a baking sheet and bake in a 200°F oven for 8-20 hours, or until fully dry, depending on size and thickness of slices.

**Substitute.** Water from boiled potatoes can be used to help thicken soups or stews as it contains a lot of starch. Dried and powdered potatoes can be used as a flour substitute in pastas and breads.

## Nutrition Information

Potatoes are starchy vegetables. Starch is a carbohydrate that our bodies break down into glucose to give us energy. Potatoes also contain fiber, vitamins, and minerals. They are rich in potassium which is an important electrolyte that helps our hearts, muscles, and nervous systems function.

Potatoes contain Vitamin C, which is required for healthy skin, teeth, gums, muscle, and bones. It also helps us absorb iron from other food sources! New potatoes have higher vitamin C content than fully matured potatoes.



## Activities

### Food Anatomy-Where do Potatoes Come From?

[www.coloradopotato.org](http://www.coloradopotato.org)

#### Grades

2-4

#### Standards

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction 4- LS1-1. NGSS Identifier

Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death 3-LS1-1. NGSS Identifier

Make observations of plants and animals to compare and contrast the diversity of life in different habitats 2-LS4-1. NGSS Identifier

#### Objectives

Students will be able to correctly identify the parts of a potato and diagram them.

#### Materials

- Diagram of the Potato Plant and Vocabulary List
- White paper
- Graph paper
- Scissors
- Glue

#### Directions

Engage:

Begin by asking students where potatoes come from. Ask students if they have eaten a potato, and how it was prepared (baked, fried, plain, mixed with other foods, etc.)

Introduce students to potato plant vocabulary and facts using the following information:

- The potato (*Solanum tuberosum*) is an herbaceous annual that grows up to 100 cm (40 inches) tall and produces a tuber - also called a potato. The leaves and stems of the potato plant are toxic and should not be eaten.



- Potatoes are so rich in nutrients it ranks as the world's fourth most important food crop, after corn, wheat and rice.
- The potato belongs to the Solanaceae - or "nightshade"- family of flowering plants and shares the genus *Solanum* with at least 1,000 other species, including tomato and eggplant.

Complete:

Give each student a copy of the **diagram of the potato plant and vocabulary**. Point out the various parts of the potato, noting that the part we eat is called a tuber, and is found underground. Give each student a piece of blank paper. Instruct students to cut their potato diagram into sections. Ask students to recreate their potato plant and glue it onto their paper. Give students a piece of graph paper and have them work with a partner to create a word search or crossword puzzle using the potato vocabulary terms.

Summarize:

Test understanding by pointing at a part of the potato plant and prompting students to label it.

Review and summarize the following key concepts:

- Potatoes are also called tubers and grow underground. The leaves and stems of potato plants are toxic.
- Potatoes are rich in nutrients and are an important food source around the world.



## Recipes

### Corn, Potato, and Cauliflower Soup

Source: [healthyschoolrecipes.com](http://healthyschoolrecipes.com)

#### Servings

6

#### Ingredients

- 1 lb Red potatoes
- 1/2 Onion, *medium*
- 1/2 Garlic clove
- 1 1/2 Tbsp Olive oil
- 1 1/2 tsp Kosher salt
- 1/2 cup Cauliflower, *chopped*
- 1/2 cup Corn, *fresh or frozen*
- 1 1/2 tsp Sage or Thyme, *chopped*
- 1 cup 2 Tbsp Water or corn stock
- 1/4 cup Lowfat milk
- 1/8 tsp Pepper, *ground*

#### Preparation

1. Roughly chop potatoes. Place in a large bowl and cover with cold water.
2. Trim, peel and dice onions.
3. Trim, peel and chop garlic.
4. Cook the onions, oil and half of the salt in a large stockpot over low heat, stirring occasionally, until the onions are very soft, about 20 minutes.
5. Add cauliflower, corn, garlic and sage (or thyme, if using) to the pot and stir to coat. Cook, stirring occasionally, for 10 minutes.
6. Drain the potatoes and add to the pot along with water (or corn stock) and the remaining half of the salt to the pot. Bring to a boil and cook, stirring occasionally, until the potatoes are fork tender, about 20 minutes. Stir in milk and pepper. Keep warm on the stove.

## Cottage Pie

Source: [healthyschoolrecipes.com](http://healthyschoolrecipes.com)

### Servings

6

### Ingredients

- 3/4 tsp Garlic, *minced*
- 1/4 Small Onion, *chopped*
- 1/2 cup Carrots, *chopped 1/4 inch dice*
- 1 Tbsp Vegetable Oil
- 1 Tbsp Flour
- 1 lb Ground Beef
- 1 cup Beef Broth
- 1 15oz can Canned Corn
- 1.5 lbs Red Potatoes
- 1 tsp Granulated Garlic
- 1/2 cup Nonfat Milk
- 1 Tbsp Butter
- 1/4 tsp Kosher Salt
- 1/4 tsp Black Pepper
- 1 Tbsp Fresh Parsley, *chopped (optional)*

### Preparation

1. Cook and drain ground beef. Set aside.
2. Sauté chopped onions and carrots in oil for 15 minutes, or until the onions begin to brown. Add garlic and saute for about a minute longer.
3. Add the flour and stir over medium heat for about three minutes. Do not burn the flour, but it should brown.
4. Add broth gradually. Add beef, and simmer for 30 minutes.
5. Meanwhile, simmer potatoes in a steam kettle or large pot of water until the largest potatoes are fork-tender, about 30 minutes.
6. Spread meat mixture in greased baking dish.
7. Drain corn and spread over meat mixture.
8. Heat milk to a near boil, being careful not to allow the milk to boil over and stirring occasionally to prevent burning.

9. Add butter, garlic, salt, and black pepper to the milk.
10. Drain potatoes and place into mixing bowl.
11. Whisk in hot milk mixture at the slowest speed, gradually increasing the speed until smooth. (Do not mix too long or the potatoes will cool.)
12. Spread mashed potatoes over corn and meat.
13. Bake in 350°F oven until the center reaches 160°F, around 30 minutes.



### Book Nook

*Potato Pants!*, by Laurie Keller

*The Couch Potato*, by Jory John

*The Enormous Potato*, by Aubrey Davis

*The Greatest in the World!*, by Ben Clanton



### Dig Deeper

For sources and photo credits along with more recipes, lessons, quick activities, resources, and guides, visit: [mtharvestofthemonth.org](http://mtharvestofthemonth.org).

## 4 Montana Harvest of the Month: Potatoes



The Montana Harvest of the Month Program showcases Montana grown foods in Montana communities. This program is a collaboration between Montana Farm to School, Montana Office of Public Instruction, Montana Team Nutrition Program, National Center for Appropriate Technology, Montana State University Extension, Montana State University, AgCorps, Montana Department of Agriculture, and Abundant Montana. More information and resources are available at [mtharvestofthemonth.org](http://mtharvestofthemonth.org). This project is possible with funding from the Montana Department of Agriculture's Specialty Crop Block Grant Program.