

# Pumpkins in the Primary Classroom

*Lesson ideas from the New Jersey Agricultural Society  
Learning Through Gardening program*

Pumpkins are definitely not just for Halloween. These vibrant-colored squash that are a symbol of autumn can be used in a wide array of pumpkin-related curriculum with links to math, science, language arts, and social studies. Take advantage of the ubiquitous fall vegetable and bring it into your classroom for a multitude of activities.

## GRADES: PreK-2

### *Pumpkin Math*

If you are able to visit a pumpkin patch with your class and every child brings back a pumpkin, don't send them home immediately. There are many mathematical activities you can do with the pumpkins. Write each child's name in marker on the bottom of his or her pumpkin so that there are no disputes over whose pumpkin is whose. Or if you cannot visit a pumpkin patch, see if a local nursery or farm market will donate a few pumpkins to you – three or four will do – so you can do these activities with your class.



1) *Which Weighs More:* For this activity you'll need a scale to weigh the pumpkins. Prepare a class graph that can be used to record the information gathered during this lesson, and some cards reading 1 pound, 2 pounds, 3 pounds, and so on, going as high as necessary for your particular collection of pumpkins. Spread these cards on the floor during the weighing.

Arrange the pumpkins by size order in a straight line. When they are all arranged, ask the children, "Which pumpkin do you think weighs more, the first pumpkin or the last pumpkin?" Note: The height of pumpkins does not necessarily correlate with weight. Some children may assume that the biggest pumpkin will weigh the most. Cutting open some pumpkins to examine the differences INSIDE will help the children account for this apparent paradox, but only do this if you have extra pumpkins. Each child will want to take home a complete pumpkin. Tell the children to make an estimate of which pumpkin would weigh more, then weigh the two pumpkins.

After weighing a few of the pumpkins, when the children have an idea of what a one-, two-, or three-pound pumpkin feels and looks like, have them one at a time, pick up their own pumpkins, make a guess/estimate of its weight, and then actually weigh it. Read the scale with each child and then direct him or her to put the pumpkin behind the correct weight card on the floor. Continue this process until all children have placed their pumpkins on the floor graph showing the weight of their pumpkins.

When the floor graph is complete, ask the children questions about it, such as: Do we have more pumpkins that weigh 1 pound or 2 pounds? How many pumpkins weigh 3 pounds? Are there any pumpkins that weigh 4 pounds? Be creative when asking these questions. Encourage the children to ask their own questions about the data on the graph. Children can record the information from the pumpkin floor graph to make individual graphs to take home and share with parents.

2) *The Great Pumpkin Line-Up:* This activity reinforces the concept of shortest to tallest. Before the children begin this activity you will need to create a line on the rug with chalk or masking tape. Have the children bring their pumpkins to a group meeting. Explain to the children that they will be placing their pumpkins on the line according to height. If you are working with children who are in kindergarten or first grade you may want to use some children to visually explain what you are asking.

Start by having one child place the pumpkin on the line, and then ask the next child to bring up her pumpkin and measure to see if it is shorter or taller. Continue this process until all the children have had an opportunity to place their pumpkins in the correct position on the line. You could count the pumpkins using ordinal numbers to reinforce the use of these numbers.

3) *Attribute and Comparison Graphs:* Ask the students to sit on the rug in a circle and place all the pumpkins in the center of the group. During this activity you'll be trying to elicit as many different categories or attributes for the pumpkins as possible. These should be recorded on chart paper or in any spot where they can easily be seen. Start the discussion by encouraging the children to compare the likenesses and differences of the pumpkins such as size, shape, type of stem, texture, color, and weight. Over a period of days, select a different attribute each day to graph using picture graphs, bar graphs, or even post-it notes.

4) *How Big Around is My Pumpkin?* This activity engages the children in estimating the circumference of their pumpkins. It is easiest to explain the circumference as the distance around the fullest part of a pumpkin, like putting a belt around the pumpkin. Prepare a graph for use with this activity with columns labeled "too long," "too short," and "just right." For each student you will need a small square or sticker to put up in the correct category. Or use a standard pocket chart with name cards or pumpkin cut-outs for recording the graph.

Provide pairs of students with lengths of string and scissors. Each child guesses how much string it will take to go around the circumference of the pumpkin and then cuts the string to that length. Then they "try on" their string around the pumpkin's middle to see how close their estimate comes. Each student has a turn to record the outcome of his estimate on the class graph. A good follow-up for class or home is to challenge the students to find five things that are as long as their pumpkin was around.

5) *Additional Experience with Estimation and Graphing:* Children will enjoy estimating and graphing the number of vertical lines on a large pumpkin or the number of seeds within. Children can write their guesses on a small post-it, and arrange them on a graph in categories such as: 0-5 lines, 6-10 lines, etc. or 25-50 seeds, 51-100 seeds, etc. Allow plenty of time for questions: Which number category was chosen most? Least? Were there any number categories not chosen at all? How many more/fewer children chose 0-5 lines than 6-10 lines?

6) *Story Problems:* Challenge your young mathematicians by presenting them with some pumpkin facts to incorporate into original word problems they can write together in cooperative groups. Some suggested facts: a) Pumpkins grow on vines that sometimes reach 100 feet long. b) Pumpkins are planted in little hills, with three seeds to a hill. c) Seed hills are 6 to 8 feet apart. d) Each vine produces 2 to 3 pumpkins. e) Most pumpkins weigh 10 to 40 pounds each and measure 1 to 2 feet in diameter.

7) *Rolling Pumpkins:* Find a piece of wood or plexiglass big enough for two pumpkins to roll down. Perhaps the custodian at your school can help with this. (Or use a small hill outside if your schoolyard has one.) Place one end of the piece of wood on a box to make a slant. Show the students two pumpkins and tell them you are going to roll two pumpkins down the ramp at the same time.

Ask students to predict which pumpkin will roll the fastest and farthest. Set two pumpkins at the top of the ramp with two students holding them. Count to three so both children release their pumpkins at the same time. Observe which pumpkin rolls fastest and farthest. Ask students why they think this happened. Measure the distances each pumpkin rolled. If students have individual pumpkins picked at a pumpkin patch, you can have a class race to determine which pumpkin can roll the farthest.

#### New Jersey Learning Standards

*Math: PreK: 4.1, 3, 4      K.CC.C, K.MD      1.MD.A,C, 1.G.1      2.MD.A.B.D*

#### *Pumpkin Language Arts*

There is an abundance of wonderful children's literature about pumpkins, both fiction and nonfiction, enough to allow you to read a different book each day of your pumpkin unit. Some of these include:

*How Many Seeds in a Pumpkin?* by Margaret McNamara Here is an adorable picture book for curious kids, which explores skip counting and estimation in a fun pumpkin-themed classroom experiment. "How many seeds are in a pumpkin?" Mr. Tiffin asks his class. The children all have different guesses but the answer surprises them all.

*From Seed to Pumpkin*, by Wendy Pfeffer With clear text and detailed, colorful illustrations, this book explains what a pumpkin seed needs to help it grow. This book also includes delicious pumpkin recipes and easy experiments to do with pumpkin seeds.

*The Runaway Pumpkin*, by Kevin Lewis A bumpin' thumpin' rhyming picture book about the delicious fate of a gigantic pumpkin on the run.

*Big Pumpkin*, by Erica Silverman The witch has grown the biggest pumpkin ever, and now she wants to make herself a pumpkin pie for Halloween. But the pumpkin is so big she can't get it off the vine.

*Pumpkin Circle: The Story of a Garden*, by George Levenson We can be sure of this: It's a circle without end. We go from pumpkin seeds to pumpkins to pumpkin seeds again. An author's note explains how to grow your own pumpkin.

*Pumpkin Jack*, by Will Hubbell The first pumpkin Tim ever carved was fierce and funny, and he named it Jack. When Halloween was over and the pumpkin was beginning to rot, Tim set it out in the garden and throughout the weeks he watched it change.

*It's Pumpkin Day, Mouse*, by Laura Numeroff. Join Mouse from *If You Give a Mouse a Cookie* as he decorates all the pumpkins in the patch!

*Too Many Pumpkins*, by Linda White. With countless unwelcome pumpkins to deal with, Rebecca Estelle turns disaster into a celebration.

*Pumpkin Soup*, by Helen Cooper Three friends make their pumpkin soup the same way every day. The Cat slices up the pumpkin, the Squirrel stirs in the water, and the Duck tips in just enough salt. But one day the Duck wants to stir instead, and then there is a horrible squabble.

*Pumpkin Pumpkin*, by Jeanne Titherington Jamie plants a pumpkin seed in the spring, and after watching it grow all summer, carves a face in it for Halloween! But best of all, he saves some seeds that he will plant again next spring.

*The Biggest Pumpkin Ever*, by Steven Kroll. Two mice, Desmond and Clayton, must work together to win the Biggest Pumpkin competition.

*The Pumpkin Book*, by Gail Gibbons. How they grow, their traditional uses.

### New Jersey Learning Standards

English Language Arts: PreK: RL.PK.1, 2, 4, 7      K:RL.K.1-10      1:RL.1.1-4,6  
2:RL.2.1-7

### *Pumpkin Science*

1) *Science Journals*: The presence of a collection of pumpkins in your classroom provides numerous opportunities to increase observational skills and promote some important scientific concepts. During your visit to the pumpkin patch, have each child select his or her own pumpkin – one that has personality from the



child's perspective, but one that he or she can carry around without too much trouble. If a trip isn't possible this year, try to have each child bring a pumpkin to class or solicit donations from a local merchant or farmer. If each child is not able to have his or her own pumpkin, a few pumpkins – three or four – can be used for class observation and activities.

Have the children scrutinize their own pumpkins carefully and then write as many descriptive sentences about the pumpkin as they can in their science journals. You might want to model some simple descriptive sentences for very young writers to use as a guide. Once their journals reflect thorough observations of their own specimen, allow for some switching with classmates to note likenesses and differences.

2) *The Great Pumpkin Race*: After a few sessions of pumpkin journal writing, your students will be captivated by "The Great Pumpkin Race," an experiment to see which pumpkin will decompose faster: one in a cool, dark spot or one in a warm, bright area. Use extra pumpkins for this experiment and not the students' personal pumpkins. Discuss predictions with the class, then give students a chance to record their observations of the pumpkins and to write their predictions in their journals. They can then use their journals regularly to record their observations of the pumpkins as they check them on a weekly basis for changes.

Keep each decomposing pumpkin in an aquarium or other large glass container, tightly sealed with plastic wrap and duct tape. This eliminates the odor, allowing you to keep the pumpkins quite a long time, while permitting the children full view of the changes. Or you can keep your decomposing pumpkin outdoors and visit it once a week.

#### New Jersey Learning Standards

Science: PreK: 5.1.1-5, 5.3.1-4      K.LS1.C      1.LS1.A      2.LS2.A

#### *Pumpkin Health*

1. *Faces and Feelings*: This activity takes a different slant on the omnipresent October Jack O'Lantern, helping students become aware of some of the feelings and emotions expressed through facial expressions. You'll need a supply of photocopied blank pumpkin shapes, mirrors, and some of your favorite poems or books about feelings and emotions. Read the stories and poems showing the appropriate facial expressions as you read. Distribute mirrors and have the children make faces for different feelings that you call out. Discuss when we may experience these different feelings. Let your students help you brainstorm a list of emotions one's face can portray: happy, sad, sleepy, mad, scared, surprised, etc. Students can illustrate a variety of pumpkin faces to show the range of emotions we all feel. Such illustrations could be the focal point of a group-written big book on feelings.

#### New Jersey Learning Standards

Social/Emotional Development: PreK: 0.3.1

**3. Pumpkin Parents:** Remember hearing about those family studies classes where students learn about the responsibilities of parenting by caring for a raw egg? Teach the same concepts of responsibility with pumpkins by having each of your students be the 'parent' of a pumpkin for a day. Bring small pumpkins to class and give one to each child. Children name their pumpkins, assign personal traits to them, and paint features on them. During the day, it's each child's responsibility to care for his or her pumpkin at all times (No pumpkin-sitters allowed!) . The best part of this activity will be the ongoing discussion among the proud parents all day long. A video camera or camera is a must on Pumpkin Parent Day.

New Jersey Learning Standards

Health: K-2: 2.1.4.E.1, 2.4.2.A.2

Social Studies: PreK: 6.1.2

*Pumpkin Trivia:*

Primary-level students who are ready for an introduction to beginning research may enjoy looking for the answer to these questions in your classroom or school library. These questions also can make a terrific "Family Homework" research activity: a) What is the largest pumpkin on record? b) What is the difference between a pumpkin and a squash? c) Copy a poem about pumpkins. d) Find a book with the word 'pumpkin' in the title. e) How long does it take a pumpkin seed to germinate? f) What vitamins are found in pumpkins? g) What are the top pumpkin-producing states in the U.S.? h) What is the origin of the word "pumpkin?"



Name \_\_\_\_\_

## Our Pumpkin Data Sheet

How Many?	Our Guess	Real Answer
Grooves		
Ribs		
Circumference (inches around)		
Diameter (inches around)		
Height (inches high)		
Do you think your pumpkin will float?		
Number of seeds		
Weight (pounds)		