

Powerful Potato

Objective

Students will learn about the life cycle of plants. Students will disguise a potato and write creative stories about their potato. Students will learn about continents and countries where potatoes grow. Students will weigh and measure potatoes.

Background

The potato is not a root but a storage area, which is part of the plant's underground stem. The roots collect more water and food than the growing plant can use at one time. The plant stores the excess food in oval packages, called tubers (the potato). When the greenery starts to wither and turn brown, the potatoes are ready to harvest.

Potatoes produce more pounds of protein per acre than corn, rice, wheat or oats. They are packed with nutrients, low in fat, generous in bulk and efficiently packaged in their own skins. They can be prepared in many different ways and are delicious.

Potatoes were first grown by ancient tribes living in the Andes Mountains of Bolivia and Peru as early as 200 A.D. Archaeologists have found pictures of potato plants in designs on ancient pottery. The ancient people preserved the potatoes by trampling them and then drying them.

Even though potatoes were first grown in South America, people in North America did not start eating them until after they became a popular food in Europe. European explorers carried potatoes from South America to Europe in 1570. About 150 years later the rulers of several European countries ordered their people to start growing potatoes. In Ireland, potatoes became the main food for the people. In the 1840s disease wiped out the potato crop in Ireland for two years in a row. Many Irish people moved to America then, because they had no food to eat. Most of the world's potatoes today are grown in Europe.

Potatoes are a truck crop and are grown in all 50 of the United States. A truck crop is a crop that is grown on a farm and taken to the market by truck. The biggest potato-producing state is Idaho.

Before they go to market, potatoes are graded according to size and quality. The price of the potato depends on how it looks and how much it weighs.

In Oklahoma, many people grow potatoes in their home gardens and harvest them while the tubers are still small. These are called "new potatoes."

The average American eats about 65 pounds of potatoes a year.

Oklahoma Academic Standards

GRADE 3

English Language Arts—
1.R.1,2,3; 2.R.1,2,3; 1.W.1,2;
3.W.1; 5.W.3,4
Math—GM.2.1,2,3,4,8; 3.D.1
Social Studies PALS—1.B.5, C.7
Social Studies Content—2.1;
3.1ae
Science—LS1.1; 3.1
Visual Art—3.1,2,4; 4.2,3

GRADE 4

English Language Arts—
1.R.1,2,3; 2.R.1,2,3,4; 1.W.1,2;
3.W.1; 5.W.2,3
Math—GM.2,3,4; D.1.2
Social Studies PALS—1.B.5
Social Studies Content—1.2a, 3
Science—LS1.1
Visual Art—3.1,2,4; 4.2,3

GRADE 5

English Language Arts—
1.R.1,2,3; 2.R.1,3; 1.W.1,2;
2.W.1,2,3,4; 3.W.1; 5.W.1,2
Science—LS1.1
Visual Art—3.1,2,4; 4.2,3

Materials

baking potato

paper plate

seed potato or potato from store
that has started to sprout

gallon bucket or large clay pot

soil

water-based paint

world map

English Language Arts

1. Read and discuss background and vocabulary.
2. Students will create a classroom story to explain why a potato needs so many eyes. Use multimedia to present the story.
3. Read a book about potatoes. (See Additional Reading below.)
 - Give each student two potato cutouts—one brown and one white. (Pattern included with this lesson.)
 - The brown potato will be the cover. Students will write the title and author of the book you read on the cover.
 - Students will divide the cover potato into three equal sections and cut it to make flaps that will lift to reveal the white potato beneath.
 - On the white potato, students will write “beginning,” “middle,” and “end” under the correct flap.
 - Students will each write one sentence to retell the main idea for each part of the story.
 - Students will draw a picture to illustrate the sentences.
4. The Great Potato Disguise Contest (See illustration included with this lesson for examples.) Give students a potato and the following directions:
 - You must disguise your potato (without cutting it) so that it appears to be something other than a potato. You may dress it in a costume, paint it, add different things to it BUT when you are finished it should NOT look like something you would eat for dinner. (Make a butterfly, a penguin, a football, etc.)
 - Select one of the following ideas to write about, and submit your writing with your potato:
 - 1) How-To: Write detailed directions to explain how you made your potato’s disguise. Use transition words.
 - 2) Persuasive: Write a detailed letter from your potato to the judge. Convince the judge to pick your potato as the winner.
 - 3) Narrative: Write a detailed story from your potato’s perspective describing a day in its life.
 - 4) Friendly Letter: Write a letter from your potato to another potato describing what your potato likes to do.(Source for Activity Four: www.msfulz.blogspot.com)

Science

1. Bring a large baking potato to class.
 - Set the potato on a paper plate.
 - Students will observe the potatoes to find the number of days that pass before the eyes begin to sprout.
 - Students will log observations on a chart or graph.
2. Plant a potato in a large clay pot or gallon bucket. You may purchase seed potatoes from a seed outlet in early spring or use a potato from home that has started to sprout. Make sure your container has drainage holes.
 - Place the potato, eye end up, in moist potting soil.

- Cover the potato with more soil until the pot is half full.
 - Place the pot in a sunny spot.
 - Water when dry.
 - As shoots appear and get tall, tie them to a stake.
 - When flowers start to appear, stop watering to prevent the potatoes from rotting.
 - As the potatoes grow they may push up the dirt around the stem or even crack the container in which they are planted.
 - After six to eight weeks, when the top of the potato plant starts to die, harvest them by gently pulling the plant out of the pot.
 - Lay the plant on newspaper.
 - Students will sift through the dirt to find the potatoes.
3. Students will create a pictorial time line of the growth of the potatoes, with dates.

Math

1. Students will conduct a survey of students in their school to find the most popular way to eat potatoes—as French fries, potato chips, mashed potatoes,
 - Students will graph their results.
2. Review your school menu to see how many times a week potatoes are served. What are the different ways they are cooked?
 - Students will use tally marks to record findings.
 - Students will record the data they collect as bar graphs to compare the different ways the potatoes are cooked with the total number of times they are served.
3. Students will tear potato shapes from brown construction paper.
 - Students will measure the length and width of the potato shapes in inches and centimeters. Students will find the perimeter of the shapes.
 - Students will choose non-standard units of measure (beans, seeds, etc.) to measure the area of the potato shapes.
 - Students will estimate how many units it will take to fill the potato shapes.
 - Students will fill in the shapes and record the data.
4. Students will use classroom containers to estimate the volume of a potato.
5. Students will weigh different sizes of potatoes using scales and compare the weight to various classroom materials: bottle of glue, linking cubes, etc.
 - Students will write sentences to show results: my potato is lighter than ____, but it is heavier than ____.

Social Studies

1. Students will place cut-out pictures of potatoes on a world map to track the potato from South America to Europe and back to the US.
 - In South America, students will locate Bolivia, Peru and the Andes Mountains.
2. Potatoes grow best in cold weather. Compare the climate of Oklahoma to that of Bolivia, Peru and Idaho to see how the climates are the same or different.
 - On a relief map, students will look at Bolivia, Peru and Idaho to find what terrain they have in common.
 - Students will compare and contrast these three places to find what features they have that would allow potatoes to grow better there? (Cold climate in the mountains)

Vocabulary

harvest—the gathering of a crop

potato—an erect South American herb widely cultivated for its thick starchy edible underground tubers

sprout—to send out new growth

tuber—a short fleshy usually underground stem (as of a potato plant) having tiny scalelike leaves each with a bud at its base that can produce a new plant

Potato Soup Recipe

1 medium onion
1 stalk celery
2 T butter
6 large potatoes
1 cup water
1 cup broth
2-3 cups milk

1. Sauté onion and celery in 1 tablespoon butter in a medium saucepan over medium-high heat until softened.
2. Add potatoes, water and broth. Season lightly with salt.
3. Bring to a boil; cover and reduce heat to low.
4. Simmer until potatoes are tender, about 15 minutes.
5. Add milk, another tablespoon butter, and salt and pepper to taste.
6. Continue to cook over medium heat until hot; do not boil.
7. With a potato masher, mash some of the potatoes right in the pot to slightly thicken the soup.

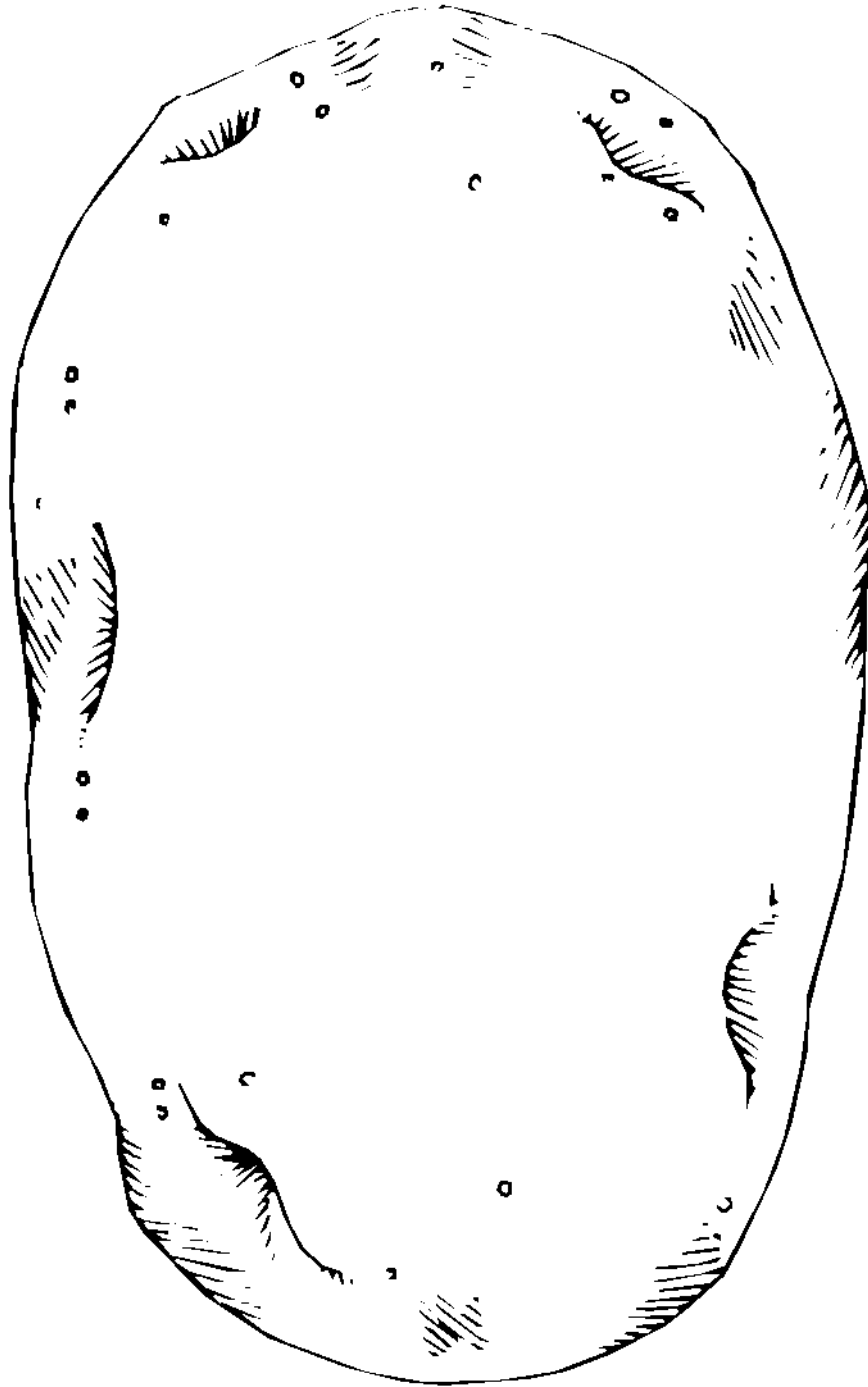
Visual Art

1. Make potato stamps.
 - Cut potatoes in half.
 - Students will create simple designs to carve into the meat of the potato (star, heart, circle).
 - Help students carve the designs in the potatoes, using plastic knives.
 - Mix water-based paints in aluminum pie pans or other shallow dishes.
 - Dip the potato surface into the paint.
 - Press to the surface of paper.
 - Carefully lift the potato, leaving the print on the paper.

Extra Reading

- Bartoletti, Susan Campbell, *Black Potatoes: The Story of the Great Irish Famine, 1845-1850*. Houghton-Mifflin, 2001.
- Blackaby, Susan, and Charlene Delage, *Plant Plumbing: A Book About Roots and Stems*, Picture Window, 2005.
- dePaola, Tomie, *Jamie O'Rourke and the Big Potato—An Irish Folktale*, Grosset and Dunlap, 2009.
- Llewellyn, Claire, *What's for Lunch? Potatoes*, Franklin Watts, 2003.
- Weiss, Ellen, *From Eye to Potato*, Children's, 2007.

Potato Pattern



Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Potatoes in Disguise



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