



## 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 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 five to ten 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.



   
**#1**  
**in Pumpkins**

Illinois farmers grow more pumpkins than anywhere else in the world! In fact, they grow 90-95% of the pumpkins used for processing. Most of that processing takes place in **Morton, Illinois** – The Pumpkin Capital of the World.

 **Did you know...**

Pumpkins are good for your body. The filling is rich in vitamin A and potassium. The seeds are full of protein and iron.





**Pumpkin Blossom:** Pumpkins grow on a vine. Through pollination, they start by growing inside a flower. Insects help pollinate pumpkin blossoms.



**Mid Season Pumpkin:** After pollination, a tiny green pumpkin starts to grow at the base of the flower. Over time, this bud grows in size and changes in color from green to yellow, and finally to orange.



**Mature Pumpkin:** Pumpkins are harvested when they are a deep, solid orange color and the rind is hard.

# Pumpkins and American History

Long before the discovery of corn, Native Americans used pumpkins to help them through long winters. Over the centuries, they found many ways to enjoy the sweet inner meat of the nutritious pumpkin. They baked, boiled, roasted, fried, parched, or dried it. They added pumpkin blossoms to soups, turned dried pumpkin pieces into rich flour, and munched on the seeds as a tasty snack.

Native Americans developed a way to grow pumpkins, called “Three Sisters.” They planted three crops: corn, beans and pumpkins together in one place. The “Three Sisters” or plants worked together. The corn stock grew sturdy and supported the bean plant that grew and twisted around the stock. 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 “Three Sisters” method is just one example of the contributions Native Americans made to agriculture. What are other ways that Native Americans contributed to agriculture?



Three Sisters as featured on the reverse of the 2009 Native American U.S. dollar coin.



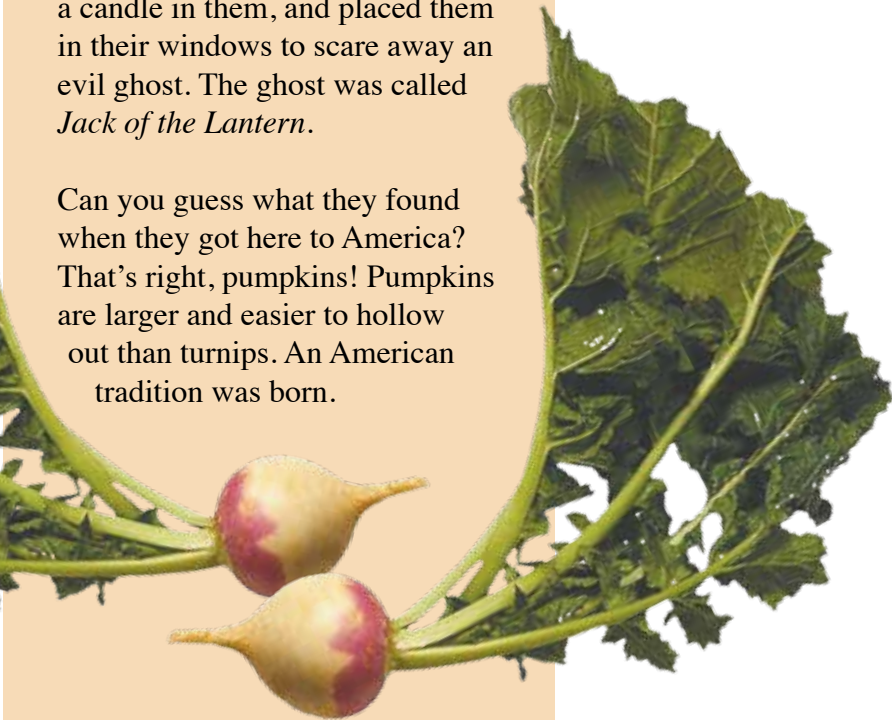
# Pumpkins and Halloween

## Are Turnips Scary?

Have you ever carved a face into a pumpkin? Do you know how this tradition got started?

Jack-o-lanterns started centuries ago in Ireland. People carved frightening faces into turnips, put a candle in them, and placed them in their windows to scare away an evil ghost. The ghost was called *Jack of the Lantern*.

Can you guess what they found when they got here to America? That's right, pumpkins! Pumpkins are larger and easier to hollow out than turnips. An American tradition was born.



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

- Pumpkins Are:**
- Low Calorie
  - Low Fat
  - Low Sodium
  - High Fiber
  - Vitamin A
  - Vitamin B
  - Potassium
  - High in Protein
  - High in Iron

# Pumpkin...

## It Does a Body Good

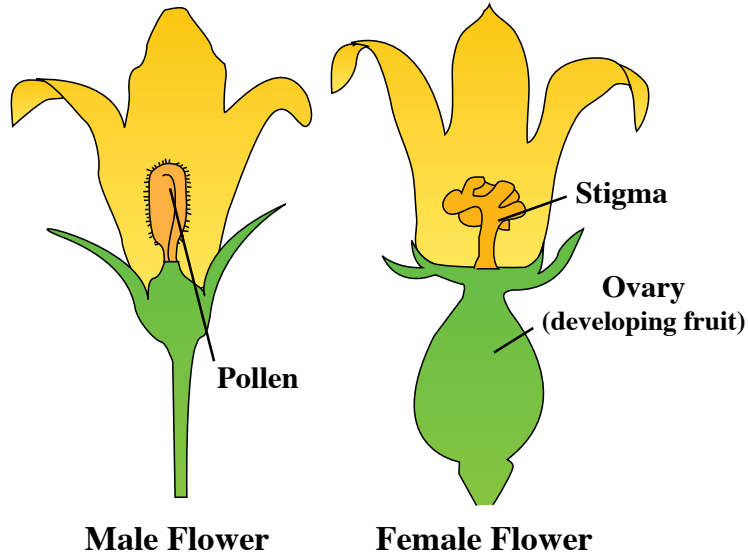
The bright orange color of pumpkins is your first clue that it is full of one important antioxidant, beta-carotene. Beta-carotene can be found in orange fruits and vegetables such as pumpkins, carrots and yams. It can also be found in leafy green vegetables like spinach. It is converted to vitamin A in the body, which helps with bone and cell development and also helps promote healthy eyesight. Current research shows that foods containing beta-carotene may help reduce the risk of developing certain types of cancer and can also help protect against heart disease and some aspects of aging.

Not only is pumpkin loaded with vitamin A and antioxidant carotenoids, it's a good source of vitamins C, K, and E, and lots of minerals, including magnesium, potassium, and iron.

You don't have to go far to get pumpkin in your daily diet. Visit your local farmer's market, or the over 500 pumpkin patches here in Illinois! Those healthy vitamins and minerals can even be found in your pumpkin pie at Thanksgiving, pumpkin muffins and pumpkin bread. Remember, when looking for healthy fruits and vegetables, buy local and buy fresh!



# Pumpkins and Farming



## Where Do Pumpkins Come From?

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.



## Farmers Make New Kinds of Pumpkins

Sometimes pollen comes from a flower on a different pumpkin plant. This is called **CROSS-POLLINATION**. Cross-pollination can be harmful to some plants, but it is good for pumpkins. It can make them healthier and tastier.

Sometimes farmers cross-pollinate pumpkins on purpose to create a brand new kind of pumpkin. If a farmer takes pollen from a small yellow pumpkin and puts it on the flower of a large orange pumpkin, it might make a pumpkin that has seeds for a small orange pumpkin.

Different types of pumpkins are called **VARIETIES**. You probably see many varieties around Halloween. Some are small, colorful, and good for decorations. Some taste sweet and are good for pies. One variety is even white! It makes a neat ghost-looking jack-o-lantern.



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."



The heaviest pumpkin on record weighed over a ton at 2,009 pounds. This mammoth gourd was grown by Ron Wallace of Greene, Rhode Island.

# How Bees Help Pumpkins Grow

Before a pumpkin can begin to grow inside the female flower, a grain of pollen from the male flower must land on the stigma at the top of the pistil. This is called POLLINATION. Pollination can happen in different ways. Wind can blow pollen from flower to flower. Insects like bees and beetles help pollinate pumpkins too. As they search for food, pollen rubs onto their legs and bodies. Without even knowing it, they pick up pollen from one flower and leave it on another flower.

If pollen from the male flower lands on the pistil of the female flower, a long tube grows through the pistil into an ovule. This is the beginning of a seed. As the seed grows bigger, a pod grows around it to protect it. This pod is the pumpkin shell.



The pumpkin will continue to grow until it is harvest time.

# Pumpkins and Science



Different varieties of pumpkins have different looks, sizes, tastes, and even numbers of seeds. These differences are called GENETIC TRAITS. Did you know that some scientists look for and keep track of these traits as a job? Do you think that would be a good job for you? Wait, before you answer, you should pretend to be a scientist.

**Examine a pumpkin and record your results.**

Pick up the pumpkin. How much do you think it weighs?

\_\_\_\_\_

Weigh the pumpkin. How much does it really weigh? \_\_\_\_\_

Who in the class has the closest guess? \_\_\_\_\_

Who in the class has the farthest away guess? \_\_\_\_\_

How big do you think the pumpkin is around the middle? \_\_\_\_\_

Take a tape measure and measure the pumpkin's middle. The length of this circle around the pumpkin is called the CIRCUMFERENCE. What is the circumference measurement? \_\_\_\_\_

How many seeds do you think are inside the pumpkin? \_\_\_\_\_

Open the pumpkin up, pull out the seeds and count them. How many seeds were really in there? \_\_\_\_\_

How many students in your class guessed more than the actual number of seeds? \_\_\_\_\_

How many students guessed less than the actual number? \_\_\_\_\_

# Career Corner

## Mohammad Babadoost

Department of Crop Sciences  
University of Illinois  
Urbana-Champaign



### Tell us about your job.

I work in plant pathology, where my primary role is to identify extension needs for vegetable and fruit crops disease management, and to develop research programs that provide effective disease management. My research programs help extension specialists, commercial growers, and the home gardener. I also teach a course on "Plant Disease Diagnosis."

### How did you develop this interest in fruits and vegetables?

I grew up in a farming community with diverse vegetable and fruit production. After receiving my Ph.D. degree, I continued to conduct research on and teach vegetable and fruit pathology.

### What is your favorite part of your job?

The favorite part of my job is problem-solving. I get to use my experience to find a reasonable solution for disease problems of vegetable and fruit crops.



## Mac Condill

The Great Pumpkin Patch  
Agri-Tourism Destination  
Arthur, IL



### Tell us about your farm and business.

The family farm is 153 years old. Six generations have worked the farm. I am a 5th generation farmer. My family began the business of growing pumpkins, squash and gourds in 1989. The Great Pumpkin Patch will be celebrating its 25th year in 2013! We have 400 varieties of squash, pumpkins and gourds representing six of the seven continents. These include red pumpkins from France, blue pumpkins from Australia, black pumpkins from Japan, and white pumpkins from South Africa. In 2012, 50,000 individuals visited the Great Pumpkin Patch from September 15-October 31.

### Pumpkins have taken you far beyond your farm. What exciting adventures have you been on with pumpkins?

In 2010, I decorated for the national trick-or-treating event at the White House. I have also been on the Martha Stewart TV Show three times in the past 7 years. I have made displays at the National Heirloom Expo as well as a display of the world's largest pumpkin tower in California.

### What is your favorite part of your job?

I love growing things! I also love providing the opportunity for people to connect to agriculture by walking on the grass, playing in the hay, and picking their own pumpkins.

### How did you get involved in agriculture?

I grew up with agriculture all around me. My parents were corn and soybean farmers. When I was only 13, we got into the business of pumpkins, squash and gourds. I have always loved gardening and learned a lot about gardening from my grandparents.

# Career Corner

## Noreen Dollinger

Dollinger Family Farm  
Channahon, IL



### Tell us about your farm.

Not only do we farm pumpkins, we also farm corn, soybeans, hay, cattle and wheat. Our farm has been in the family since 1852. It is busy on the farm, with everyone doing his own special job to make it work. We get to work outside and see things grow. A pumpkin is fun to watch, because sometimes it grows very fast. We also started our pumpkin farm to give our kids an idea of how the business world works. We wanted our children to be involved in the entire process of developing and selling a product.

### Where do you get your pumpkin seeds for planting?

We order seeds from several commercial seed companies. Pumpkins come in all kinds of shapes and sizes and there is a different seed for each kind. Some pumpkins are extra large. Some pumpkins have a higher sugar content for making pies. Some pumpkins are tall and skinny. Some are more resistant to disease than others. It is good to read and learn every day about the new kinds of seeds that are available. We like to grow a lot of different kinds to give people many choices for their perfect pumpkin.

### What special skills do you need to farm pumpkins?

A pumpkin farmer needs to know about science and math. A pumpkin farmer needs to know a lot about the soil. He needs to be able to identify bugs and plant diseases, and to watch the weather and understand how it will affect his crop. A pumpkin farmer needs to know about math. How big is your field? How much seed will you need? How much fertilizer should you use? How long will it take to do the job? We use our math skills every day.

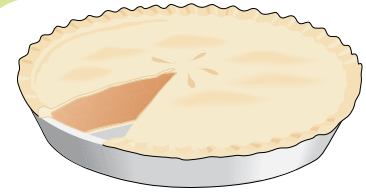
### How do you harvest your pumpkins?

We still harvest our pumpkins by hand. It takes a lot of work to carefully cut each stem from the vine. We only pick the most perfect pumpkins to bring in from the field. We load them up on wagons and then carefully unload them so they are ready for families to select.

## Did you know...



The largest pumpkin pie ever was baked on September 25, 2010, and weighed in at 3,699 pounds! It was 20 feet in diameter. The pie was made with 1,212 pounds of canned pumpkin, 233 dozen eggs, 109 gallons of evaporated milk, 525 pounds of sugar, 7 pounds of salt, 14.5 pounds of cinnamon and 3 pounds of pumpkin pie spice.



# Many Ways to Make Pumpkin Pie

Early American settlers used to make pumpkin pie inside of the pumpkin shell. First, they sliced off the pumpkin's top. Then they removed seeds and filled the insides with milk, spices, and honey. It was baked in hot ashes of a fireplace. It didn't look like the kind of pie that you get at Thanksgiving, but it was still yummy. You can make your own special pumpkin pie too. Just follow this recipe.



This Ag Mag has been provided by the IAA Foundation



To learn more about Agriculture, visit us at [www.agintheclassroom.org](http://www.agintheclassroom.org), or contact your County Farm Bureau® office or Illinois Agriculture in the Classroom, Illinois Farm Bureau®, 1701 Towanda Avenue, Bloomington, IL 61701.

## What You Need to Have

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

## What You Need to Do

1. Combine the milk and instant pudding in the Ziploc bag.
2. Remove the air and Ziploc it shut.
3. Squeeze and knead with hands until blended for 1 minute.
4. Add the pumpkin, cinnamon, and ginger.
5. Remove the air and Ziploc it 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 freezer bag and squeeze pie filling into cups.
9. Garnish with whipped topping.
10. Add a spoon. Eat up!

**Information in this Ag Mag may be linked to the following Common Core and Next Generation Science Standards:**

**Common Core Standards:** ELA-Literacy.RI.4.1; ELA-Literacy.RI.4.3; ELA-Literacy.RI.4.5; ELA-Literacy.RI.4.7; ELA-Literacy.L.4.3; Math.Content.4.MD.A.1; Math.Content.4.MD.A.2; Math.Content.4.MD.A.3; Math.Content.4.NBT.B.4  
**Next Generation Science Standards:** 3-LS4-3; 3-LS4.C; 3-LS4-4; 3-LS1-1; 3-LS1.B; 3-LS3-2; 3-LS3.B; 4-LS1-1 4-LS1.A