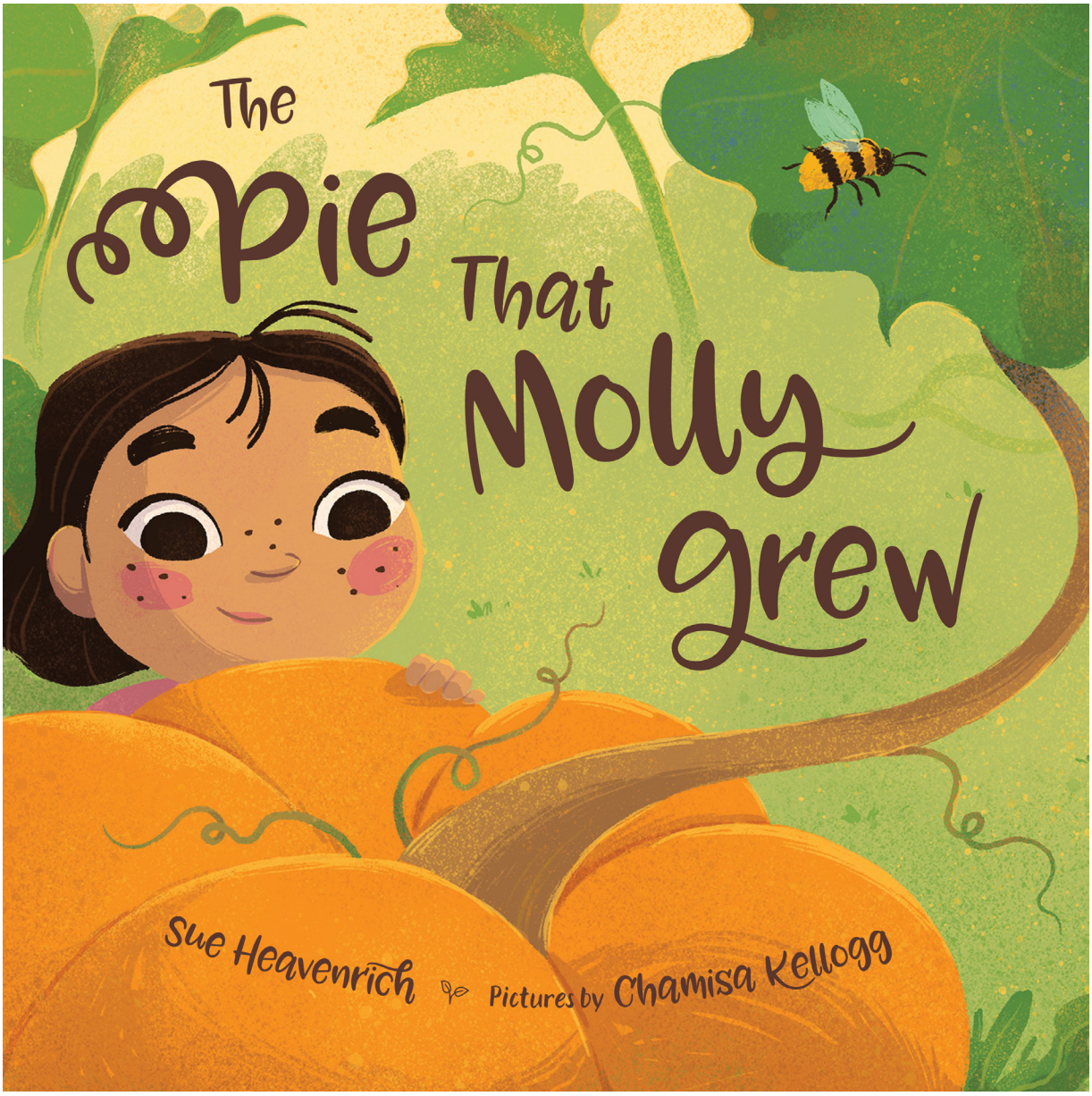
Indiana Farm Bureau®
Agriculture in the Classroom



2026 BOOK OF THE YEAR
EDUCATOR GUIDE

Indiana Farm Bureau®
Agriculture in the Classroom

Pumpkin Predictions

MATERIALS:

- Samples of pumpkins of different size, shape and color
- Pumpkin varieties flash cards
- Pumpkins, 1 per group
- String, rulers and scale (for weighing pumpkins; a bathroom scale will work)

DIRECTIONS:

1. Ask students to draw a picture of what they think a pumpkin looks like. Hold their pictures up and see how many just think it is an orange round with stem on top. Show samples of different pumpkins and how they come in different shapes, colors, sizes, etc.
   - Use the attached pumpkin varieties flash cards to show pictures of many varieties of pumpkin.
2. Divide the class into groups of four. Provide each group with a pumpkin (do your best to get pumpkins that are quite different from one another).
3. Ask the groups to estimate the height, diameter and weight of their pumpkin.
   - OPTIONAL: Have students draw a chart similar to the example below to make their predictions, then collect their data.

	Height (inches)	**Diameter (inches)**	**Weight (pounds)**
Estimate			
Data Collected			

4. Ask students to guess which group has the largest pumpkin. Which pumpkin weighs the most? Do they think the largest pumpkin will weigh the most? Will the smallest pumpkin weigh the least? Which two pumpkins are the closest in size? Which two pumpkins are the closest in weight?
5. Next, provide each group with a ruler, some string (for measuring the diameter), and access to a scale (a bathroom scale will work). Ask each group to weigh and measure their pumpkin.

   - TIP: It would be helpful for the instructor to demonstrate the steps required to measure the height, diameter and weight. Depending on the age group, it may also be helpful for the whole class to focus on one type of measurement at a time. For example, the instructor would show the class how to use the measuring tape to find the height. Then the groups would measure the height and record the measurement on their table. Then the instructor would demonstrate the next type of measurement.
6. Were their predictions correct? As a class, discuss the data collected.

Pumpkin Varieties Flash Cards

CINDERELLA

BABY BOO

GALEAUX D EYSINES

Pumpkin Varieties Flash Cards

FULL MOON

ATLANTIC GIANT

LIL PUMPKEMON

Pumpkin Varieties Flash Cards

FAIRYTALE

ORANGE SMOOTHIE

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Pumpkin Peddler

MATERIALS:

- Pumpkin Peddlers activity sheet
- Newspaper
- Knife
- Plastic cups, 10 per group
- Resealable bags, 1 per group
- Large spoons

DIRECTIONS:

1. Hand out the activity sheet Pumpkin Peddlers to each student, and pass out 10 cups and one resealable bag to each group.
2. Using the activity sheet, have each group record a reasonable price for the pumpkin and their estimate of how many seeds the pumpkin will contain.
3. Place newspapers underneath each pumpkin and cut off the tops of the pumpkins so that students can dig out the seeds. You may want to provide metal spoons for this. Students should take turns digging out the seeds. As the seeds are removed, other students in the group should clean off the fibers, dry the seeds using a paper towel, and then begin to fill the paper cups with groups of ten. When all ten cups are filled, pour the 100 seeds into a resealable bag, keeping a tally of how many hundreds are emptied into the bag.
4. Were their predictions accurate? Did larger pumpkins have more seeds than smaller pumpkins? Did weight have an influence on the number of seeds? You may want to graph the results of each group's seed count.
5. Discuss how many pumpkins could be grown from one pumpkin. Help students fill in the rest of their worksheet by calculating how much money their pumpkin could generate by multiplying the price they would sell their pumpkins for by how many seeds were in it.

Name: _____

Pumpkin Peddlers

Figure out your pumpkin profit! Answer the following questions to calculate how much your group could earn from growing and selling pumpkins.

1. The price of our pumpkin was $_____.

2. We estimate that our pumpkin has _____ seeds in it.

Now clean out the pumpkin, and place ten seeds in each cup. When all cups have been filled, empty them into the bag. Continue until all seeds have been counted. If you have to empty seeds into the bag more than once, keep tally of how many hundreds you have.

3. How many seeds did your group put in the bag? _____

4. Our pumpkin had _____ seeds in it.

5. We could grow _____ pumpkins from this one pumpkin!

6. The price we would charge for one pumpkin is $_____.

7. How much money would your group make if you sold all of the pumpkins? (Hint: multiply the price you would charge by how many pumpkins you could produce.) _____

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Sprouting Pumpkin Seeds

MATERIALS:

- Clear plastic cup (for planting)
- Paper towels
- Cotton balls
- Craft / Popsicle stick

DIRECTIONS:

1. Provide each student in the group with a clear cup, a paper towel, some cotton balls, a craft stick and four pumpkin seeds.
2. Students should tear or cut a three-inch wide strip from the paper towel. This strip should be placed around the inside of the cup. Student should trim the towel if there is a lot of excess so that there is only one layer around the inside.
3. Next, have students fill the center of the cup with cotton balls. Tell them to thoroughly dampen the cotton by setting the cup under a dripping faucet. The cotton will moisten the paper towel. No water should drip to the bottom of the cup.
4. Ask the students to insert the pumpkin seeds between the cup and the paper towel. You can have them place some of the seeds with the pointed end up and some with the pointed end down.
5. Label each cup with the group's name. Set the cups on a sunny windowsill. Instruct the groups to water as necessary and to watch for the seeds to sprout. You may want them to draw how the seedlings look on each day once they sprout and begin to grow.

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Pumpkin Processing

MATERIALS:

- Pumpkin Pie in a Bag instructions and ingredients

DIRECTIONS:

1. Brainstorm with the class all the uses for pumpkins. In addition to carving for Halloween, pumpkins are also processed into various food products such as pumpkin pie, pumpkin cheesecake and more. In fact, the majority of pumpkins grown in the United States are processed into pumpkin puree that is typically canned.
2. Explain to students the difference between a whole, raw food product (like a pumpkin) and a processed food product, such as pumpkin pie or any other food product made from pumpkin. Use the following diagram:

Whole, raw unprocessed food

Pumpkin can be processed into:

3. Use the instructions found in the attached file Pumpkin Pie in a Bag to make pumpkin "pies" for your students.

Pumpkin Pie In A Bag

Making Pumpkin Pie in the Classroom

Materials

Pumpkin Pie In A Bag

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

Oven-baked Pumpkin Pie

- ❑ 3/4 cup granulated sugar
- ❑ 1 teaspoon ground cinnamon
- ❑ 1/2 teaspoon salt
- ❑ 1/2 teaspoon ground ginger
- ❑ 1/4 teaspoon ground cloves
- ❑ 2 large eggs
- ❑ 1 can (15 oz.) pumpkin puree
- ❑ 1 can (12 fl. oz.) evaporated milk
- ❑ 1 unbaked 9-inch (4-cup volume) deep-dish pie shell
- ❑ Whipped cream (optional)

Background

Pumpkins, a squash native to North America, are very popular during Halloween and Thanksgiving. Pumpkins are high in vitamin A and most parts of the pumpkin are edible, including the flesh, the seeds, the leaves, and even the flowers. However we most commonly enjoy the pumpkin flesh cooked and pureed, combine with spices, and made into delicious desserts.

Procedures: No-bake Pumpkin Pie In A Bag

1. In a one-gallon (heavy duty) plastic Ziploc bag, combine the milk and instant pudding mix.
2. Close the bag and knead it with your fingers until the ingredients are completely blended—usually around one minute.
3. Add the pumpkin, cinnamon, and ginger and then reseal the bag.
4. Squeeze and knead the bag with your hands until the mixture is completely blended—usually around two minutes.
5. Place 1/2 tablespoon graham cracker crumbs in the bottom of each of the cups.
6. Cut the corner of the Ziploc bag and squeeze the pie filling into the cups.
7. Garnish with whipped topping and enjoy!

Consider whipping up an oven-baked pumpkin pie using the recipe below and having a taste test between the two types of "pie".

Procedures: Oven-baked Pumpkin Pie

1. Preheat oven to 425°F.
2. Mix together sugar, cinnamon, salt, ginger and cloves in small bowl.
3. Beat eggs in large bowl.
4. Stir in pumpkin and sugar-spice mixture.
5. Gradually stir in evaporated milk
6. Pour mixture into pie shell.
7. Bake in preheated oven for 15 minutes.
8. Reduce temperature to 350° F; bake for 40 to 50 minutes or until knife inserted near center comes out clean.
9. Cool on wire rack for 2 hours.
10. Serve immediately or refrigerate. Top with whipped cream before serving.

Adapted from New Mexico AITC by Utah AITC. Real pumpkin pie recipe from http://www.verybestbaking.com.

Whole, raw unprocessed food

Pumpkin can be processed into:

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Seed Match

MATERIALS:

- The Seed Match activity sheet
- Crayons or colored pencils
- Paper plates and paper towels
- Cutting utensil (for instructor only)
- Glue
- Food plants for investigation (1 of each per student or pair of students): peanut (in the shell), small squash, apple, bell pepper, strawberry, kiwi, wheat (available for purchase), and an edamame pod (found most often in the freezer section at local grocers)

You can purchase wheat at: **www.agclassroomstore.com/wheat-bundle/**

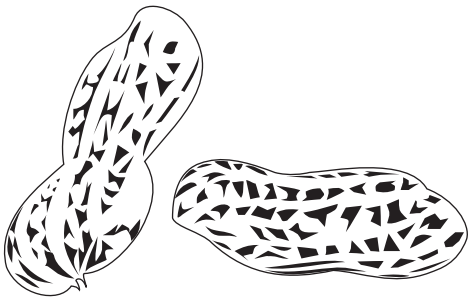
DIRECTIONS:

Instructor's Note: In preparation for this activity, obtain enough food plants to give each student or pair of students one of each of the following: peanut (in the shell), small squash, apple, bell pepper, strawberry, kiwi, wheat and an edamame pod. Do not cut them open until the students have made their preliminary seed predictions. It is also recommended that teachers give each student a paper towel and a paper plate to be used when the seeds are removed. The activity can be completed in one day if you have already collected and dried enough seeds to be glued on the activity sheet in advance.

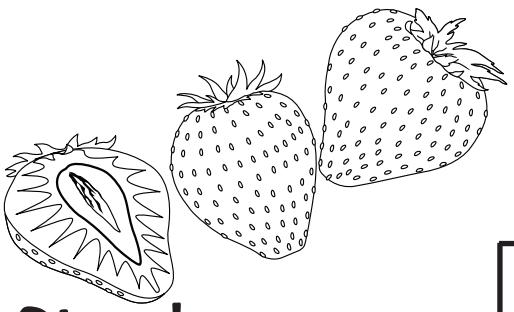
1. Give each student a copy of The Seed Match activity sheet and one of each of the food plants shown on the activity sheet.
2. Have them examine their food plants. Ask them to predict what the seeds will look like on the inside. Some students will recognize that the strawberry and the wheat have seeds that are visible from the outside.
3. Students should color the pictures of the food plants and draw a picture of what they predict the seeds will look like in the top right-hand corner of the box.
4. Have them guess how many seeds are on the inside/outside of the food plant. This question can be simplified for younger students by asking if there will be many or few seeds, or greater than or less than a certain number. The predicted number can be written either in the square or on a separate sheet of paper.
5. When the predictions are complete, have the students remove the seeds (cut open the squash for them). Allow them to examine their findings and determine if their predictions were accurate. The seeds from their findings should be placed on the paper plate and labeled so that they can be dried.
6. When the seeds are dry, instruct students to paste them in the box of the plant that matches the seed.

The Seed Match

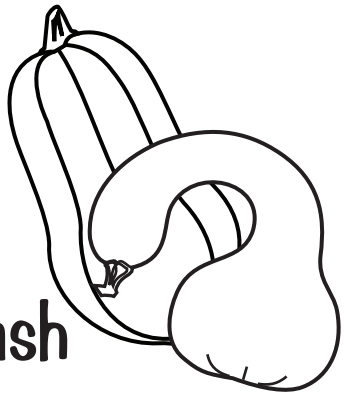
Use the chart to match the correct seed with the picture of the plant which produces that seed.



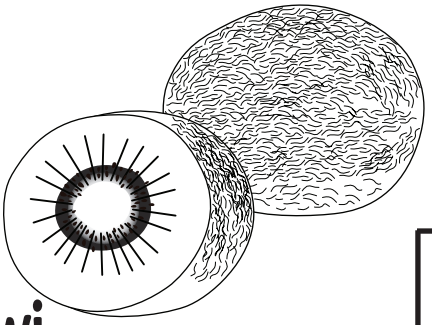
Peanut



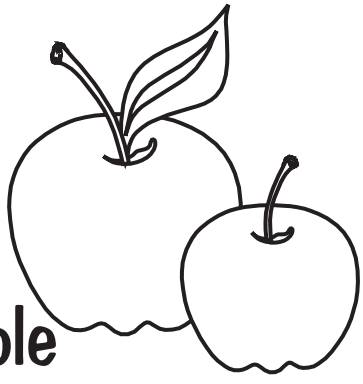
Strawberry



Squash

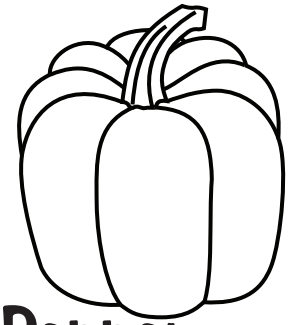


Kiwi

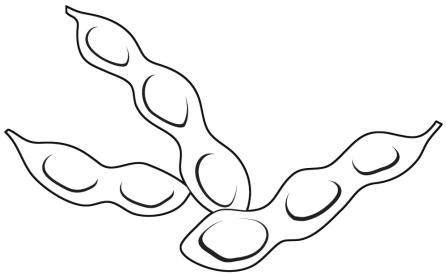


Apple

Wheat



Bell Pepper



Edamame

Name: _____

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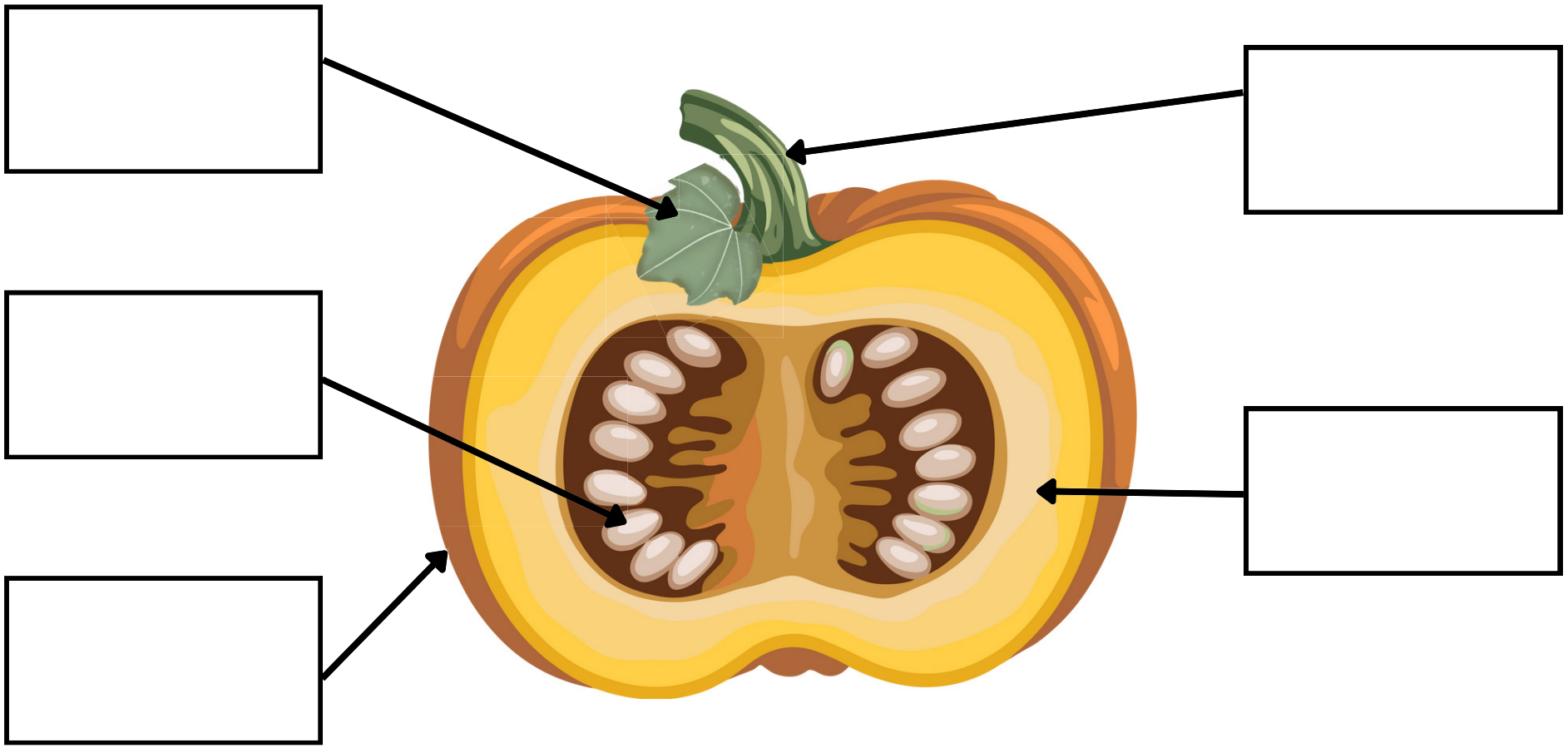
Anatomy of a Pumpkin

Cut and Stick!



stem	leaf	skin	pulp	seeds

Name: _____

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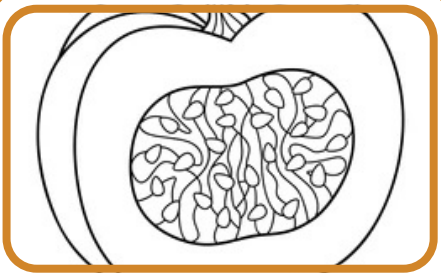
Pumpkin Vocabulary

Trace and color the pumpkin vocabulary.

stem

leaf



pulp

skin

sprout

flowering vine

pumpkin

Name: _____

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Life Cycle of a Pumpkin

Directions: Cut and glue the pictures in order. Use the word bank to write what happens during the pumpkin's life cycle.

Word Bank

sprout seed vine flower grow green blossom planted orange

First, _____

_____

_____

Next, _____

_____

_____

Then, _____

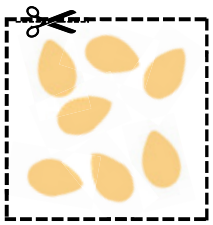
_____

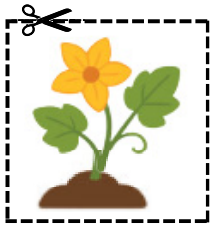
_____

Finally, _____

_____

_____





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Indiana Learning Standards

Lesson	Standards
Pumpkin Predictions	**Kindergarten:** • K.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • K.CC.5- Follow simple two or three-step oral directions. • K.M.1- Make direct comparisons of the length, capacity, weight, and temperature of objects, and identify which object is shorter, longer, taller, lighter, heavier, warmer, cooler, or holds more. • K.DA.1- With guidance, collect and organize data into simple bar graphs, pictographs, and/or tables to identify patterns and make comparisons. **First Grade:** • 1.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • 1.CC.7- Give and follow oral directions with two or three steps. • 1.M.1- Use direct comparison or a nonstandard unit to compare and order objects according to length, area, capacity, weight, and temperature. • 1.DA.1- With guidance, collect data from a simple survey or collaborative investigation; organize data into appropriate single-unit bar graphs, pictographs, and/or tables and draw conclusions based on mathematical observations, comparisons, and grade-level computation strategies. **Second Grade:** • 2.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • 2.CC.6- Give and follow oral directions with three or more steps. • 2.M.2- Estimate and measure the length of an object by selecting and using appropriate tools, such as rulers, yardsticks, meter sticks, and measuring tapes to the nearest inch, foot, yard, centimeter, and meter.
Pumpkin Peddler	**Kindergarten:** • K.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • K.CC.5- Follow simple two or three-step oral directions. • K.NS.1- Count to at least 100 by ones and tens. Count by one from any given number. **First Grade:** • 1.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • 1.CC.7- Give and follow oral directions with two or three steps. **Second Grade:** • 2.CC.1- Participate in collaborative conversations about grade-appropriate topics and texts with peers and adults in small and larger groups. • 2.CC.6- Give and follow oral directions with three or more steps.

Lesson	Standards
Sprouting Pumpkin Seeds	**Kindergarten:** • K.CC.5- Follow simple two or three-step oral directions. • K-LS1-1- Use observations to describe patterns of what plants and animals (including humans) need to survive. **First Grade:** • 1.CC.7- Give and follow oral directions with two or three steps. **Second Grade:** • 2.CC.6- Give and follow oral directions with three or more steps. • 2-LS2-1- Plan and conduct an investigation to determine if plants need sunlight and water to grow.
Pumpkin Processing	**Kindergarten:** • K.CC.5- Follow simple two or three-step oral directions. **First Grade:** • 1.CC.7- Give and follow oral directions with two or three steps. **Second Grade:** • 2.CC.6- Give and follow oral directions with three or more steps.
Seed Match	**Kindergarten:** • K.CC.5- Follow simple two or three-step oral directions. **First Grade:** • 1.CC.7- Give and follow oral directions with two or three steps. **Second Grade:** • 2.CC.6- Give and follow oral directions with three or more steps.
Pumpkin Parts	**Kindergarten:** • K.W.6- With support, build understanding of a topic using various sources. a. Identify relevant pictures, charts, grade-appropriate texts, personal experiences, or people as sources of information on a topic. **First Grade:** • 1.RC.10- Define and sort words into categories. • 1-LS1-1- Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
Life Cycle of a Pumpkin	**Kindergarten:** • K.RC.7- Identify and sort pictures of objects into categories (e.g., colors, shapes, opposites) through oral discussions. • K.W.6- With support, build understanding of a topic using various sources. a. Identify relevant pictures, charts, grade-appropriate texts, personal experiences, or people as sources of information on a topic. **First Grade:** • 1.RC.10- Define and sort words into categories • 1-LS1-1- Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. **Second Grade:** • 2.W.1- Write legibly by forming letters correctly and spacing words and sentences properly.