

Peas, Please

Objective

Students will learn about different kinds of peas that grow in Oklahoma. Students will identify the parts of the vegetables we eat as root, fruit or leaves. Students will use peas in pod for a variety of math activities. Students will compare and contrast different versions of the story “The Princess and the Pea.” Students will grow peas.

Background

The pea is the small spherical seed or seed pod of the pod fruit *Pisum sativum* (*P. sativum*). Each pod contains several peas. Pea pods are botanically fruit, since they contain seeds and develop from the ovary of a (pea) flower. *P. sativum* is an annual plant, with a life cycle of one year. Peas grow on vines. They grow best when they have something to climb, like a fence, a trellis or even dried tree branches stuck in the ground.

Garden peas are the time-clock of the garden. They are among the first vegetables to be planted and the first to be harvested in spring because they are frost-hardy. That means they can withstand temperatures below freezing. In fact, peas taste better when they are grown while the weather is still cool. They grow best when the average temperature is around 70 degrees F. In some varieties, like snow peas and sugar snaps, the pea pods are as tasty as the peas themselves. In other varieties, the peas are shelled—removed from the pods.

In Oklahoma we grow garden peas early in the spring. Dried peas grow best in summer and do well even in the hot and dry conditions typical of Oklahoma summers. Dried peas are also grown as a crop for feeding animals in Oklahoma.

Dried peas are sometimes called field peas. Some common varieties of field peas grown in Oklahoma are blackeyed peas, cow peas and southern peas. Dried peas are shelled from the mature pod. Dry peas are the main ingredient in the pease porridge of the familiar nursery rhyme. No one knows the origins of the nursery rhyme, but pease porridge was a common food during Medieval times.

The pea was one of the earliest cultivated food crops. They were first found growing wild in the Mediterranean basin during the Neolithic era. Over time, cultivated peas improved as growers selected the ones with the most desirable traits to grow. In early times, they were grown mostly for their dry seeds.

Dried peas became a staple food of European peasants during the Middle Ages. This is because peas were cheap, plentiful and wholesome. They could survive storage through the long winter months after they had been dried.

At the end of the 14th Century, the Italians cultivated a dwarf variety

Oklahoma Academic Standards

KINDERGARTEN

Speaking and Listening:

R.1,2,3,4; W.1,2. 1. Critical

Reading and Writing: 1,2,3,4; W.

Vocabulary: R.1,2

Number & Operations: 1.1,2,5;

2.1; 3.1. Algebraic Reasoning:

1.1. Measurement: 2.1,3. Data:

1.1,2,3

Life Science: 1-1. Earth Science:

3.1

GRADE 1

Speaking and Listening:

R.1,2,3,4; W.1,2. Critical

Reading and Writing: 1,2,3,4,5.

W.2. Vocabulary: R.1,3,5

Number & Operations: 1.2,3,4,8;

2.1. Algebraic Reasoning: 1.1.

Data: 1.1,2,3

Life Science: 2-1; 3-1

GRADE 2

Speaking and Listening:

R.1,2,3,4; W.1,2. Critical

Reading and Writing:

1,2,3,4,5,6,7. W.2. Vocabulary:

R.1,3,5

Number & Operations: 1.1,5;

2.1,2,3,6. Algebraic Reasoning:

2.2. Data: 1.2

Life Science: 1-1; 4-1. Earth

Science: 1-1

Materials

fresh garden peas

frozen peas

canned peas

dried blackeyed peas

dried split peas

assorted root (radishes, turnips),
fruit (peas, cucumbers) and
leaf (spinach, kale) vegetables

of peas called *Piselli novelli* which were to be eaten fresh. When Catherine de Medici of Italy married Henry II of France in 1533, she took *Piselli novelli* with her to France. The tasty new peas were so different from the peasant peas that they started a new fashion craze. The French called the tiny peas *petits pois*, a name that remains today.

Thomas Jefferson was an avid gardener, and peas were his favorite vegetable. He thought so highly of peas that he cultivated 30 varieties in his gardens.

With the invention in the 1920s of canning and freezing methods for preserving food, garden peas became available year-round, not just in the spring.

Green garden peas are a valuable source of protein, iron and insoluble fiber. Sugar snap peas contain less protein, but are an excellent source of iron and vitamin C. Mature blackeyed peas contains 23-25 percent protein, 50-67 percent starch, and B vitamins, including folic acid. They are also rich in essential micro-elements, such as iron, calcium and zinc.

In Oklahoma, garden peas grow best when planted between February 15 and March 10. They take 60-90 days from seed to harvest and grow best when the average temperature is 70 degrees F or less. Southern, blackeyed or cow peas can be planted between May 1 and June 10. They take 85-100 days from seed to harvest.

English Language Arts

1. Read and discuss background and vocabulary. Show students examples of all kinds of peas—fresh garden peas, frozen peas, canned peas and dried peas (split peas and blackeyed peas). Ask students what kinds of peas they have eaten and which ones they like.
2. Read the story of “The Princess and the Pea,” included with this lesson.
—Lead a discussion about the story. Knowing what they have learned about peas, do students think the pea under the mattress was a fresh garden pea or a dried field pea? Why?
—Read a few different versions of the story. (A variety of versions are included in the “Extra Reading” section of this lesson).
—Students will compare and contrast the stories, using the chart provided with this lesson.
3. Ask students if they are familiar with the rhyme “Pease Porridge Hot.” Recite the rhyme together.

Pease porridge hot
Pease porridge cold
Pease porridge in the pot
Nine days old.

Some like it hot.
Some like it cold.
Some like it in the pot
Nine days old.

—Lead a discussion about the meaning of the rhyme. Ask students if

they have ever had “Pease Porridge.” What do they think it is?
Have they ever had pea soup?

4. Make pease porridge for students to try. (Recipe included.)

Math

1. Bring fresh green garden peas to class for students to examine and shell.
 - Students will arrange the pea pods according to size.
 - Students will estimate the number of peas in the pods before shelling them.
 - Students will use tally marks to count the peas.
 - Students will graph number of peas per pod.
 - Students will use the peas to construct addition and subtraction facts.
 - Students will develop strategies for estimating the total number of peas.
 - Students will use peas to develop multiplication and division algorithms (e.g., four groups of three peas, etc.)

Science

1. Bring samples of the following vegetables to class for students to examine: carrots, lettuce, cucumbers, peppers, cabbage, radishes, spinach, tomatoes, beets
 - Provide copies of the “Roots, Fruits, Leaves” worksheet included with this lesson.
 - Students will examine the vegetables and draw pictures of them in the correct column.
2. Students will follow the directions below to grow peas in your school garden or other available space outdoors or under grow lights in your classroom. Students will keep journals, with notes and illustrations, to show the progress of their peas.
 - Peas like to climb, so brainstorm to decide what to use as a trellis. Some simple possibilities are woody branches with plenty of twigs, tomato cages or stakes and string.
 - Examine the seeds and describe them in your journal.
 - Soak the peas in water overnight to help them germinate more quickly.
 - Examine the seeds after soaking and record your observations in your journal.
 - Follow spacing and depth directions on the seed packet to plant their peas.
 - Water the peas regularly.
 - Watch the peas grow, and record your observations.
 - If necessary, as the peas grow, carefully move the vines around so they can find the trellis you have provided.
3. Conduct a taste test of different kinds of peas—fresh garden peas, canned peas, frozen peas, blackeyed peas, split pea soup,

Vocabulary

annual— completing the life cycle in one growing season or single year

botany— a branch of biology dealing with plant life

cultivated— raised or assisted the growth of by tilling or by labor and care

dwarf— a person, animal, or plant much below normal size

frost— the temperature that causes freezing

fruit— the ripened ovary of a seed plant (as an apple or raspberry) when sweet and pulpy

harvest— the gathering of a crop

life cycle— the series of stages of form and activity through which a living thing passes from a beginning stage (as an egg) in one individual to the same stage in its offspring

mature— fully grown or developed

medieval— of, relating to, or characteristic of the Middle Ages

Neolithic— of, relating to, or being the latest period of the Stone Age which is marked by the use of polished stone tools

ovary— the enlarged rounded lower part of the pistil of a flower in which seeds are formed

pod— a fruit that is dry when ripe and then splits open to free its seeds

porridge— a soft food made by boiling meal or a vegetable in milk or water until it thickens

seed— a fertilized ripened ovule of a flowering plant that contains an embryo and is capable of producing a new plant

spherical— relating to or having the form of a globe-shaped body (sphere) or part of a globe shaped body

staple— something in widespread and constant use or demand

variety— a number or collection of different things

Pease Porridge Recipe

1 pound split dried green peas

1/3 pound bacon, cut in 1/2 inch cubes

2 medium size carrots, scraped and diced

2 medium-size onions, peeled and chopped

2 small white turnips, peeled and diced

1 tablespoon fresh sage or 1 teaspoon dried sage

1 tablespoon butter or oil
salt and pepper to taste

1/2 cup light cream or half and half, optional

1. Place peas in a bowl and cover with water to a depth of 2 inches above the peas. Set aside to steep six hours or overnight. Drain peas and place in a soup kettle.
2. Add bacon, carrots, onions and turnips and stir to mix well. Cover with water to a depth of 1 inch above the mixture. Add sage.
3. Place over medium low heat and bring to a boil. Reduce heat until soup is barely simmering, cover and simmer 2-3 hours or until peas lose shape and start to become creamy. Add a little boiling water if necessary. You should have a thick soup.
4. Remove bacon chunks. Saute bacon in butter or oil until brown on all sides.
5. Add salt and pepper. Garnish with sauteed bacon and fresh mint, if available.

etc.

— Students will conduct a poll to show which peas the class prefers and graph the results

Extra Reading

Andersen, Hans Christian, and Maja Dusíková, *The Princess and the Pea*, Floris, 2012.

Gray, Kes, and and Nick Sharrat, *Eat Your Peas*, DK, 2000.

Grigsby, Susan, and Nicole Tadgell, *First Peas to the Table: How Thomas Jefferson Inspired a School Garden*, Albert Whitman, 2012.

Hart, Caryl, and Sarah Warburton, *The Princess and the Peas*, Nosy Crow, 2013.

Isadora, Rachel, *The Princess and the Pea*, Puffin, 2009.

Johnson, Tony, and Warren Ludwig, *The Cowboy and the Black-eyed Pea*, Puffin, 1996.

Llewellyn, Claire, *What's for Lunch? Peas*, Franklin Watts, 2003.

Loewen, Nancy, and Cristian Bernardini, *Believe Me, I Never Felt a Pea!: The Story of the Princess and the Pea as Told by the Princess (The Other Side of the Story)*, Picture Window, 2016.

Rosenthal, Amy Krouse, *Little Pea*, Chronicle, 2005.

The Princess and the Pea

Once upon a time there was a prince who wanted to marry a princess; but she would have to be a real princess. He travelled all over the world to find one, but nowhere could he get what he wanted. There were princesses enough, but it was difficult to find out whether they were real ones. There was always something about them that was not as it should be. So he came home again and was sad, for he would have liked very much to have a real princess.

One evening a terrible storm came on; there was thunder and lightning, and the rain poured down in torrents. Suddenly a knocking was heard at the city gate, and the old king went to open it.

It was a princess standing out there in front of the gate. But, good gracious! What a sight the rain and the wind had made her look. The water ran down from her hair and clothes; it ran down into the toes of her shoes and out again at the heels. And yet she said that she was a real princess.

“Well, we’ll soon find that out,” thought the old queen. But she said nothing, went into the bed-room, took all the bedding off the bedstead, and laid a pea on the bottom; then she took twenty mattresses and laid them on the pea, and then twenty eider-down beds on top of the mattresses.

On this the princess had to lie all night. In the morning she was asked how she had slept.

“Oh, very badly!” said she. “I have scarcely closed my eyes all night. Heaven only knows what was in the bed, but I was lying on something hard, so that I am black and blue all over my body. It’s horrible!”

Now they knew that she was a real princess because she had felt the pea right through the twenty mattresses and the twenty eider-down beds.

Nobody but a real princess could be as sensitive as that.

So the prince took her for his wife, for now he knew that he had a real princess; and the pea was put in the museum, where it may still be seen, if no one has stolen it.

There, that is a true story.

—Hans Christian Andersen, 1832



The Princess and the Pea

Name of book	How is the same as the original?	How is it different?
Title Author	Characters? Plot?	Characters? Plot?

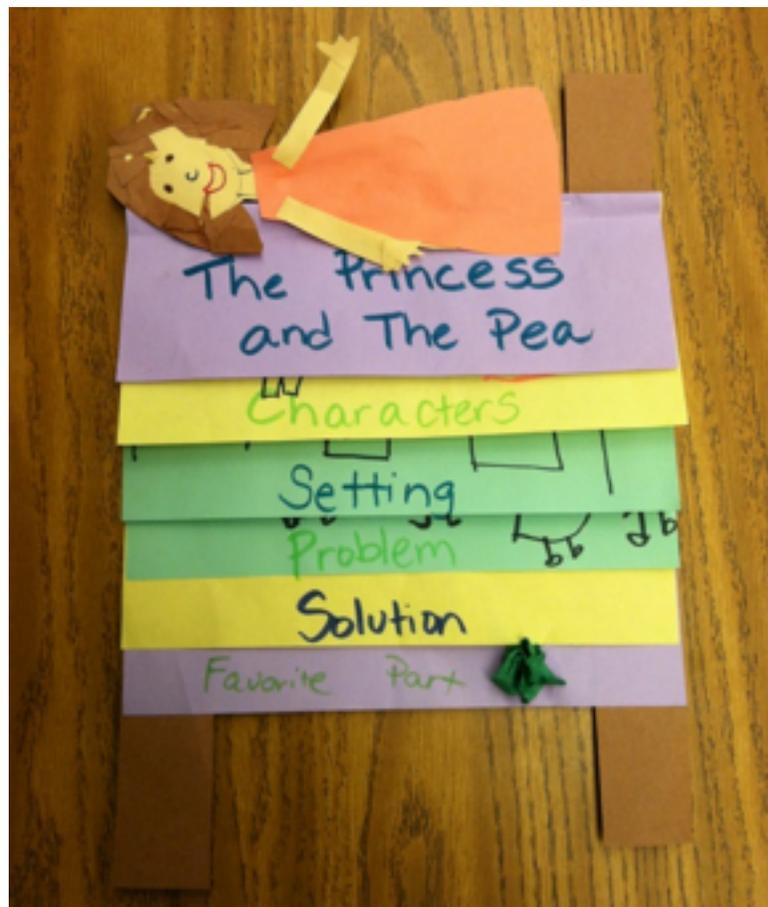
Which version was your favorite? Explain why.

Princess and the Pea Graphic Organizer

Materials

Three or more sheets of colored paper (for mattresses)
2 strips of brown paper (for bed posts)

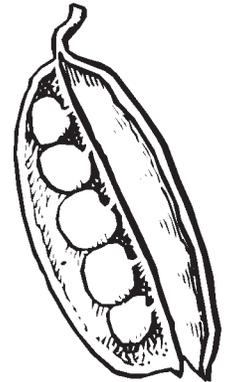
1. Lay the first sheet of paper on the table. Place the second sheet of paper on top of the first sheet, approximately 1 ½ inches from the bottom edge. Repeat with the third piece of paper.
2. Fold all three sheets together so that they line up 1 ½ inches from the one below it.
3. Crease the fold and place staples in the folded edge. Your booklet should resemble stair steps when folded.
4. Glue or tape the brown strips to the back of the foldable on the left and right side to create bed posts.
5. Use scraps of paper to create a princess to glue to the top mattress. Crumple a small piece of green paper to make a pea and glue to the bottom mattress.
6. On the top outside mattress, write “The Princess and the Pea.”
7. Label the other mattresses with the titles of other books that students are going to compare/contrast to “The Princess and the Pea.”
8. As an alternative, label the mattresses “Character, Setting, Problem, Solution, My Favorite Part, and What I Would Have Done.”



Name _____

Roots, Fruits or Leaves?

Most people think fruits are sweet and eaten for dessert while vegetables are not as sweet and usually eaten as part of a meal. But in botany, the science of plants, a fruit is defined as a plant that grows from a flower and contains seeds in the portion of the plant that is eaten. There is no vegetable category in botany. So peas, tomatoes and cucumbers are botanically fruits, even though we think of them as vegetables.



Thomas Jefferson was a gardener who loved to plant many different kinds of plants. He divided his garden into sections for roots, fruits and leaves.

Look at the examples of vegetables your teacher has provided. Where would Thomas Jefferson have placed these plants? Write the name of the vegetable or draw a picture in the box where Thomas Jefferson would have planted it.

ROOTS	FRUITS	LEAVES