

PUMPKIN USES:

pies, bread, soup, pumpkin purée, pumpkin extract, pumpkin seed oil, dietary supplement for dogs and cats, poultry feed supplement during the winter months, medicinal purposes (anti-diabetic, antioxidant, anti carcinogenic, anti-inflammatory)

WHAT ARE PUMPKINS?

Pumpkins are a member of the gourd family, which includes cucumbers, honeydew melons, cantaloupe, watermelons and zucchini. These plants are native to Central America and Mexico, but now grow on all continents except Antarctica. Pumpkins have been grown in North America for five thousand years. They are native to the western hemisphere.

Pumpkins are grown primarily for processing with a small percentage grown for ornamental sales through you-pick farms, farmers' markets and retail sales. Most pumpkins are processed into canned pumpkin and canned pie mix. Processing pumpkins have a comparable size and shape of a watermelon and a lighter orange colored shell.

Pumpkins can range in size from less than one pound to more than 1,000 pounds. Miniature-sized pumpkins weigh less than one pound and typically are used for decorative purposes. Pie pumpkins come in many sizes. The 5- to 10-pound pie pumpkin varieties are most often grown. Pumpkins in the 10- to 25-pound range are primarily used for jack-o-lanterns and can also be used for processing. Pumpkins above 25 pounds are called giant. Giant pumpkins typically range between 25 to 75 pounds in size.

VOCABULARY

ANGIOSPERM: a flowering plant having its seeds enclosed in an ovary.

BLOSSOM: the flower of the plant that will turn into the pumpkin.

CARVE: to cut, as in to carve a jack-o-lantern.

CROSS-POLLINATION: the transfer of pollen from the flower of one plant to the flower of a plant having a different genetic constitution.

CUCURBITA: a genus in the gourd family Cucurbitaceae including squash and pumpkins.

PEPITAS: the edible seed of a pumpkin or squash, used in cooking and often dried or toasted and eaten as a snack food.

POLLINATION: the transfer of pollen from the anther to the stigma.

TENDRILS: slender, coiling plant part, often a modified leaf or leaf part, that helps support the stem of some climbing angiosperms by clinging to or winding around an object.

VARIETY: a kind or type.

VINE: long flexible stems that trail or creep along the ground or climb by clinging to a support with tendrils or clasps.

Where Do Pumpkins Come From?

Did you know that pumpkins start to grow inside of flowers? Pumpkin plants have two types of flowers. One is a male flower and the other is a female flower (see illustration). If you cut a pumpkin flower in half, you would see many different parts.

In the center of the flower is the **PISTIL**.

The sticky part at the top of the pistil is the **STIGMA**.

Stamens make yellow powder called **POLLEN**.

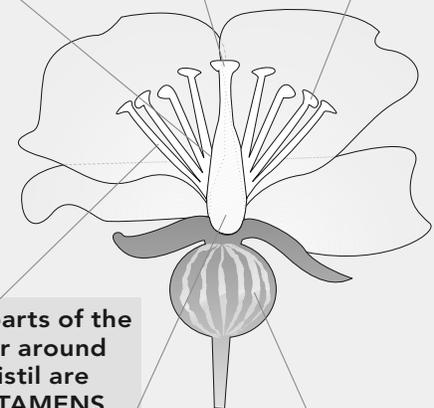
The parts of the flower around the pistil are the **STAMENS**.

PUMPKIN starts at base of flower.

At the bottom of the pistil are tiny egg cells called **OVULES**.

Male Flowers are on a stem that is fairly thin and shoots up several inches to a foot above the vine. The center stamen contains the pollen. Pollen is mature if it readily comes off the stamen and onto your finger. There are usually several male flowers for every female flower. Male flowers usually bloom 1-2 weeks before female flowers.

Female flowers are easily identified. A tiny baby pumpkin is located between the stem and the flower. The female flower will be close to the vine and the stem will only be a couple of inches long. In the center is a multi segmented stigma which must be pollinated in order for the fruit to develop.



PUMPKIN VARIETIES:

Baby Pam Sugar Pie, Dickinson Field, Lumina, Howden, Baby Bear, New England Pie, Jack-Be-Little, Big Tom, Connecticut Field, Baby Boo, Big Max, Prizewinner

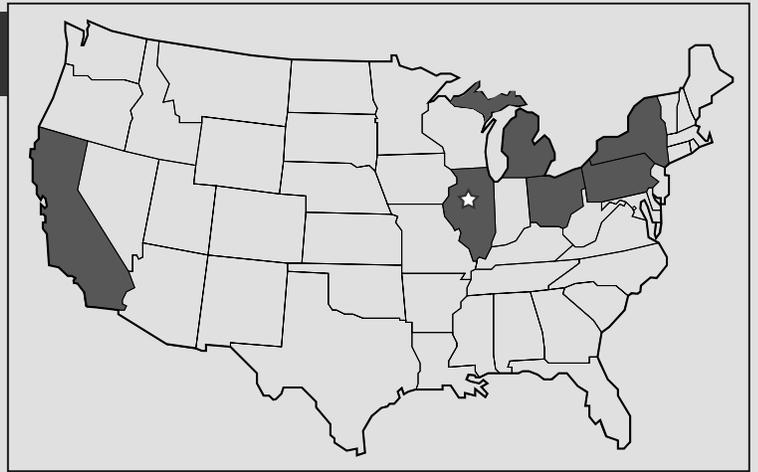
UNITED STATES PUMPKIN PRODUCTION

■ Top pumpkin producing states

- Illinois
- California
- New York
- Ohio
- Pennsylvania
- Michigan

☆ Pumpkin Capital of the World

- Morton, Illinois



PUMPKIN HISTORY

The word pumpkin originated from the Greek word *Pepōn*, which means large melon. The word gradually morphed by the French, English and then Americans into the word "pumpkin." Pumpkins are believed to have originated in Central America. Seeds from related plants have been found in Mexico, dating back over 7,000 years. These early pumpkins were not the traditional round orange upright Jack-O-Lantern fruit we think of today when you hear the word pumpkin. They were a crooked neck variety which stored well.

Variations of squash and pumpkins were grown along river and creek banks, along with sunflowers and beans. This took place long before maize (corn) was grown. After maize was introduced, ancient farmers learned to grow squash with maize and beans using the "Three Sisters" tradition.

They planted three crops together in one spot: pumpkins, corn and beans. The "Three Sisters," or plants, worked together. The corn stalk grew sturdy and supported the bean plant that grew and twisted around the stalk. The bean plant added nitrogen to the soil that helped the corn plant grow. The pumpkins provided a ground cover of shade that helped the soil stay moist.

The early Native Americans roasted pumpkin strips over campfires and used them as a food source. Pumpkins helped them make it through long cold winters. Native Americans used the sweet flesh in numerous ways: roasted, baked, parched, boiled and dried. They ate pumpkin seeds and also used them as a medicine. Pumpkin blossoms were added to stews. Dried pumpkin could also be stored and ground into flour. Dried shells were used as bowls and containers to

store grain, beans and seeds. The pumpkin flesh was dried and pounded into strips, and woven into mats which they used for trading purposes.

Native Americans introduced pumpkins and squashes to the Pilgrims. Pumpkins were an important food source for the Pilgrims. Pumpkins stored well, which meant they provided a nutritious food source during the winter months. It is documented that pumpkins were served at the second Thanksgiving celebration. The Pilgrims cut the top off of a pumpkin, scooped the seeds out, and filled the cavity with cream, honey, eggs and spices. They placed the top back on and carefully buried it in the hot ashes of a cooking fire. When finished cooking, they scooped the contents out along with the cooked flesh of the shell like a custard.

DID YOU KNOW?

It is said that Columbus carried pumpkin seeds back with him to Europe. There, they were used to feed pigs, but not as a human food source.

In early colonies, pumpkin shells were used as a template for haircuts to ensure a round and uniform finished cut. As a result

of this practice, New Englanders were sometimes nicknamed "pumpkinheads."

Pumpkins are low in calories, fat and sodium and high in fiber. They are good sources of Vitamin A, Vitamin B, potassium, protein and iron.

The heaviest pumpkin on record weighed 1,810 pounds, 8 ounces and measured 15 feet 6 inches in circumference.

Morton, Illinois is the Pumpkin Capital of the World. It is home of Libby's Pumpkin and over 80% of the world's canned pumpkin is processed there.

PUMPKIN

CAREERS: Pumpkin Grower, Entomologist, Plant Pathologist, Processor, Industrial Hygienist, Truck Driver, Soil Scientist, Marketer, Food Safety Inspector, Irrigation Specialist

SPOTLIGHT ON CAREERS:

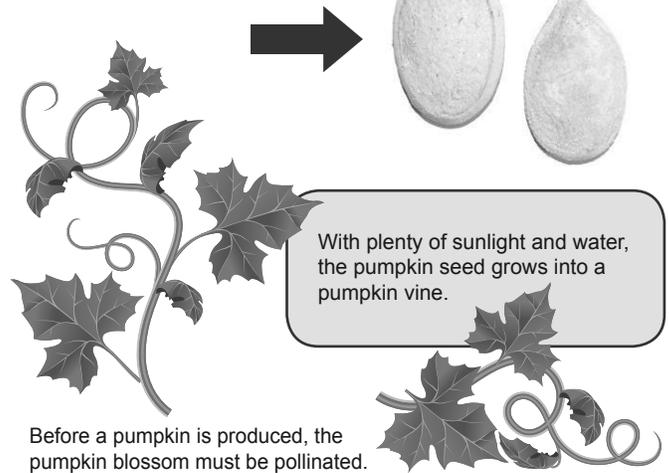
PLANT PATHOLOGIST — A **plant pathologist** studies plant diseases caused by both environmental conditions and infectious diseases. These infectious diseases are caused by organisms such as fungi, bacteria, and viruses. Plant pathologists also study identification of diseases, disease cycles, economic impact, plant disease resistance, how plant diseases affect humans and animals and how to manage them.

INDUSTRIAL HYGIENIST — The goal of an **industrial hygienist** is to keep workers, their families, and the community healthy and safe. They play a vital part in ensuring that federal, state, and local laws and regulations are followed in the work environment. Hygienists train and educate the community about job-related risks such as indoor air quality and emergency response planning.



PUMPKIN PATH

All pumpkins start out as seeds.



Once the blossom has been pollinated, a small green pumpkin forms, which will turn into the orange pumpkin to be harvested.



After the pumpkins are harvested, they are taken to the processing plant where they are washed, mashed, cooked and canned.

PUMPKIN FUN FACTS:

The largest pumpkin pie ever baked was in 2005 and weighed 2,020 pounds and measured 12 feet 1 inch long.

“The Big 10 Inch,” a pumpkin cannon, launched a 9 pound 12 ounce LaEstrella pumpkin 5,545.42 feet—that’s 1.05 miles. That is the farthest launch on record.

Pumpkins are 90% water.

SCIENCE AT HOME

PUMPKIN PATCH PIE

Materials:

1 gallon Ziploc® freezer bag	½ teaspoon ground ginger
2 2/3 cups cold milk	Graham cracker crumbs
1 can (15 ounces) solid-pack pumpkin	25 small cups
2 packages (4 serving size) instant vanilla pudding mix	25 spoons
1 teaspoon ground cinnamon	1 can whipped topping
	scissors

Directions:

1. Combine the milk and instant pudding in the Ziploc® bag.
2. Remove the air and zip shut.
3. Squeeze and knead with hands until blended for 1 minute.
4. Add the pumpkin, cinnamon, and ginger.
5. Remove the air and zip shut.
6. Squeeze and knead with hands until blended for 2 minutes.
7. Place 1/2 tablespoon of graham cracker crumbs in the bottom of small cups.
8. Cut corner of gallon freezer bag and squeeze pie filling into cups.
9. Garnish with 1 can whipped topping.
10. Add a spoon. Serve and enjoy.
11. Discuss pumpkin production while students are eating.

Yield - 25 students and 1 teacher.

Ingredients can be divided by 4 or 5 for students to work in small groups.

UNITED STATES PUMPKIN PRODUCTION

	2011	2010	2009	2008	2007
Acres Harvested	47,300	48,500	44,100	43,400	45,900
Acres Planted	51,300	50,200	47,700	45,600	49,300
Production Measured in \$	113,178,000	117,791,000	102,730,000	137,072,000	123,519,000
Production Measured in lbs.	1,071,300,000	1,074,800,000	931,300,000	1,066,300,000	1,145,800,000
Yield—Measured in lbs/acre	22,600	22,200	21,100	24,600	25,000

Source: USDA National Agricultural Statistics Service



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