FOOD PYRAMID

Language Arts: SPI 0301.4.3
Nutrition: Standard 1
Learning Expectation 1.1

BRIEF DESCRIPTION:
Creating a bracelet or bookmark will help students understand the new food pyramid and how to calculate their dietary needs for each food group.

LEVEL:
Third Grade

SUBJECT:
Language Arts, Nutrition

SKILLS:
Analyzing, Comprehending, Following Directions, Measuring, Reasoning, Thinking Creatively

OBJECTIVES:
The student will:
- become acquainted with the new food pyramid.
- determine proper serving sizes.
- determine correct servings needed from each food group.
- create a personalized pyramid plan.

ESTIMATED TEACHING TIME:
30 minutes

FOOD PYRAMID BEAD ACTIVITY

Creating a bracelet or bookmark will help students understand the new food pyramid and how to calculate their dietary needs for each food group. Students should refer to the www.mypyramid.gov website for complete information on the new food pyramid. serving sizes and portions, and other nutritional information. Use the "My Pyramid Plan" to get a personlaized pyramid. The amounts listed below are averages based on an 1,800 calorie diet for kids, ages 6-11.

Materials Needed:

- One 12"-14" brown leather strap, jute string, pipe cleaner (for bookmarks), or other item to string beads on per student.
- Beads per student:

Color:	Representing:
Clear bead	Serves as the adjuster bead
3 blue pony beads	Milk group
5 green pony beads	Vegetable group
3 red pony beads	Fruit group
6 orange pony beads	Grains group
5 purple pony beads	Meat and beans group
1 yellow pony beads	Oils group

Procedure:

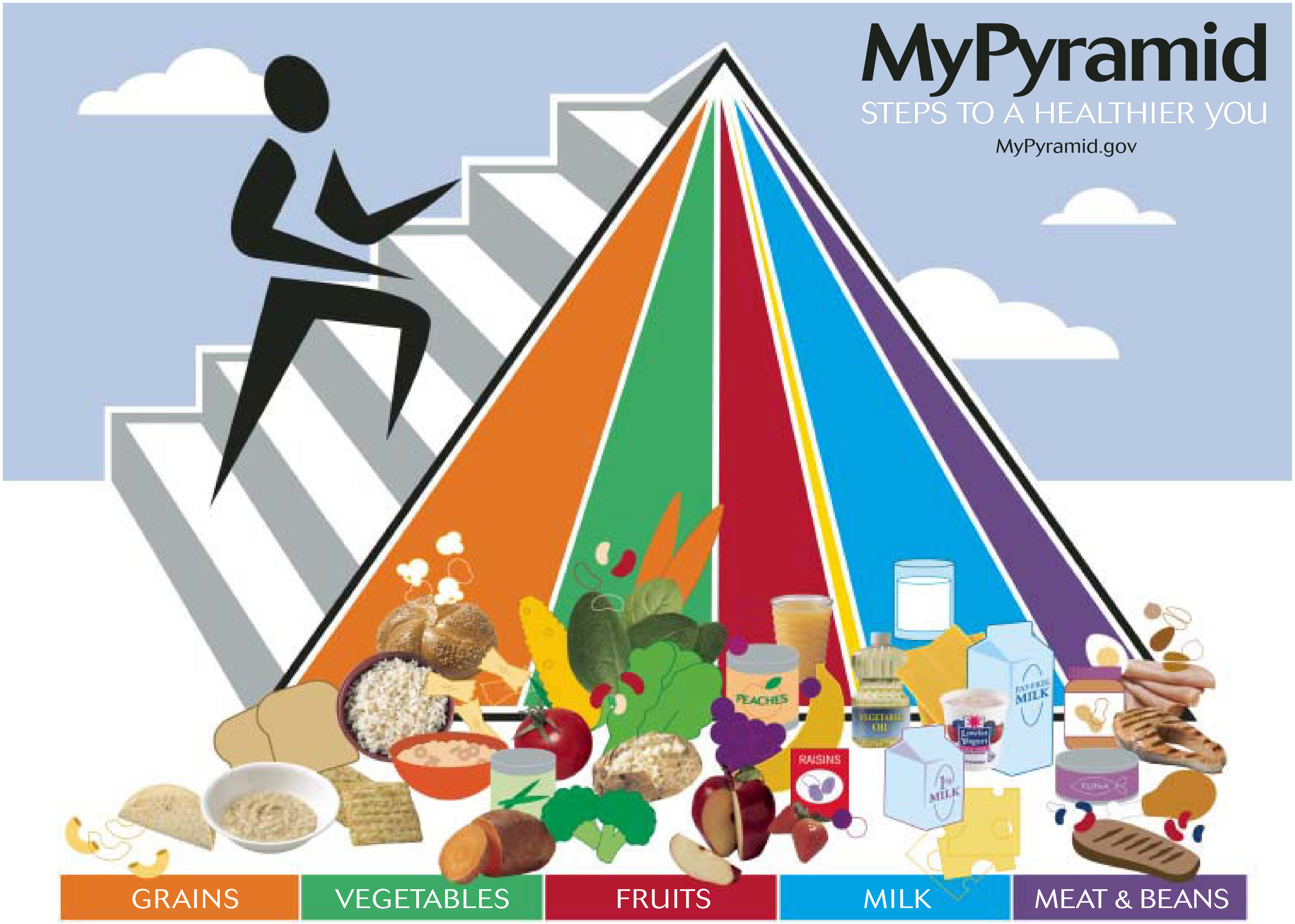
Tie a knot on one end of the string close to the end. Begin with the clear bead as it will serve as the adjuster bead. String the colored beads. Take the end of the string without a knot and lace it through the clear bead. Tie a knot at the end. Now your clear bead has become an adjuster for the bracelet. Excess string below knots may be trimmed.

If using a pipe cleaner, make a knot or twist the cleaner at one end so the beads stay on. A clear bead is not needed. You can make a loop after all beads are put on the pipe cleaner that can be used for the top of the bookmark.

Discuss the resources that each colored bead represents:

1. Blue - use one bead for every 1 cup serving of milk and other calcium-rich foods your body needs. The range for this age group is 2-3 cups per day.
2. Green - use one bead for every 1/2 cp serving. The range for this age group is 1 1/2 to 3 cups per day.
3. Red - use one bead for every 1/2 cup serving. The range for this age group is 1-2 cups per day.
4. Orange - grains are measure in ounces. The range for this age group is 5-7 ounces per day. Examples of one ounce are: 1 slice of bread, 1/2 cup rice or pasta, 1 cup of dry cereal.
5. Purple - meats and beans are also measured in ounces. The range for this age group is 3-6 ounces per day. Examples of one ounce are: 1 egg, 1/4 cup cooked dry beans, a small handful of nuts/seeds, 1 Tablespoon peanut butter, 1 ounce of meat, poultry, or fish.
6. Yellow - oils are not a food group, but you do need some for good health. Get your oils from fish, nuts, and liquid oils such as corn oil, soybean oil, and canola oil. Use one bead as a reminer to use them sparingly.

Adapted from Wisconsin Farm Bureau - Agriculture in the Classroom and Illinois Ag in the Classroom



Source: www.mypyramid.gov

GRAINS Make half your grains whole	VEGETABLES Vary your veggies	FRUITS Focus on fruits	MILK Get your calcium-rich foods	MEAT & BEANS Go lean with protein
Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day 1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or 1/2 cup of cooked rice, cereal, or pasta	Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens Eat more orange vegetables like carrots and sweetpotatoes Eat more dry beans and peas like pinto beans, kidney beans, and lentils	Eat a variety of fruit Choose fresh, frozen, canned, or dried fruit Go easy on fruit juices	Go low-fat or fat-free when you choose milk, yogurt, and other milk products If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages	Choose low-fat or lean meats and poultry Bake it, broil it, or grill it Vary your protein routine – choose more fish, beans, peas, nuts, and seeds
For a 2,000-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to MyPyramid.gov.				
Eat 6 oz. every day	Eat 2 1/2 cups every day	Eat 2 cups every day	Get 3 cups every day; for kids aged 2 to 8, it's 2	Eat 5 1/2 oz. every day

Find your balance between food and physical activity

- Be sure to stay within your daily calorie needs.
- Be physically active for at least 30 minutes most days of the week.
- About 60 minutes a day of physical activity may be needed to prevent weight gain.
- For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.
- Children and teenagers should be physically active for 60 minutes every day, or most days.

Know the limits on fats, sugars, and salt (sodium)

- Make most of your fat sources from fish, nuts, and vegetable oils.
- Limit solid fats like butter, margarine, shortening, and lard, as well as foods that contain these.
- Check the Nutrition Facts label to keep saturated fats, *trans* fats, and sodium low.
- Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients.

MyPyramid.gov
STEPS TO A HEALTHIER YOU

U.S. Department of Agriculture
Center for Nutrition Policy and Promotion
April 2005
CNPP-15

USDA is an equal opportunity provider and employer.

Source: www.mypyramid.gov

PUMPKIN, PUMPKIN

Science: SPI 0307.1.1
GLE 0307.4.1
GLE 0307.Inq.2
Math: SPI 0306.4.5
GLE 0306.5.1
GLE 0306.1.14

FRUIT OR VEGETABLE?

Botanically, a fruit is the part of a plant that develops from a flower and produces seeds. Many plant parts we eat and call vegetables are actually fruits. A true vegetable is the food product that comes from any part of the plant other than the flower. So, roots such as carrots and radishes and leaves such as cabbage and lettuce are true vegetables. If you cut produce open and it contains seeds inside such as a tomoto, squash or cucumber, it is a fruit. If there are no seeds, it is a vegetable.

Materials Needed:

- Fruits and vegetables or pictures of various fruits and vegetables

Procedure:

1. Engage student interest by bringing in a variety of fruits and vegetables (or pictures). Ask "What makes a fruit a fruit and a vegetable a vegetable?"
2. Using this definition, have students classify the fruits and vegetables.
3. Have students write the difference between a fruit and a vegetable and give three examples of each.

Adapted from Literature Links to Agriculture, joint venture of the Mid-Atlantic States Ag in the Classroom Programs

BRIEF DESCRIPTION:
Students explore the difference between a fruit and a vegetable and then explore the life cycle of the pumpkin. Students will also observe pumpkins then predict the weight, circumference, width, height, and number of seeds. Then, they will measure and calculate each.

LEVEL:
Third Grade

SUBJECT:
Science, Math

SKILLS:
Analyzing, Investigating, Measuring, Reasoning, Thinking Creatively, Identifying, Describing, Observing, Predicting, Weighing, Calculating

OBJECTIVES:
The student will:
- identify parts of a seed.
- identify parts of a pumpkin.
- distinguish between a fruit and a vegetable.
- create a pumpkin life cycle model.
- predict weight, circumference, width, height, and number of seeds of a pumpkin.
- measure and calculate weight, circumference, width, height, and number of seeds of a pumpkin.

ESTIMATED TEACHING TIME:
60 minutes

PUMPKIN, PUMPKIN

Materials Needed:

- Paper plates (orange or white) - two per student
- Construction paper in brown, dark green, yellow, light green, orange
- Brown or green yarn - five pieces per student, 6-8" long
- Scotch tape
- Scissors
- Stapler

Life Cycle Model Assembly:

1. Use cardboard patterns to trace each shape onto construction paper or copy directly onto appropriate paper. Seed (brown); Leaf (dark green); Blossom (yellow); Small pumpkin (light green); Large pumpkin (orange)
2. Tape a piece of yarn to the inside of one paper plate (eating side) and hand over the edge toward the plate back. Place this plate face-to-face with the other plate and staple them together at their edges, leaving about 1/3 diameter of the plate edge unstapled to form a pocket. You can have students decorate this piece to look like a jack-o-lantern.

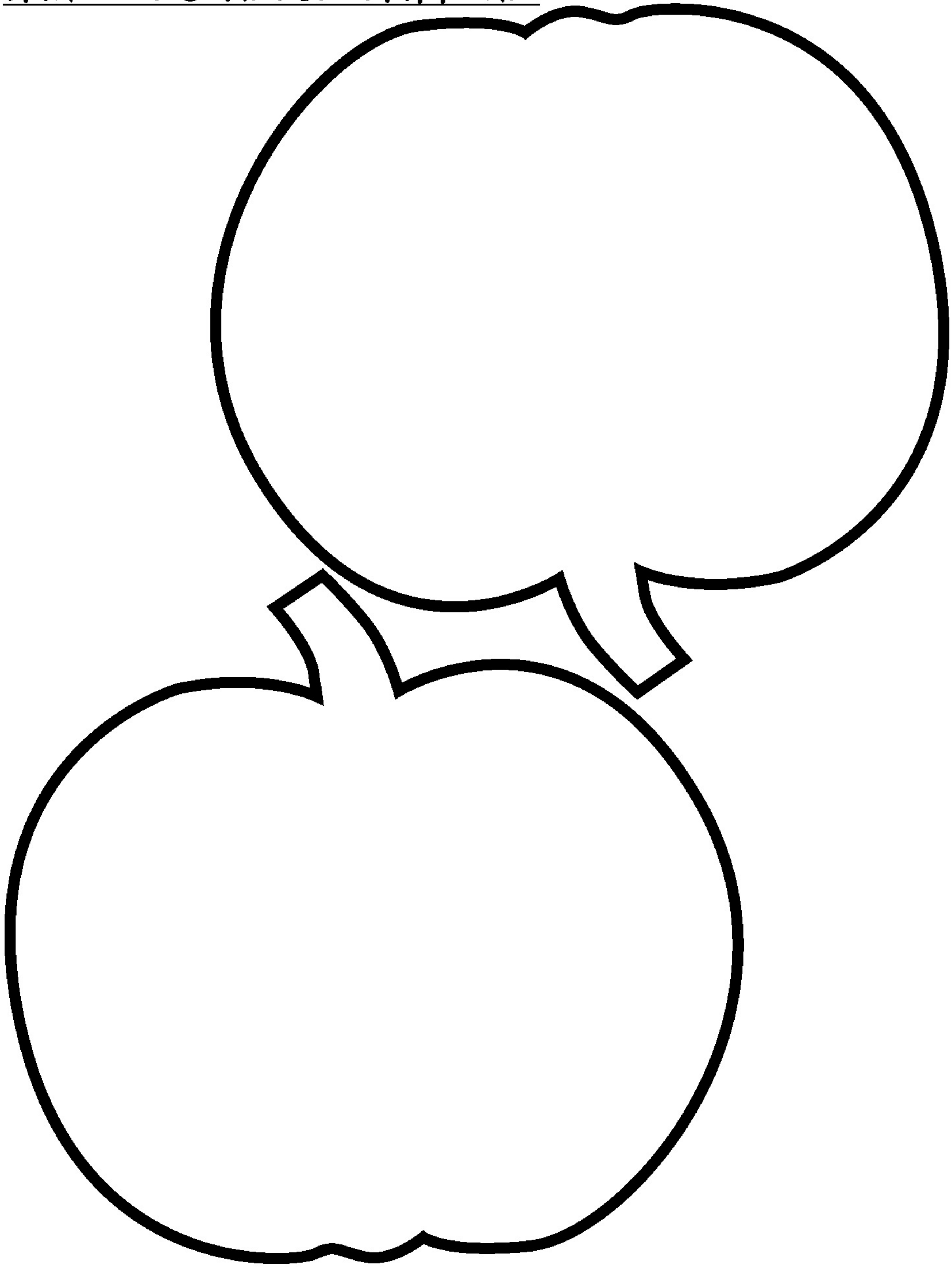
3. Staple and tape each shape in order with yarn between each piece.
4. When assembled stack shapes neatly and place in opening of paper plate jack-o-lantern.
5. Starting with the seed shape, slowly pull shapes out of the pumpkin as you tell the story of how pumpkins grow.

Procedure:

1. Read Pumpkin Circle: The Story of a Garden by George Levenson (ISBN # 0-439-22883-2). Pumpkin Circle is also available for loan through Farm Bureau's Agricultural Literacy Library available by contacting your county Farm Bureau office.
2. Have students discuss the various stages that happen as a pumpkin seed grows into a pumpkin.
3. Discuss the function of each plant part and then build a model of the pumpkin life cycle with the patterns that follow.
4. Have students explain each stage of the pumpkin's life cycle by writing a description of that stage on the back of each part.

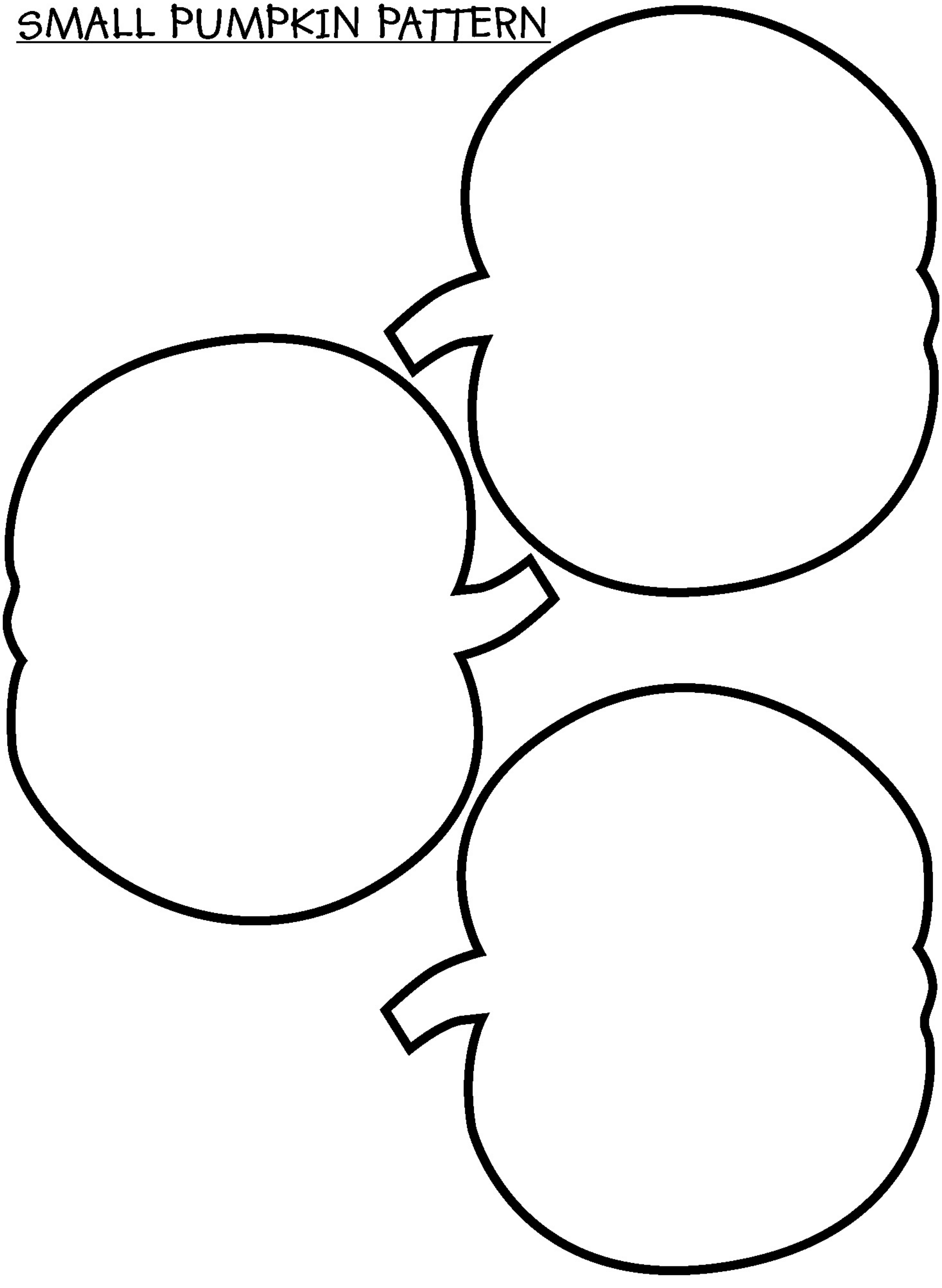
Adapted from Literature Links to Agriculture, joint venture of the Mid-Atlantic States Ag in the Classroom Programs and Lousiana Agriculture in the Classroom

LARGE PUMPKIN PATTERN



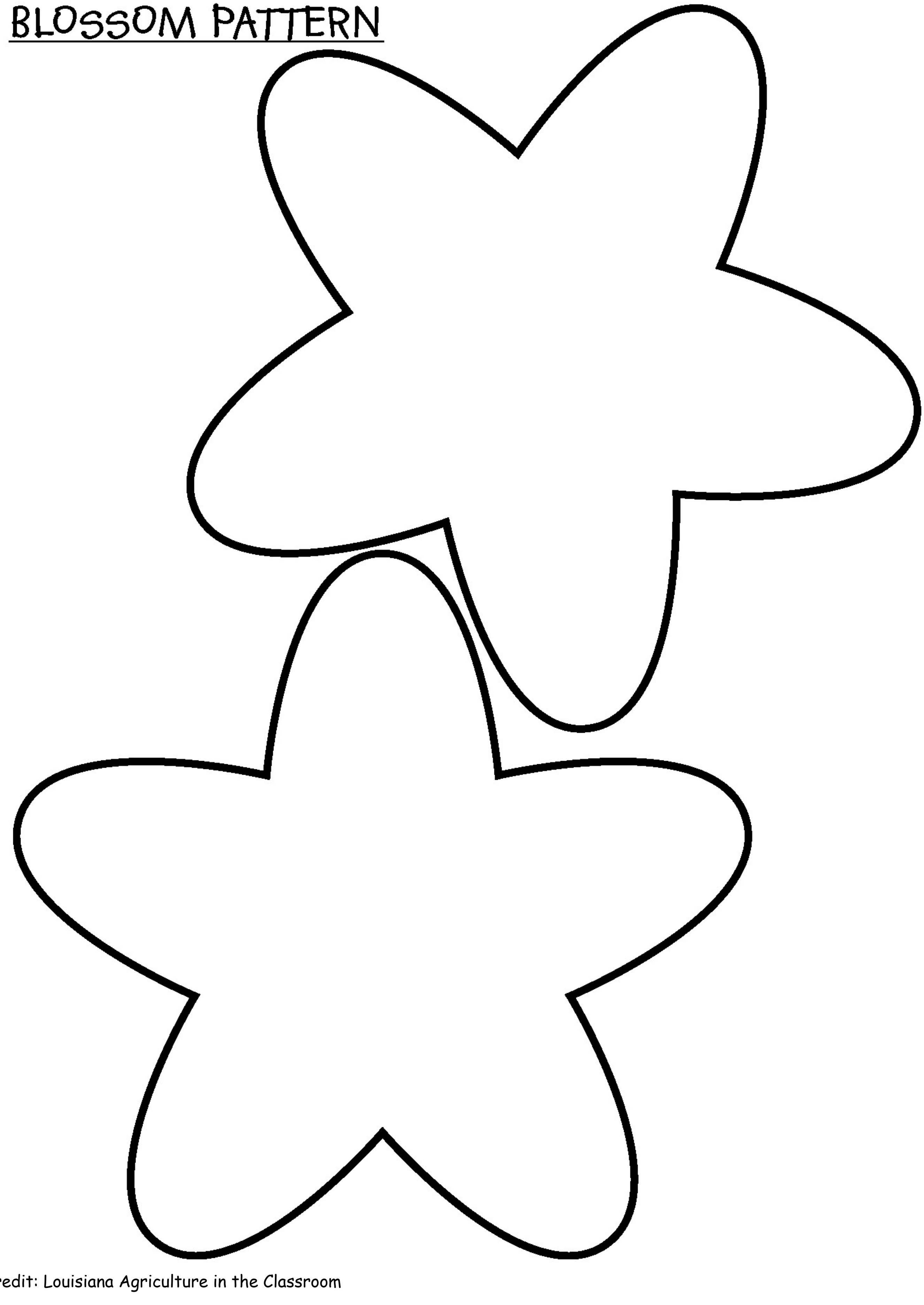
Credit: Louisiana Agriculture in the Classroom

SMALL PUMPKIN PATTERN



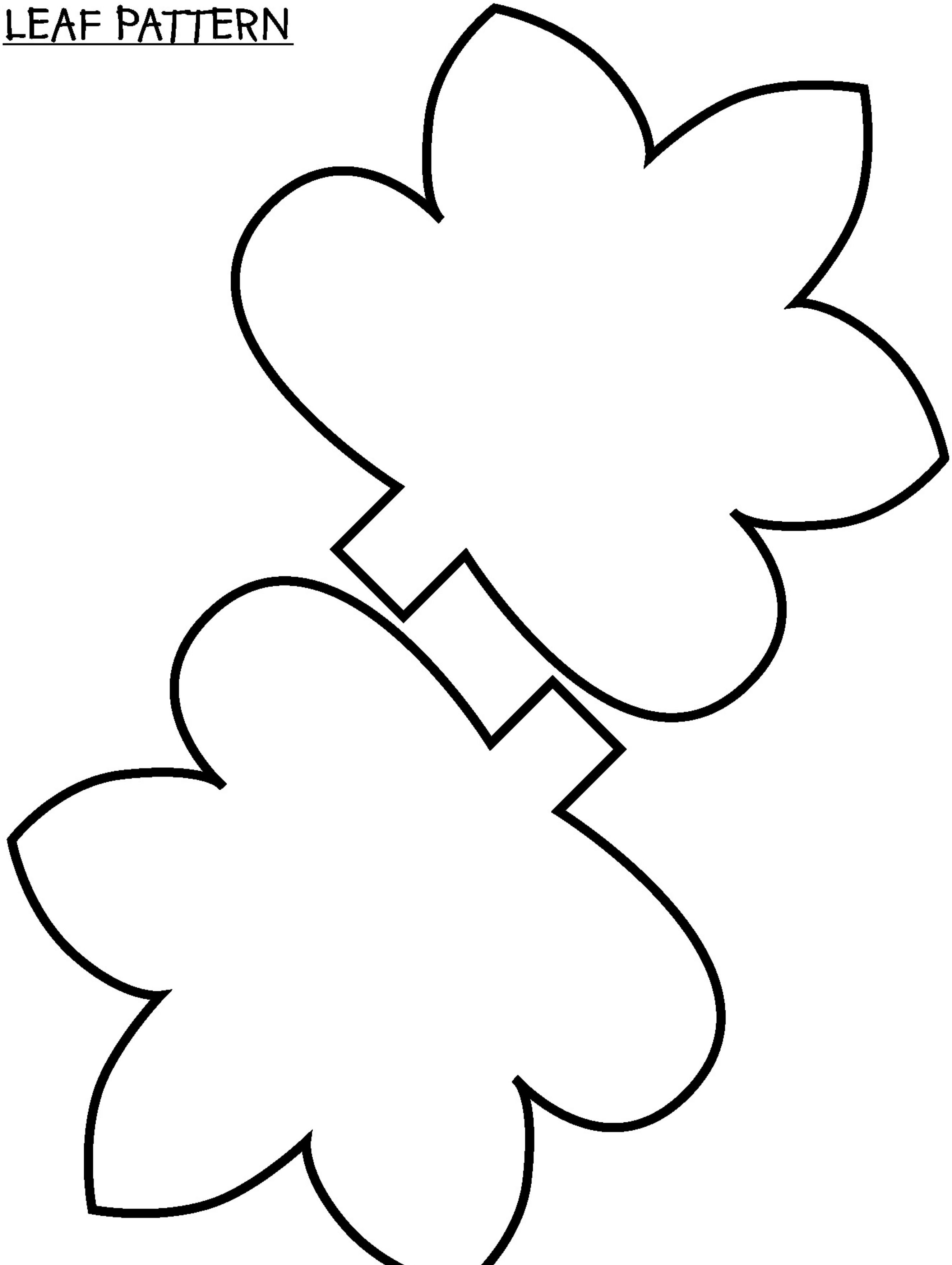
Credit: Louisiana Agriculture in the Classroom

BLOSSOM PATTERN



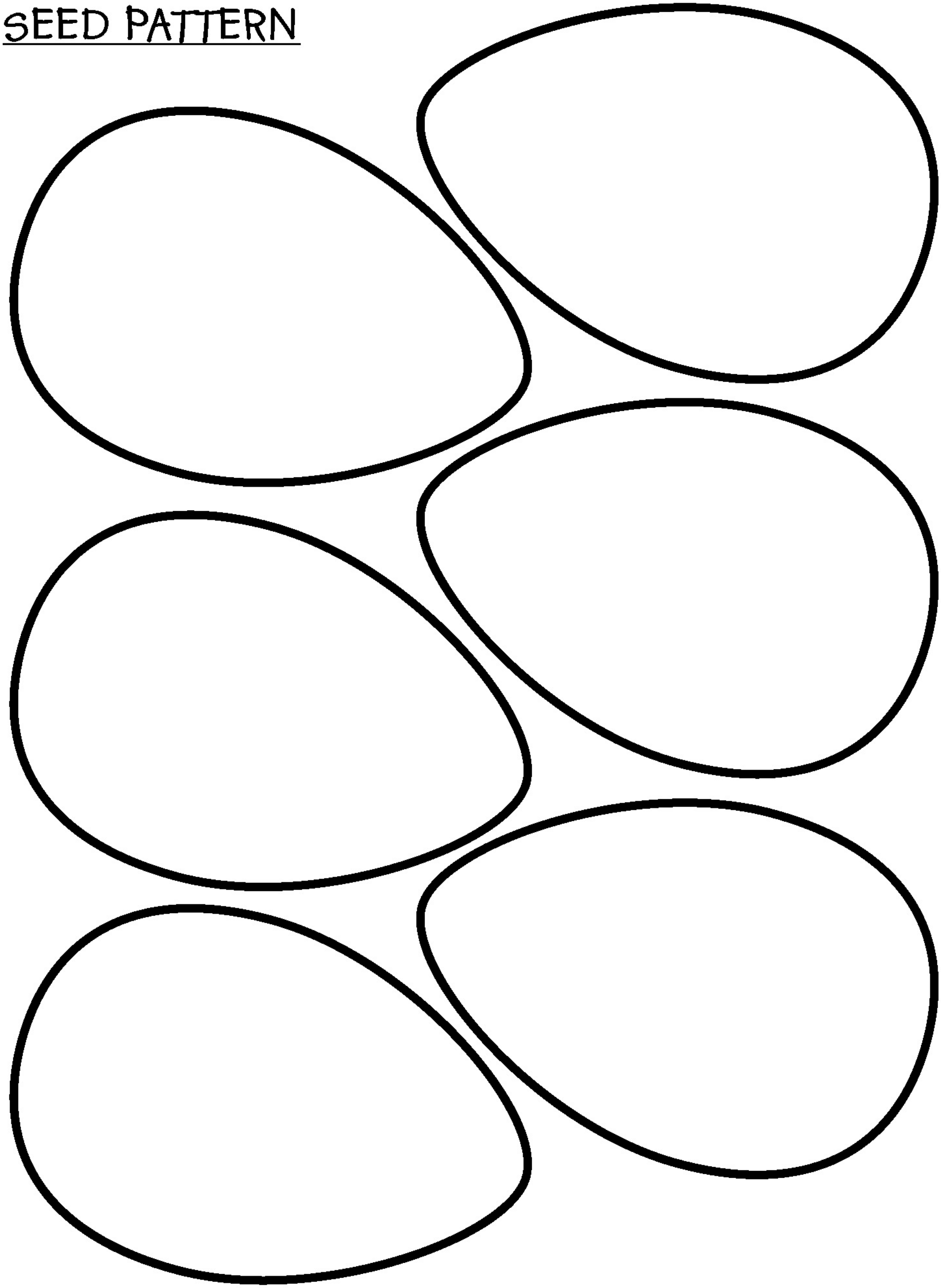
Credit: Louisiana Agriculture in the Classroom

LEAF PATTERN



Credit: Louisiana Agriculture in the Classroom

SEED PATTERN



Credit: Louisiana Agriculture in the Classroom

PUMPKIN MATH

Materials Needed:

Pumpkins (one per group)
"Pumpkin Math" worksheet (one per student)
5 lb. bag of sugar
Measuring tape
String
Scale
Rulers
Knife
Garbage bags
10 cups per group
Plastic ziploc bag (one per group)
Orange paper (12"x18") (one per group)
Markers/Crayons

Procedure:

1. Divide students into groups and give each group a pumpkin.
2. Have students observe their pumpkin.
3. Using the "Pumpkin Math" worksheet for recording, predict and record the following:
   - Have students lift a 5 lb. bag of sugar and then predict and record the weight of the pumpkin.
   - Define and illustrate circumference. Have students predict and record the circumference of their pumpkin.
   - Have students predict and record the width and height of their pumpkin.
   - Ask students, "What is inside the pumpkin?" Have students predict and record how many seeds are inside their pumpkin.
4. Demonstrate how to measure the circumference, width, and height of their pumpkin. Allow students to measure and weigh their pumpkins. Set up as stations and rotate groups through the measuring stations.
5. Cut pumpkins open for students. Have them take out the seeds and count them. Counduct outside if possible. Students should use the 10 cups to count out 10 seeds in each cup. When all cups have 10 seeds, record 100 (10 groups of 10 seeds) seeds and empty the cups into ziploc bag. Continue until all seeds have been counted.

Extension:

1. Give groups large piece of orange paper. Students should draw the outline of their pumpkin, then share all the information they gathered about their pumpkin.
2. Display each group's pumpkin information and ask students questions based on their information. (i.e. Which pumpkin was the heaviest? Shortest?)
3. Ask students questions to see if there was any relationship between the size of the pumpkins and the number of seeds or weight.

NAME ___________________________

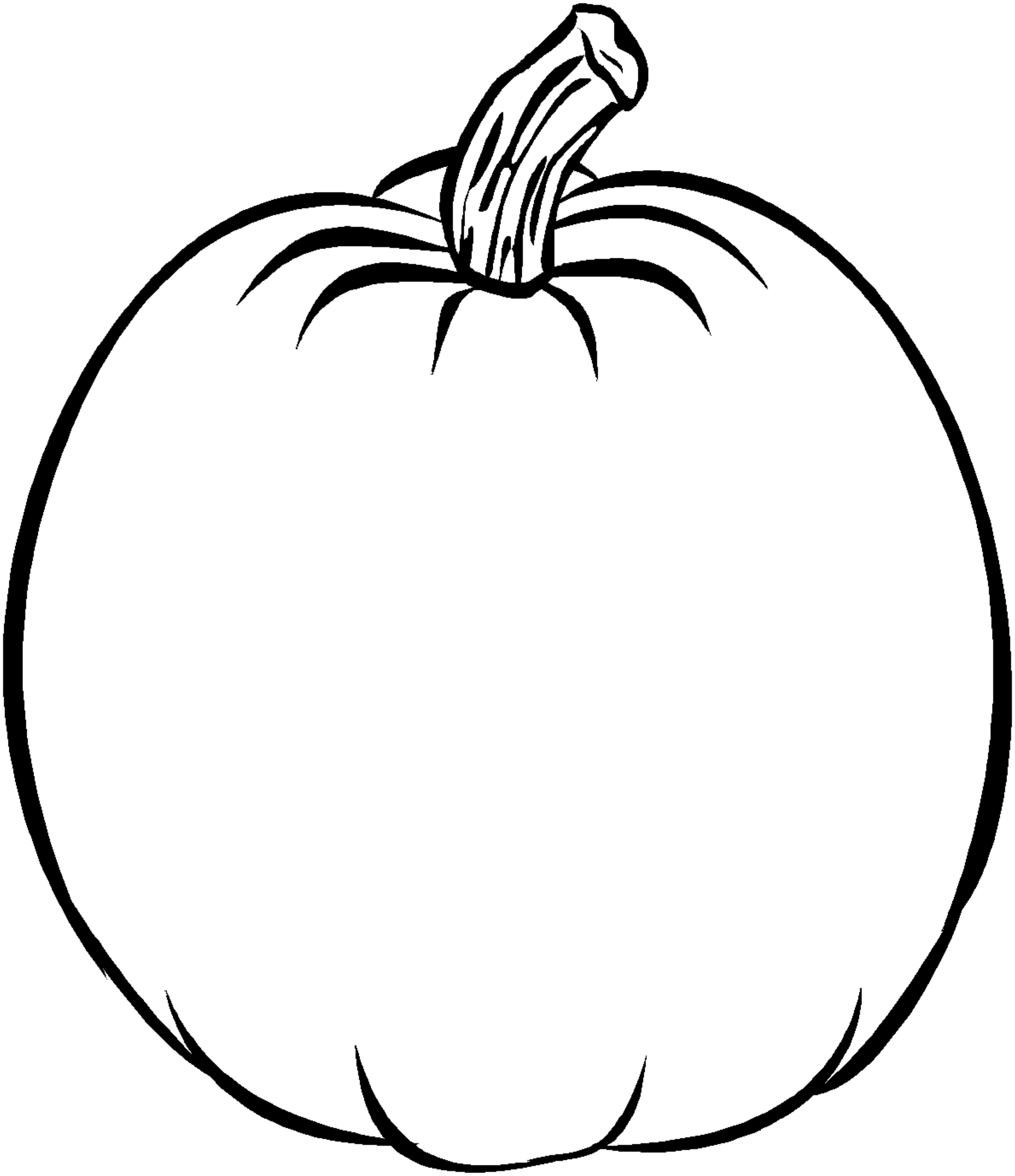
PUMPKIN MATH

	Prediction	Actual
Weight in pounds (lb)		
Circumference in inches (in.)		
Width in inches (in.)		
Height in inches (in.)		
Number of seeds		

PUMPKINS!

Name:____

Directions: Use this sheet to list possible uses for pumpkins, today and in the far past.



Credit: Project Food, Land & People - "We're into Pumpkins"

OUR PUMPKIN

Names:____

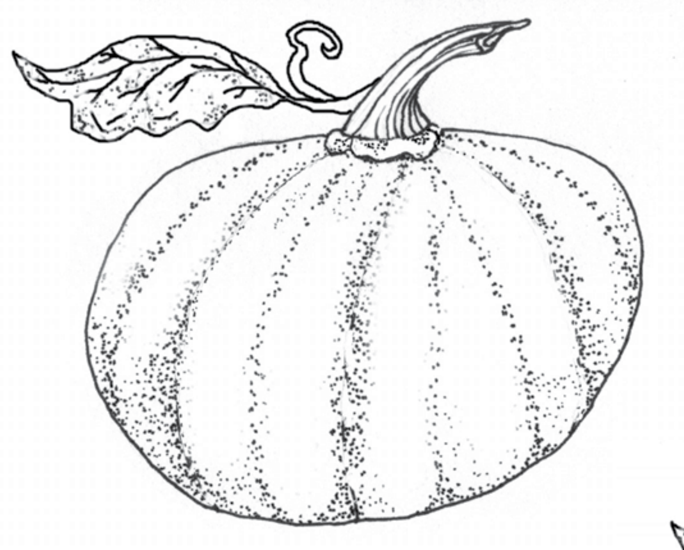
What colors do you see on your pumpkin?

____

____

Using the following words, draw a line from each word to the correct part of the pumpkin.

stem	shell	flesh	seeds	grooves
ribs	top	side	vine	leaf



Credit: Project Food, Land & People - "We're into Pumpkins"

OUR PUMPKIN DATA

Names:____

(Use English and/or metric measurements.)

How many?	Our guess	Real
Grooves		
Ribs		
Circumference (inches or centimeters around)		
Diameter (inches or centimeters across)		
Height (inches or centimeters high)		
Do you think your pumpkin will float?		
Number of seeds		
Weight (pounds or kilograms)		

Some new things we learned about pumpkins are:

1.

2.

3.

4.

Credit: Project Food, Land & People - “We’re into Pumpkins”

Name: ________________________

BANKING ON SEEDS

1. Describe what you see inside the pumpkin.

2. What shape are pumpkin seeds? Draw one here.

3. How are the seeds arranged? Draw the arrangment.

4. All plants and animals have special ways to protect their "babies". Which parts of the pumpkin are its "babies"? Which parts will become the next generation of pumpkin?

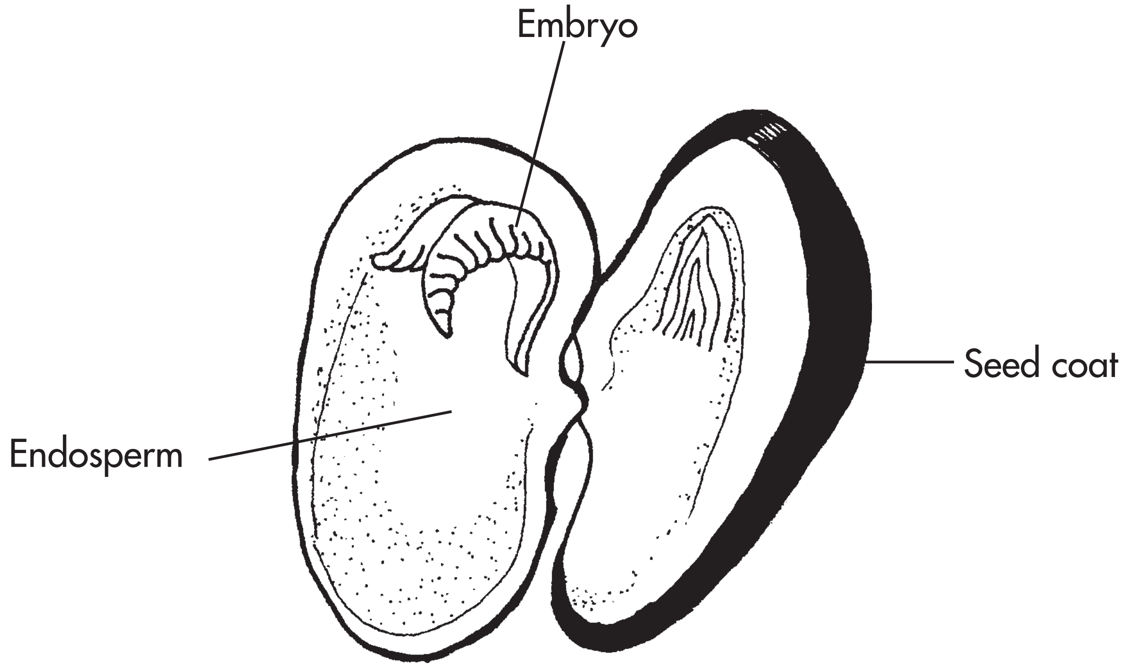
5. How is the pumpkin naturally designed to protect its "babies"?

6. How many seeds do you guess or predict are in the pumpkin? ______

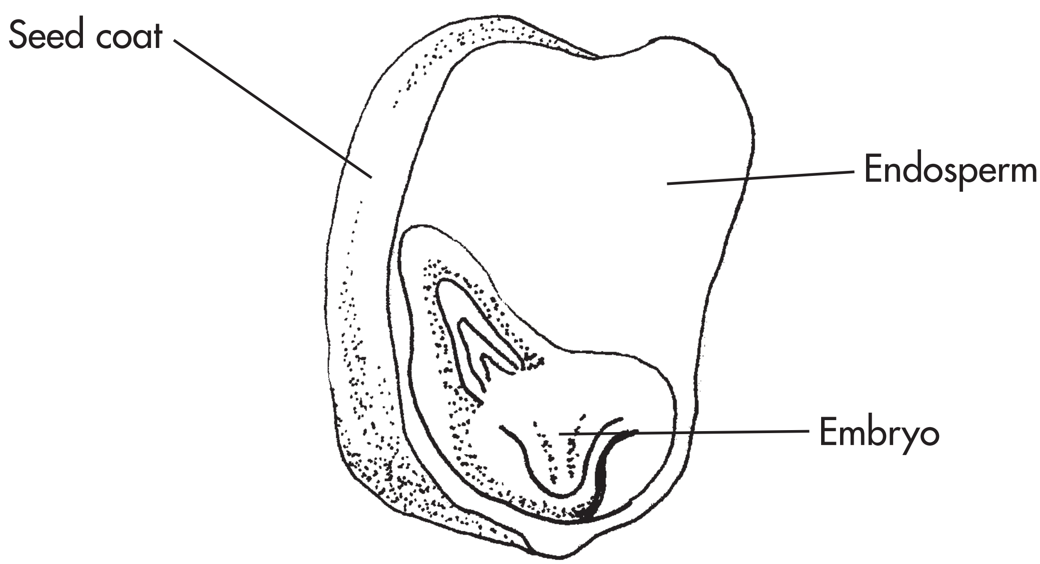
7. Carefully pick all the seeds from your pumpkin. Dry them off and count them. How many seeds were in the pumpkin? ______
   Who in the group had the closest estimate? ______
   How did he or she choose the number?

Adapted from Project Food, Land & People - "Banking on Seeds"

PARTS OF A SEED



Dicot (plant with 2 cotyledons)



Monocot (plant with 1 cotyledon)

Credit: Project Food, Land & People - "Banking on Seeds"

PIECE BY PIECE

Language Arts:
GLE 0301.1.2
GLE 0301.4.3

Math:
SPI 0306.4.1
GLE 0306.1.14

Social Studies:
3.1.tpi.5
3.1.02

BRIEF DESCRIPTION:
Students will learn about the social system that surrounds an agricultural community, including history and cultural significance. Students will analyze and use the principals of design, rhythm, balance, contrast, movement, variety, center of interest, and repetition in works of art.

LEVEL:
Third Grade

SUBJECT:
Math, Language Arts, Social Studies

SKILLS:
Analyzing, Reasoning, Thinking Creatively, Writing

OBJECTIVES:
The student will:
- analyze various aspects of works of art
- use principals of design
- use geometric shapes to create an original quilt block

ESTIMATED TEACHING TIME:
60 minutes

In the early years of our country people had to be frugal. Most people had to make their own clothing or hire someone else to do it. Even finding cloth with which to make clothing was difficult. People who had money could order cloth from Europe. But most people made their own homespun, a kind of cloth made from linen or wool grown right on the farm. Linen was made from a plant called flax, and wool was taken from sheep. Both had to be spun on a spinning wheel and woven into cloth on a loom.

If you were the youngest child in the family, you didn't very often get new clothes. Clothing was passed from one child to the next until it was no longer wearable. Even then, its service to the family was not complete. Clothing remnants, small bits of cotton, wool, linen, flax and even silk, went into a pile as scraps and came out as beautiful designs, transformed by the care and imagination of the quilter. Back then, quilters were doing what was necessary to keep their families warm. Today their creations are considered a form of American folk art.

Wool was the most common material used in the New England area, where the winds were bitter in the wintertime. Cotton and flax were favored in the South, where it was not so cold.

A quilt has three layers—the quilt top, the batting or filler, and the backing. The filler could be made of wool that had been combed to remove sticks and other debris and to make it fluffy. Quilts filled with wool were a luxury, though. Most people used dried grasses, wood shavings and corn husks. During the American Depression in the 1930s, some people filled their quilts with used newspaper. Later cotton batting became the preferred filling, especially in the South, where cotton was an important crop. Cotton batting is cotton fiber from the cotton plant which has been wadded into rolls or sheets.

If the seamstress was making the quilt for someone else, to earn extra money, she would be very careful to remove all the seeds, twigs and leaves from the batting. She did that to make sure there were no lumps in the quilt. If she was making it for her family, she would sometimes leave a few leaves and seeds inside. In some quilts that are very old you can still feel the seeds and twigs between the quilt layers.

Quilts were usually made from cotton because it was easy to hand-stitch and held its shape well. Cotton absorbs moisture and allows it to evaporate. It is also easy to wash and springs back into its original shape after washing.

Quilting bees were popular gatherings for women and young girls. They were the best place for young girls to learn to quilt and visit with their friends at the same time. Friends would come together in someone's home and work together to complete a quilt. Many times the women in a community would get together and make a quilt to celebrate a milestone in someone's life. They would make quilts to celebrate the marriage of young couple, the birth of a baby, a prosperous harvest or even a death in the family.

Quilts were created to commemorate many occasions. The "Freedom Quilt" marked the time when a young man no longer needed the quilts of his mothers or sisters to keep him warm at night. Given to him when he turned 21, the quilt meant he could start his own household and begin looking for a wife.

A girl would begin working on her "Baker's Dozen" quilts as soon as she could sew. The first of these 12 quilts would be simple. Those that followed would grow more elaborate as the girl grew more skillful. The 13th quilt, the "Bridal Quilt" would be the most carefully planned and beautiful quilt of all. It would be white, with hearts incorporated into the design. Close friends and relatives of the bride would do the stitching.

It was a common practice to punish young girls for making uneven stitches. Quilts were so important to the everyday household that a verse was made and taught to young women to take special care in their sewing abilities:

At your quilting, maids don't dally,
A maid who is quiltless at twenty-one,
Never shall greet her bridal sun!

Today quilting is no longer just a woman's art. Artists, some of whom are men, experiment with shades, shapes and texture to create beautiful works of art. Today quilts are as likely to be used to decorate a wall as to provide warmth. Numerous U.S. museums own quilts and display them as historical works of art.

Credit: Oklahoma Ag in the Classroom - "Piece by Piece"

PIECE BY PIECE

Materials Needed:

- Quilting magazines or books
- Construction paper in several colors
- Scraps of cloth
- Piece by Piece handout

Procedure:

1. Read and discuss background. Ask students to define the words "thrifty" and "frugal."
2. Research and discuss "women's work" versus "men's work" in history and today. Compare with other cultures—Native American, African, etc.
3. Review some common geometric figures with the students.
   —Draw on the chalkboard or duplicate a quilt block pattern for students to view.
   —Have students locate all the geometric shapes featured in the pattern.
4. Hand out copies of the page of geometric shapes included with this lesson.
   —Have each student create an original quilt block to fit a 12-inch square, using construction paper and the shapes provided.
   —Have students glue the quilt pattern to a heavier piece of paper, tagboard or cardboard.
   —Make a paper quilt by taping all the class quilt blocks together. Display for others to enjoy.
5. Have students write a story about the quilt they designed.

Extension:

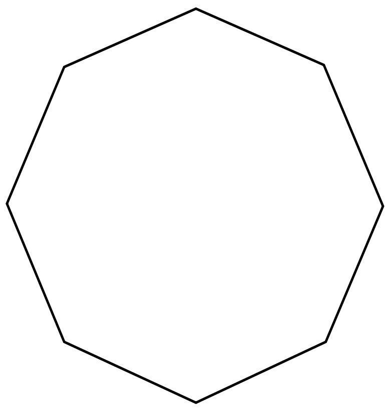
1. Provide scraps of fabric, or ask students to bring them from home. Some sewing stores and clubs will donate scrap material when asked by a representative of the school.
   —Have students collect the fabric pieces they desire to create individual blocks.
   —Have students cut and piece the block together.
   —Have students sew their own blocks, or have a school volunteer sew them.
   —If sewing is not an option in your classroom, you may use fabric paint to join the pieces or have students cut the pieces of the block and glue them to heavy cardboard.
   —Use the finished products in a class display. If you have made a real quilt, auction off the quilt at the end of the school year to raise money for future projects.
2. Using sidewalk chalk, have students plan and create a chalk quilt somewhere on a school walkway or concrete play area. In advance have the students plot out the quilt block designs on paper. They should consider such things as color and flow of the individual designs. When the design is complete, have students write a message to the other students at school or all sign their names.
3. Invite members of a local quilting group to visit your classroom and show some of their creations. Ask the visitors to bring a small quilting frame, if possible, and to talk about how they go about planning a quilt.

Adapted from Oklahoma Ag in the Classroom - "Piece by Piece"

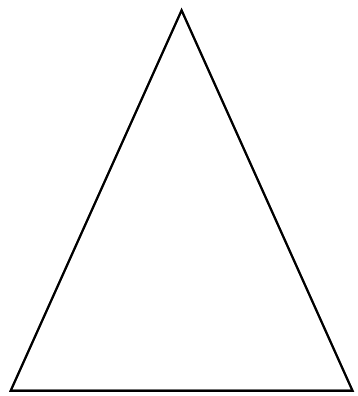
Name____

Piece by Piece

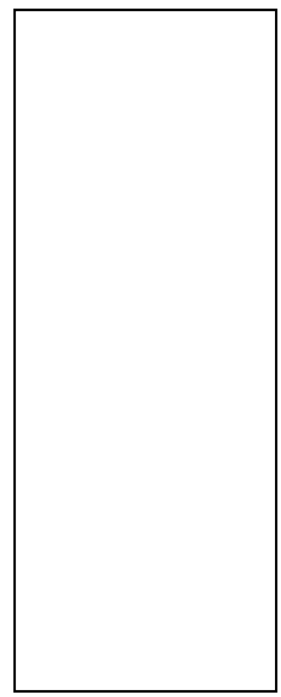
Quilt-making is considered a form of American folk art. Use the geometric figures below to create a quilt pattern. Use construction paper to add color. Then place your pattern on a 12-inch square quilt block. Write a short history about your quilt block.



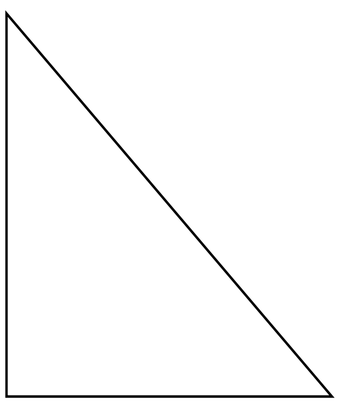
octagon

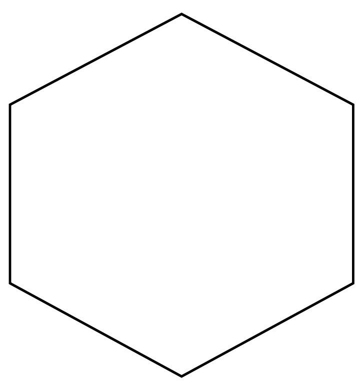


isosceles triangle

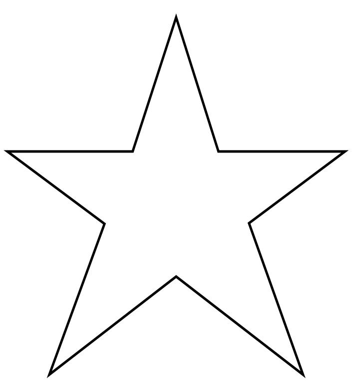


rectangle



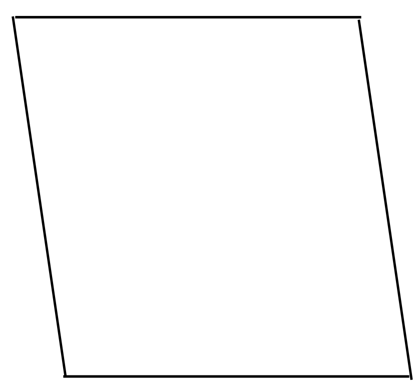


hexagon



decagon

Traditionally quilting was considered a woman's job. However, two American presidents, Calvin Coolidge and Dwight D. Eisenhower, helped their mothers quilt when they were boys.



rhombus

Credit: Oklahoma Ag in the Classroom

GARDEN GRIDS

Math:

SPI 0306.5.1
GLE 0306.1.5

BRIEF DESCRIPTION:
Students will locate points on a grip using ordered pairs.

LEVEL:
Third Grade

SUBJECT:
Math

SKILLS:
Analyzing, Reasoning, Illustrating

OBJECTIVES:
The student will:
- create a grid
- locate points on a grid

ESTIMATED TEACHING TIME:
60 minutes

Materials Needed:

- "Garden Grids" worksheet
- Crayons
- Masking tape
- 13 sheets of 8 $^{1}/_{2}$"x11" construction paper

Procedure:

1. Tape a grid to the floor of the classroom (6x6 squares), leaving enough space in each box for a student to stand.
2. Have students mark each axis from 0-6 using numbered sheets of construciton paper. Tape numbers to the floor.
3. Have one student stand on a point on the grid. Tell the class the "location" of this student by giving them the ordered pair. Repeat this with a different location, reinforcing the fact that the first number in the ordered pair represents the horizontal axis and the second number represents the vertical axis.
4. Now tell the class to listen for their location. Call out a student's name and an ordered pair. The student should then move to this location. You can call out four or five names at a time. For example, Joe (3, 4). Robert (6. 1), Alicia (2, 1), and Beth (5, 3). Clear the grid and repeat for another group.

Extension:

1. Read <u>Tops and Bottoms</u> by Janet Stevens (ISBN # 0-15-292851-0)
2. Have students individually complete the "Garden Grids" worksheet.

Adapted from <u>Literature Links to Agriculture</u>, joint venture of the Mid-Atlantic States Ag in the Classroom Programs

Name: ____________________

Garden Grids

Help Gail Gardener plant her garden. On the squares below draw a rectangle 6 squares wide by 6 squares high. Label the axes. Draw a picture of each of the vegetables listed below at different points on the grid. Then write the ordered pair next to the vegetable name.



a. **Broccoli** ______________

b. **Corn** ______________

c. **Radish** ______________

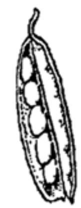
d. **Beet** ______________

e. **Peas** ______________

f. **Carrot** ______________

g. **Lettuce** ______________







Credit: Literature Links to Agriculture, joint venture of the Mid-Atlantic States Ag in the Classroom Programs

DISCOVER AN ACRE

Math:

GLE 0306.4.10
GLE 0306.4.4

Language Arts:

SPI 0301.4.3

Materials Needed:

- 12" ruler
- Measuring tape
- 12" x 12" construction paper (three per student). Cut your own or use 12" scrapbooking paper.

Procedure:

1. Give each student three 12" x 12" pieces of paper. Explain that each piece of paper is a square foot. It measures one foot by one foot. The area of one piece of paper is one square foot.
2. Measure the perimeter of one sheet of paper by having the students use rulers to measure all four sides. The perimeter is four feet.
3. Clear a space in the classroom or go to the cafeteria or gym where students will be able to lay all of the squares on the floor to view them.
4. Working in teams ask the students to place each square on the floor one at a time. Each square must touch at least one side of another square.
5. When all squares are laid down, have the students count the number of square feet in the shape.
6. Now have the students measure the perimeter of the shape.
7. Have the students pick up the squares and rearrange into a different shape. Measure the square feet and perimeter again. Note any changes. (The square feet does not change because no matter how the squares are arranged there are the same number of pieces of paper.) (The perimeter may change depending on the shape that is formed.)
8. Have students write a paragraph describing what they did and how they determined their answers.

BRIEF DESCRIPTION:
Students participate in a visual math lesson that assists them in understanding the actual size of a square foot. The lesson coordinates well with the teaching of area and perimeter.

LEVEL:
Third Grade

SUBJECT:
Math, Language Arts

SKILLS:
Calculating, Thinking Creatively, Reasoning, Illustrating

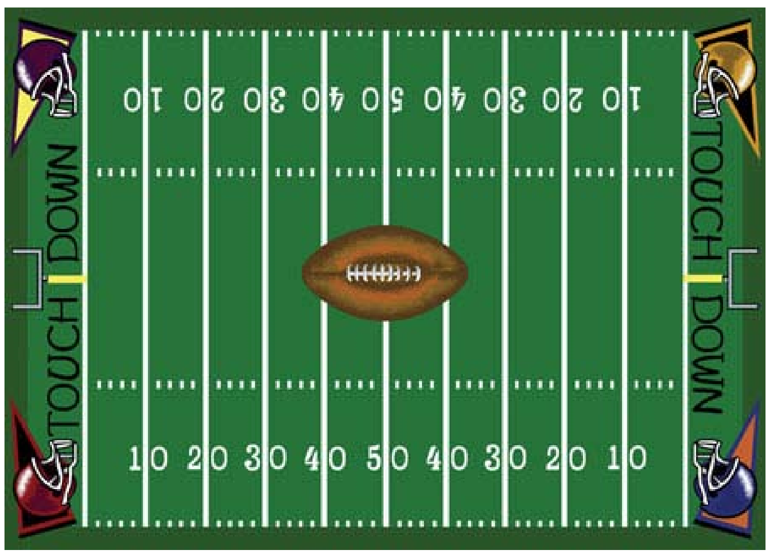
OBJECTIVES:
The student will:

- calculate area
- calculate perimeter

ESTIMATED TEACHING TIME:
45 minutes

Extension:

1. Students can determine what the largest perimeter figure they can design with a certain number of squares (6, 8, 12, etc.).
2. Design, plant, and grow a square foot garden.
3. Calculate the square footage of a classroom, a hallway, or other area.
4. Calculate the number of classrooms it would take to fill one acre of land.
5. Take students outside to determine the area and perimeter of common objects such as part of the sidewalk, a picnic table, or a parking space.
6. This process may be repeated using a square yard (3' x 3' piece of paper).
7. Draw a one acre plot outside on the parking lot, playground, or playing field. An acre equals 4,480 square yards or 43,650 square feet.



SEED PACKET BOOKS

Science:
GLE 0307.4.1
SPI 0307.1.1
3.3.spi.3
Language Arts:
GLE 0301.4.2

Writing:
GLE 0301.3.11

BRIEF DESCRIPTION:
Students create books reviewing and illustrating important plant concepts.

LEVEL:
Third Grade

SUBJECT:
Science, Language Arts

SKILLS:
Thinking Creatively, Reasoning, Illustrating, Experimenting, Writing

OBJECTIVES:
The student will:
- read for content and supporting details
- review uses of plants, plant parts/funcitons, flower parts, seed parts, seed shapes, and photosynthesis

ESTIMATED TEACHING TIME:
45-60 minutes

Materials Needed:

- Oh Say Can You Seed: All about Flowering Plants by Bonnie Worth (ISBN # 0-375-81095-1)
- A seed packet cut open on three sides and laminated for each student
- Seed packet book patterns and paper for inserted pages
- Photosynthesis play
- Stapler

Procedure:

1. Read and discuss Oh Say Can You Seed
2. Review the book using any or all of the following topics:
   a. Uses of plants
      Paper for books
      Cotton for clothes
      Grains
      Fruits
      Vegetables
   b. Seed parts
      Embryo
      Cotyledon
      Seed coat
   c. What do seeds need to germinate?
      Moisture
      Warmth
      Soil or growing medium
   d. Plant parts and function
   e. Types of leaves
   f. Photosynthesis - only plants make their own food
   g. Parts of a flower
   h. Seed shapes & traveling
3. Students will now make their own seed packet book that reviews and illustrates important plant concepts from Oh Say Can You Seed?. Book covers will be made from laminated seeds packets.

4. Choose the contents of the pages to be included in the seed packet books. Patterns for the book follow.
5. Teach students the Photosynthesis Play to reinforce the process by which plants make their own food.
6. Students illustrate and write about the topic selected for each page.
7. Students staple the illustrated pages into their laminated seed packets to complete the book.

Extension:

1. Students carefully read the seed packet and list all the ways math and measurement units are used on the seed packet.

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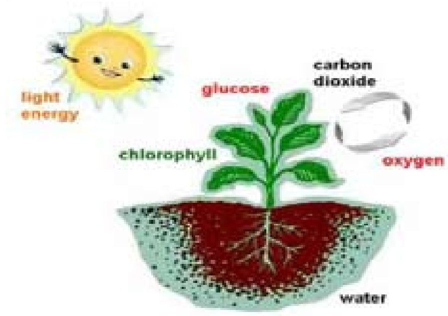
The Photosynthesis Play

Students are introduced to the process of photosynthesis as they act out the different steps in the photosynthesis process. The more you "ham it up" for step 5 the more the students will enjoy and remember the steps.



Credit: vtaide.com

Materials Needed:

- Plant
- Surface to write on as the steps in #4 are illustrated

Procedure:

1. Show students a plant. Ask students what plants need in order to live. Lead students to the fact that plants need soil (nutrients), water, sunlight, and air (carbon dioxide).
2. Explain to students that plants use all of these to make their own food.
3. Illustrate the photosynthesis process for students.
   a. Roots take in water and minerals from soil.
   b. Water and minerals travel up the stem.
   c. The leaves of the plant take in carbon dioxide from the air through the pores on the leaves.
   d. The leaves capture the sun's energy in the chlorophyll in the leaves.
   e. The plant mixes all the infredients up and makes sugars for its food.
   f. Some of the sugars are used, some are stored (in seeds, fruits, or other plant parts).
   g. The leaves give off oxygen into the air.
4. Have students become a plant. Their legs are their roots; body is the stem; arms are leaves.
5. Students add actions to each of the steps in the photosynthesis process.
   a. Students bend over and make a sucking noise while acting like they're pulling in water with their hands.
   b. Students move hands up their body until they are in an upright position.
   c. Students extend arms and pull them into their shoulders while exaggerating the inhaling process.
   d. Students use their arms and quickly grasp at the air, taking in the sun's energy.
   e. Students use arms to make mixing motion.
   f. Students pretend to lick a lollipop (sugars) and show storing some for later by tapping their hips.
   g. Students use air kiss motion to show plants giving off oxygen.

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Seed Packet Books - Use laminated seed packet for cover.

Use this pattern for inside pages of the book

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Lights, Paper, Action

Students will have the opportunity to perform an experiment to determine the effect of light on the leaves of a green plant. After the students have completed the experiment, have them answer the assessment questions.

Materials Needed:

- Small shrub, tree, or houseplant
- Cardboard or aluminum foil
- Scissors
- Paper clips

Procedure:

1. Pick a shrub, tree, or house plant that you can use for an experiment.
2. Using the cardboard or aluminum foil, cut out some shapes such as a circle, square or triangle. Make sure yoru shapes are big enough to cover nearly half a plant leaf.
3. Paper clip each shape on a different plant leaf.
4. If you use a houseplant, place it near a south, west or east window where it will get plenty of sunlight.
5. Make notes about the weather each day and add them to your observations.
6. After four days, remove the shapes from the leaves and observe each of the leaves that had a shape covering it,
7. Compare the areas on the leaves that were covered with shapes to other parts of the leaf. Describe the leaves, then make a sketch showing any changes. What can you conclude?

Assessment: Write a paragraph and answer the following questions:
What has happened to the leaves?
Describe the effects that the lack of sunshine has on the leaf?
What has or hasn't happened in the different parts of the leaf?
What is the best environment for a houseplant? Why?
Where have you seen effects such as these in nature?
Where would you expect to find fewer plants outside because of a lack of sunlight?

Credit: South Carolina Agriculture in the Classroom