

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. They 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 tribespeople 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 C3 Standards

GRADE 3

Social Studies PALS—1.B.5, C.7

Social Studies Content—2.1; 3.1ae

Science Process—1.1; 3.3; 4.1
Life Science—2.2

Visual Art—3.1,2,4; 4.2,3

COMMON CORE

Language Arts—3.RIT.1,3;
3.W.3abcd, 4,5,6,10; 3.SL.6;
3.L.4a, 5a

Math Practice—MP.5,6
Math Content—3.MD.2,3,4

GRADE 4

Social Studies PALS—1.B.5
Social Studies Content—1.2a, 3

Science Process—1.1; 3.3; 4.1,4
Life Science—3.3

Visual Art—3.1,2,4; 4.2,3

COMMON CORE

Language Arts—4.RIT.1,3;
4.W.3abcde,4,5,6,10; 4.L.4ac, 5

Math Practice—MP.5, 6
Math Content—4.MD.1,2

GRADE 5

Science Process—1.1; 3.3; 4.1,4
Visual Art—3.1,2,4; 4.2,3

COMMON CORE

Language Arts—5.RIT.1,3;
5.W.3abcde, 4,5,6,10; 5.L.4ac, 5

Math Practice—MP.5, 6

GRADE 6

Social Studies PALS—1.C.7
Social Studies Content—1.2

Science Process—1.2; 4.1
Visual Art—3.1,2,4; 4.2,3

COMMON CORE

Language Arts—6.RIT.4;
6.W.3abcde, 4, 5, 6, 10; 6.L.4ac,
5

Math Practice—MP.5,6
Math Content—6.SP.1

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

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: 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. (Dress it in a costume. Paint it. Add different things to it. BUT when you are finished it should NOT look like something they 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.
3. Students will tear potato shapes from brown construction paper.
 - Show students how to measure the potato shapes in inches and centimeters.
 - 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.
 - In Europe, students will locate Ireland.
 - In the U.S., students will locate Idaho and Oklahoma.
2. Potatoes grow best in cold weather. Compare the climate of Oklahoma to

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
2 T butter
6 large potatoes
2-3 cups milk

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

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)

Visual Art

1. Make potato stamps.
 - Cut potatoes in half, and have students 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.

Name _____

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