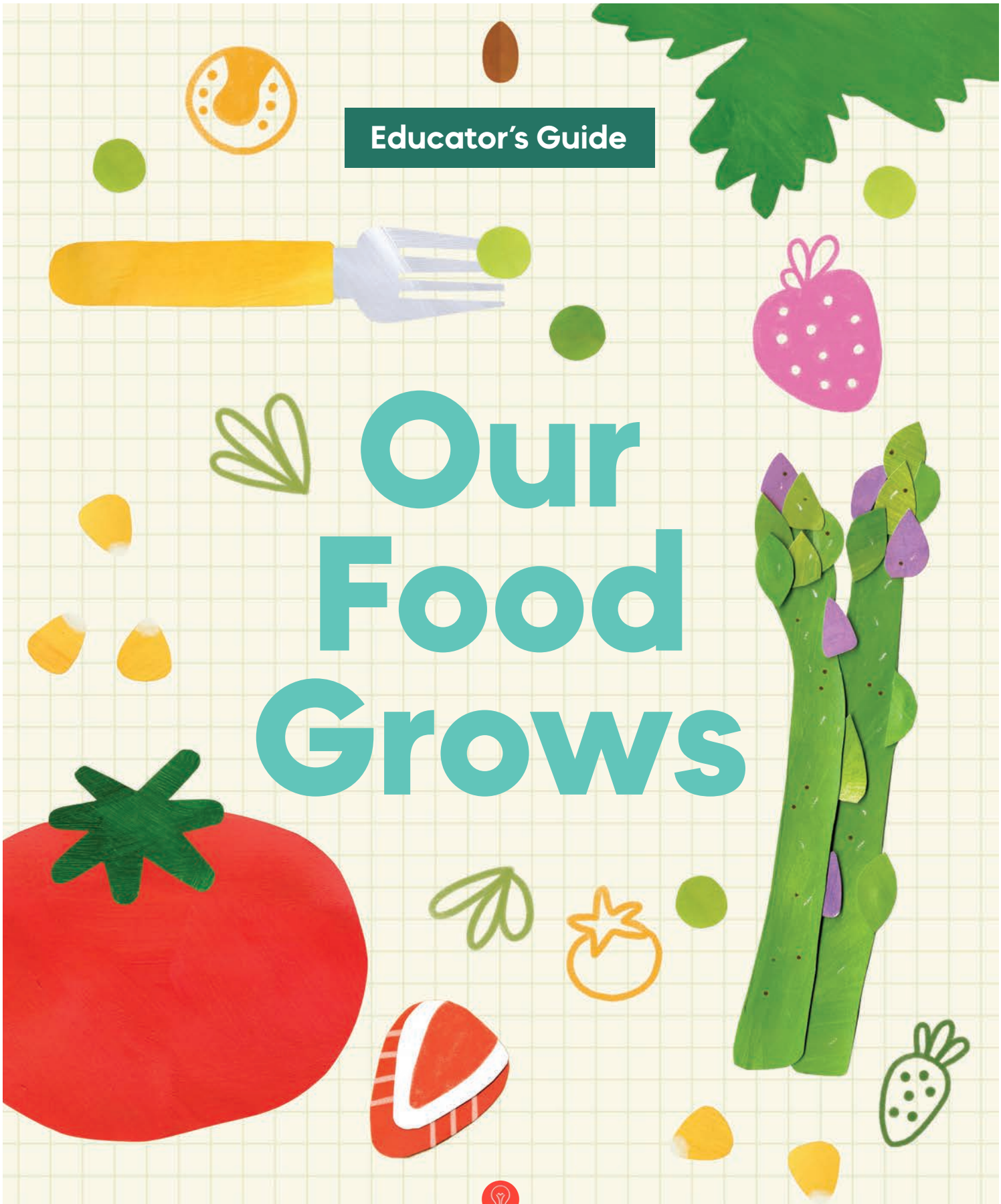
Educator's Guide

Our Food Grows

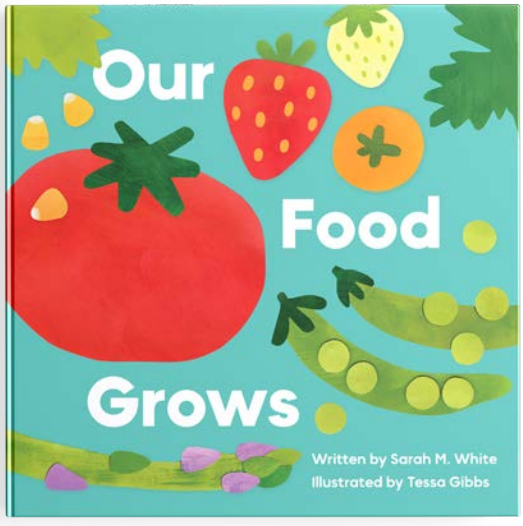


Written by Sarah M. White

THE collective BOOK STUDIO

Designed by Tessa Gibbs

Contents



Did you know our food grows?

Take a colorful journey from the grocery store shelves to the soil where fruits and vegetables begin. We know the food on our plates nourishes us, but where does it come from?

From seeds to sprouts, vines to pods, and stalks to ferns, discover the fascinating ways *Our Food Grows*.

Activity 1

First Comes Flowers, Then Comes Fruit

Target Age: Preschool

Objective: Students will be able to identify some plant parts. Students will understand that flowers precede fruits.

Academic Standards:

NGSS.DCI.1-LS1.A: Structure and Function. All organisms have external parts. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

NALOS.T5.K-2.D: Identify plants and animals grown or raised locally that are used for food, clothing, shelter, and landscapes.

Materials: Song lyrics, three tomato plant pictures. Flower craft materials, one per student: yellow tissue paper, small light green pom pom, rubber band (make a sample ahead of time)

Directions

1. Sing the song "Leaves, Branches, Trunk, and Roots" to the tune of "Head, shoulders, knees, and toes." Try the JAMaROO version: www.youtube.com/watch?v=zJAD4w07EUc

   "Leaves, branches, trunk and roots (trunk and roots),
   Leaves, branches, trunk and roots (trunk and roots),
   First comes flowers, then comes fruit,
   Leaves, branches, trunk and roots (trunk and roots)."

2. Have students shake out their branches and sit down. Read aloud of *Our Food Grows*.

3. Say, "We're going to talk more about one plant today, the tomato plant. Raise your hand if you like to eat tomatoes. Raise your hand if you have grown tomatoes at home. This is a picture of a very young tomato plant (1). Does anyone know what happens on the tomato plant before the tomatoes come out? We heard about it in the song. That's right. The plant flowers. What color are the flowers on a tomato plant? Yellow!" Show picture of the flowers on tomato plant (2).

4. Say, "Before a tomato plant grows tomatoes, the flowers are pollinated. This means that pollen moves from one part of the flower (the stamen) to another part (the stigma). Then, a tomato grows from the base of the flower, and the petals fall off. Many tomato plants are pollinated by the wind. When the wind blows, the pollen gets shaken off and lands on the sticky stigma." (3)

5. Say, "Are you ready to move again? We're going to start as tiny seeds in good soil. Everyone, curl up into a little ball and be very still. It's so dark here. Oh, the rain is falling! The seeds start to wiggle. The seeds are awake! A sprout emerges from the seed and starts to grow. Sit up, everyone. Oh! One leaf has sprouted (model putting one hand out to the side). Another leaf has sprouted! (pop out your other hand). The stem is growing taller (everyone stands up). Leaves are getting bigger (stretch arms out). The plant is growing even taller (on your tiptoes). I think this plant is ready to make some fruit! (Flick your fingers open all around the tomato plant to show where flowers are). The wind is blowing. Everybody sway. Now sway the other way. Fruit sets! (Make fists with your hands all around the plant where you made the flowers). Flowers go away and fruit grows. Great job, everyone!"

6. Transition to making the flower. Say, "Now we're going to make our own tomato plant flower. (Model as you give directions). Spread out your tissue paper. Pick up the center of the tissue paper, and grab the center in your other hand to make a flower shape. You should be holding a big handful. Wrap the rubber band around the tissue paper you are holding. Use one or two fingers to make a hole in the top of the flower. Slip the pom pom inside. This is where the tomato grows."

7. Wrap up. Sing the song one more time (optional) and emphasize the line "first comes flowers, then comes fruit" and have them hold up their flowers. Say, "Today we learned how a tomato plant grows and that it makes flowers before it makes its fruit–tomatoes."

Photo 1

Young Tomato Plant

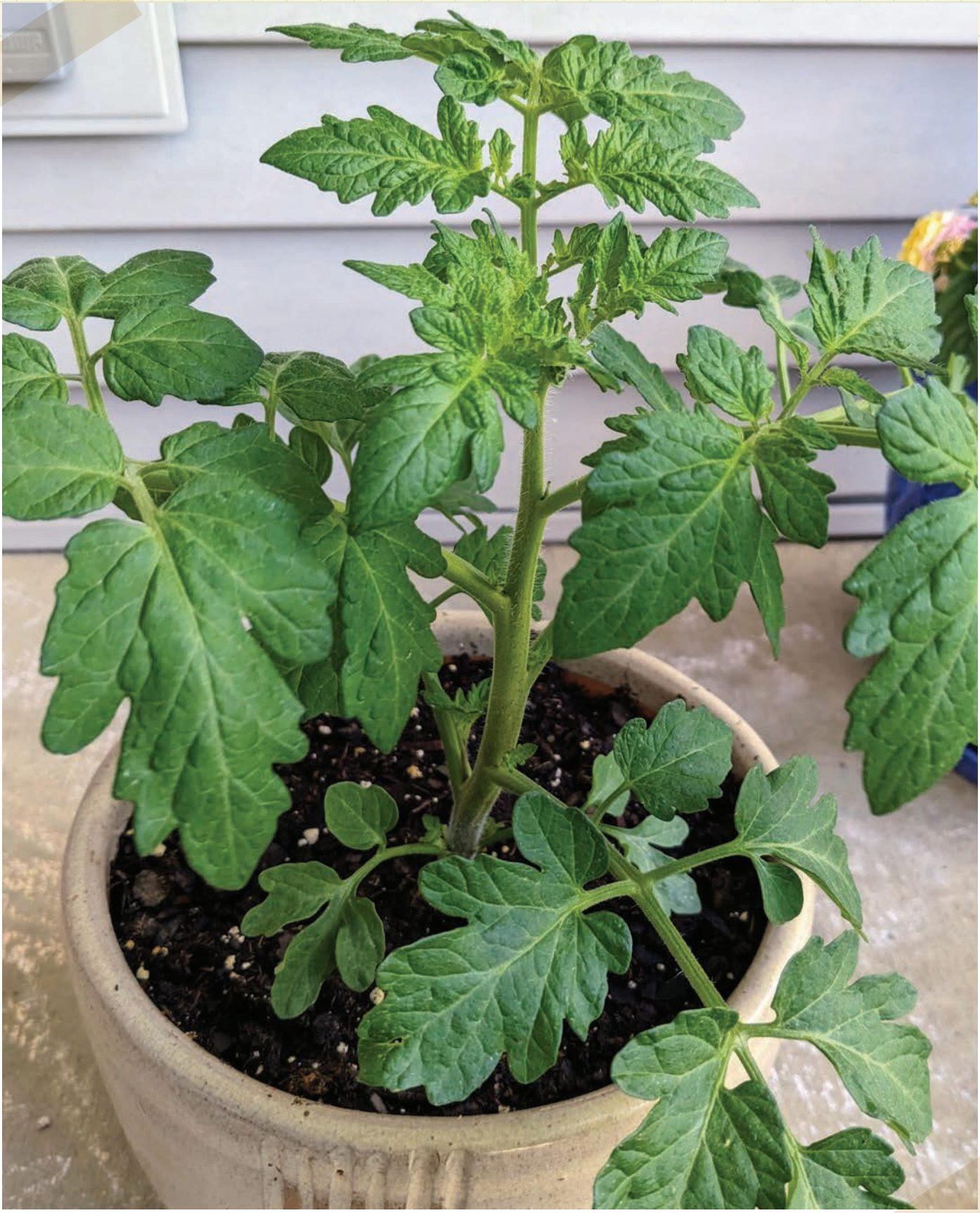


Photo 2

Tomato Plant Flowers

Photo 3

First Fruit

Activity 2

The Seeds We Know

Target Age:
Preschool-Kindergarten

Objective: Students will be able to explain what a seed is and a seed's function–to produce more plants of its kind.

Academic Standards:

NGSS.K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

NALOS.T2.K-2.A: Explain how farmers/ranchers work with the life cycle of plants and animals (planting/breeding) to harvest a crop.

Materials: The Seeds We Know worksheet, pencils, coloring tools of choice

Directions

1. Read aloud *Our Food Grows*.
2. Discuss the seeds in the book (strawberry, pea, corn, tomato).
3. Ask the class "What does a seed do?" and record their ideas.
4. Introduce the idea of a seed as a set of building directions for a plant.
5. A seed contains all the food that a tiny plant (embryo) needs to get started.
6. Seeds grow another plant of their kind. Apple seeds grow apple trees which grow apples. Tomato seeds grow tomato plants which grow more tomatoes.
7. Some seeds can be eaten by people and some cannot.
8. Farmers and gardeners use seeds to grow the plants that make our food.
9. Distribute the worksheet and complete it together as a guided activity or at tables based on students' ages. Circulate to help spell and write words.

Activity 2

Name _____

The Seeds We Know

Draw, color, and label the seeds you have seen.

Activity 3

A Seed Grows

Target Age:
Kindergarten-1st Grade

Objective: Students will be able to identify what a seed needs in order to germinate.

Academic Standards:

NGSS.K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

NALOS.T1.K-2.B: Describe the importance of soil and water in raising crops and livestock.

Materials: seed packets for growing plants in the classroom, including seeds requiring darkness and light to germinate, materials for students to plant seeds

Directions

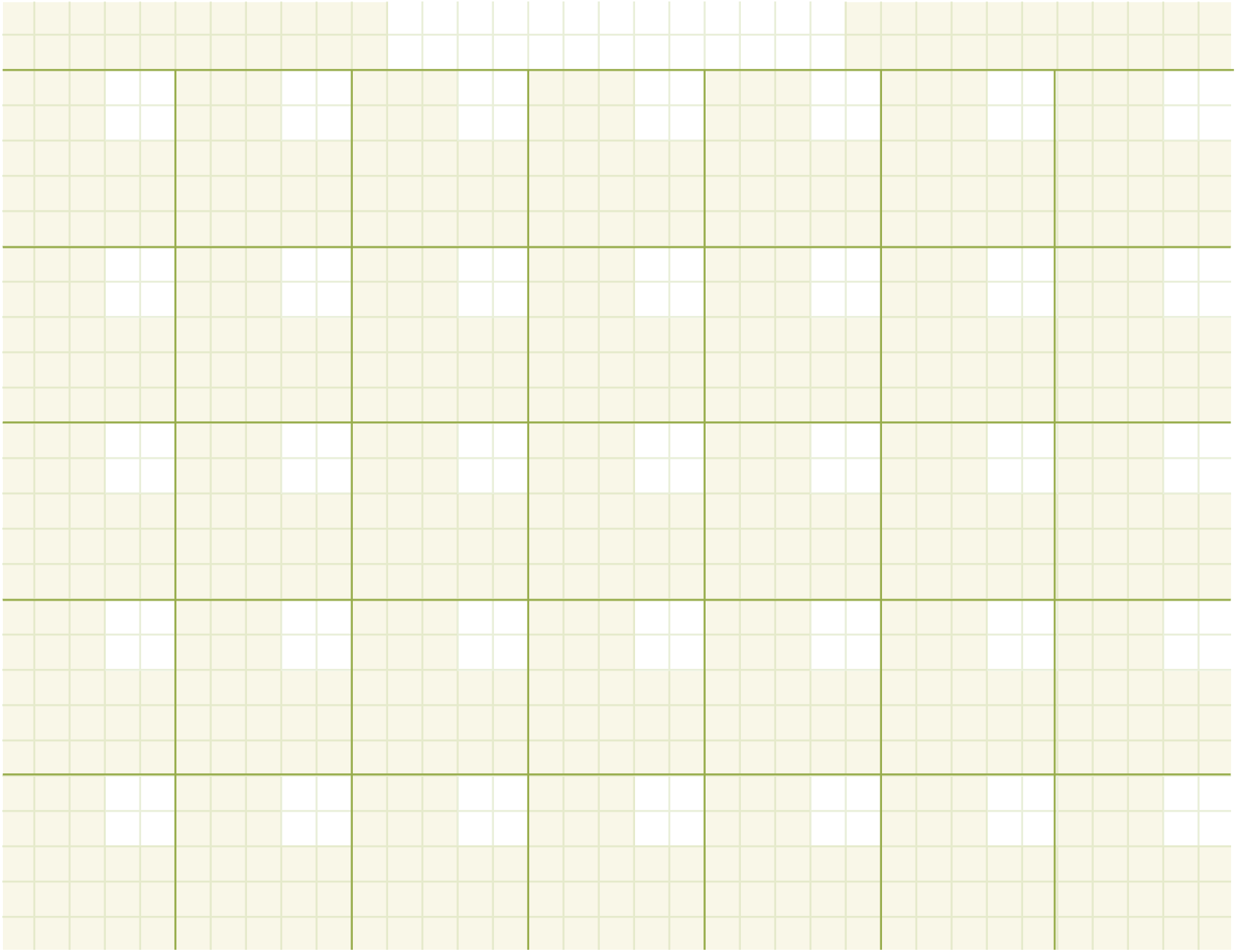
1. Read aloud *Our Food Grows*.
2. Talk with students about their experiences of growing food with family members or other teachers. Ask if anyone has grown plants from seeds and what it was like.
3. Show students various seed packets and study them together using a document camera if possible. Or pass seed packets around the classroom.
4. Read the information on the seed packet and use the directions to introduce what the seeds need to germinate.
5. Make a list of what the seeds need to germinate. If possible, compare two seed packets–one where the seeds need light and one where the seeds need darkness to germinate.
6. When the list is complete (water, light/darkness, temperature, technically oxygen), plant seeds with students using your chosen seeds or a variety of seeds.
7. To compare the germination time of various seeds, let students choose which type of seed to plant. Record the germination time from the seed packet and then have students record a prediction on a class seed calendar. For example, mark when the grass should come up, and then have each student who selected grass write their initials on the calendar on the day they predict their first grass seed will sprout. Later on, record the date when the grass sprouts and compare.
8. There are many ways to plant seeds in the classroom. Some teachers use clear plastic cups, others use plastic bags. See the "Beanie Baby," "Corn Baby," and "Garden in a Bag" activities from Wisconsin Agriculture in the Classroom for inspiration.

Classroom Seed Calendar

Seed: _____ Expected days to germinate: _____

Activity 3

A Seed Grows



Activity 4

Where Fruits Grow + Memory Match

Target Age:
Kindergarten-1st Grade

Objective: Students will be able to match eight fruits to the plants, trees, bushes, and vines where they grew.

Academic Standards:

NGSS.DCI.LS1.C: Organization for Matter and Energy Flow in Organisms. All animals need food in order to live and grow. They obtain their food from plants or from other animals. (K-LS1-1)

NALOS.T3.K-2.B: Recognize that agriculture provides our most basic necessities: food, fiber (fabric or clothing), energy, and shelter.

Materials: 1 Where Fruits Grow worksheet, memory match pages for all students, scissors, coloring tools of choice, paperclips for storing decks

Directions

Session One

1. Read *Our Food Grows* as a class.
2. Discuss what types of plants were mentioned in the book. Ask students if they know how other foods grow. Prompt them with foods specific to your region that they may have seen growing such as apples, soybeans, or pumpkins.
3. Display the handout with the headings listing ways that fruits grow. Clarify each plant type with a simple descriptor at the top of the column like "tall, trunk" for trees, "thin, wrap" for vines, "multiple stems" for bush, and "other" for plants. Begin filling in the table together with what students already know.
4. Begin working on the memory match game. Explain that students will be making their own memory match game to practice matching fruits to how they grow. Each student will color and cut their own set of cards that they will be able to take home. Spend the rest of this session coloring the memory match cards.

Session Two

1. Do a quick review of the plant types chart.
2. Allow time for students to finish coloring and cutting their game.
3. Students play 1-3 rounds of memory match with classmates, alternating which decks are used.
4. Revisit the chart and add the remaining fruits from the memory match game.

Expansion Pack

Check out a few copies of *The Fruits We Eat* by Gail Gibbons and have students research three new fruits to add to their memory match deck. The students choose their fruits, illustrate, and label.

Memory Match Rules

- Students turn all cards face down and mix them up.
- Students arrange the cards in a grid.
- Students flip over two cards to see if they are a match. If they match, the student keeps both cards and gets another turn. If they do not match, the cards are flipped back over and play goes to the next student.
- No more than three matches can be taken in a single turn.
- The student with the most matches at the end wins.

Activity 4

Name _____

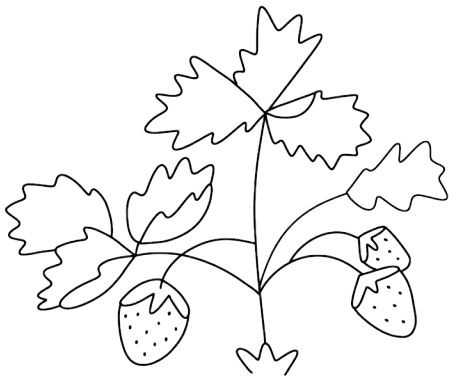
Where Fruits Grow

 Tree	 Vine	 Bush	 Plant

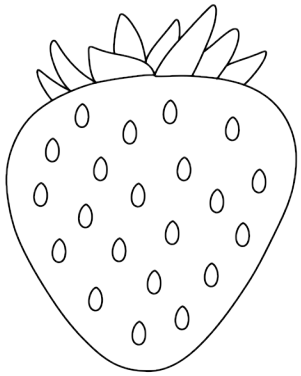
Activity 4

Memory Match

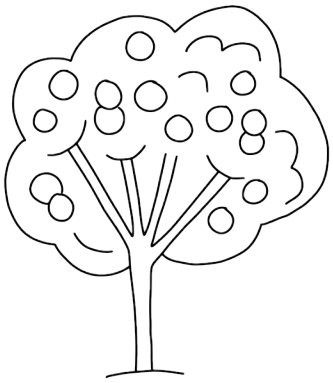
Print on 2 double-sided sheets of cardstock (pattern goes on the back) for best playing cards.



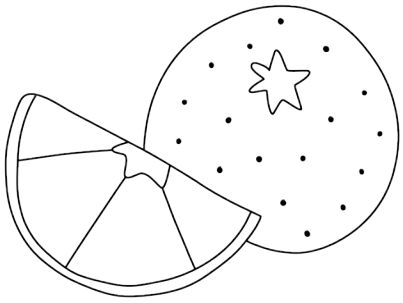
strawberry plant



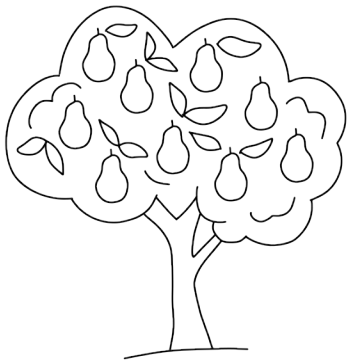
strawberry



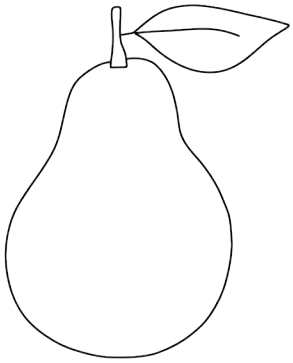
orange tree



orange

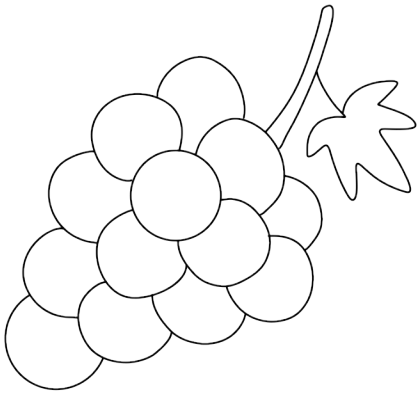


pear tree



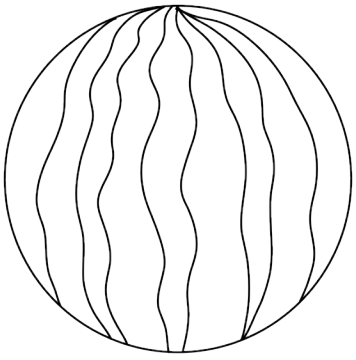
pear

grape vine

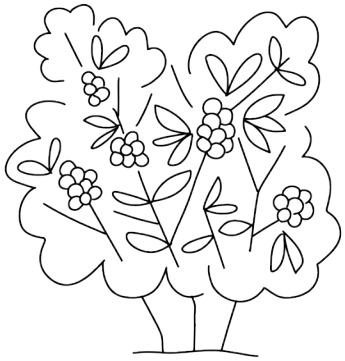


grape

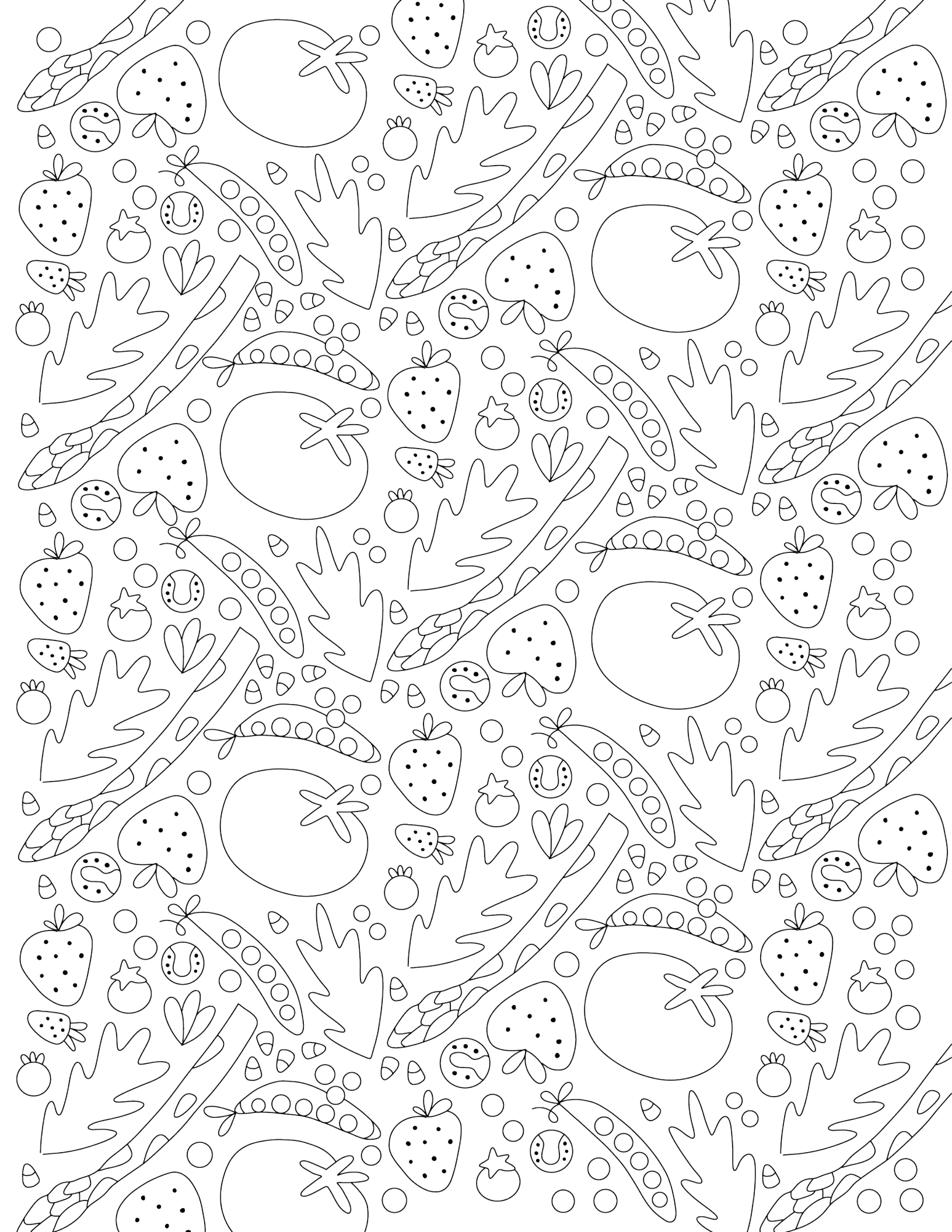
watermelon vine



watermelon



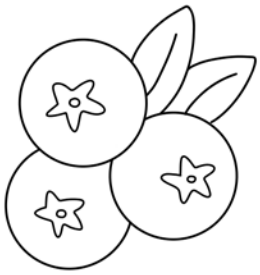
blueberry bush



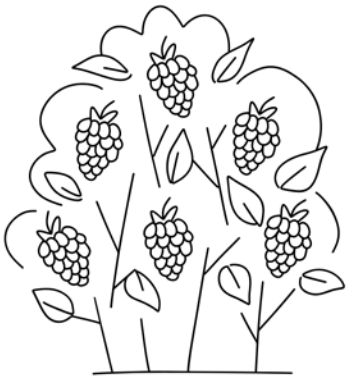
Activity 4

Memory Match

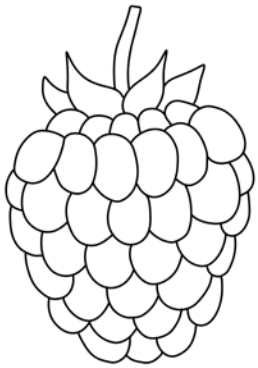
Print on 2 double-sided sheets of cardstock (pattern goes on the back) for best playing cards.



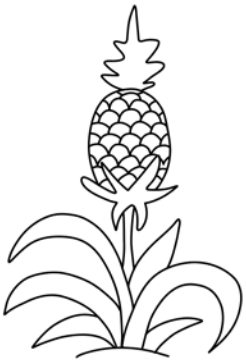
blueberry



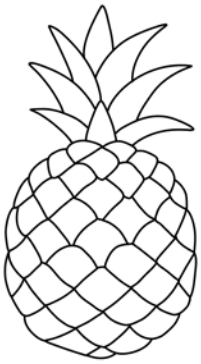
raspberry bush



raspberry



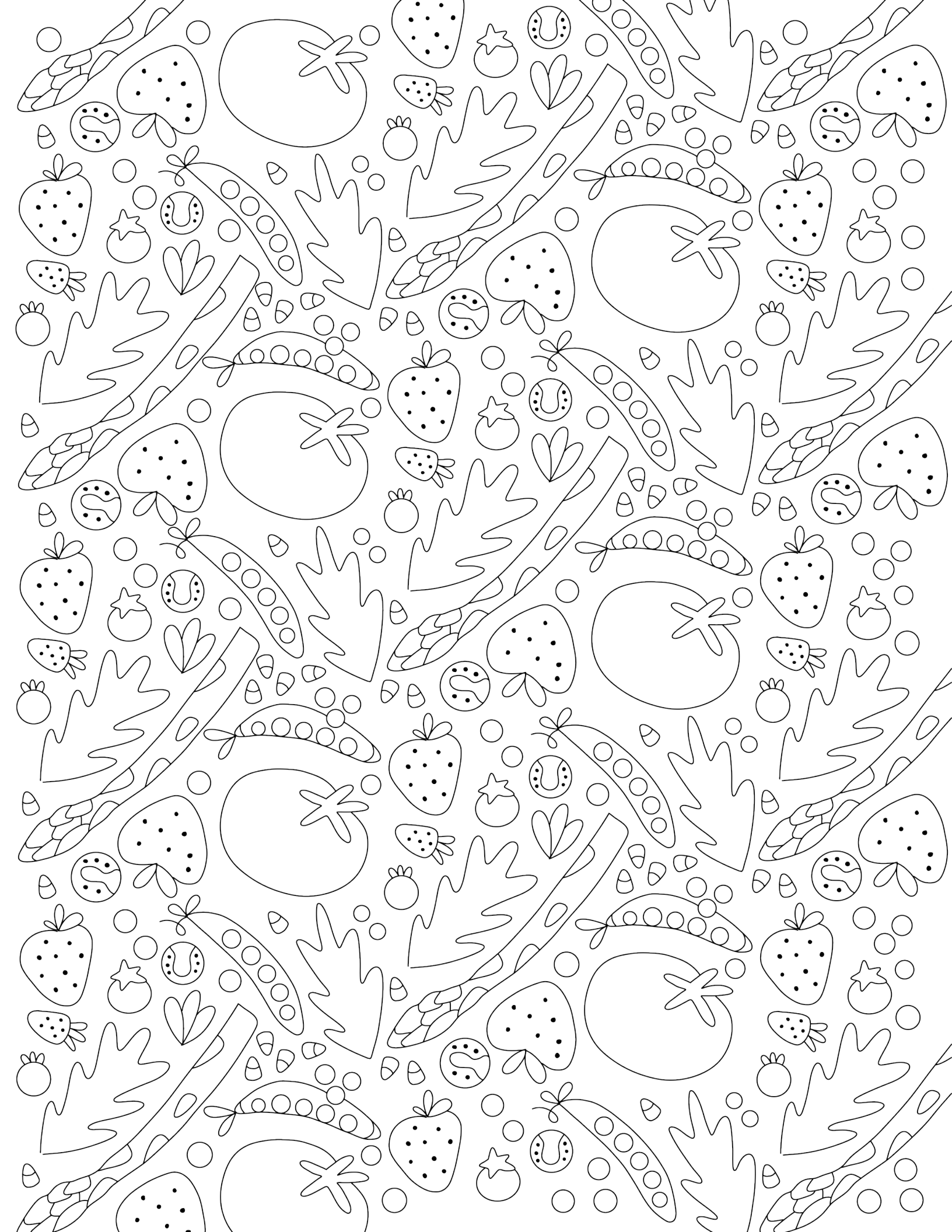
pineapple plant



pineapple

_____ _____ _____

_____ _____ _____



Activity 5

How Does Your Garden Grow?

Target Age: 1st Grade

Objective: Students will be able to effectively utilize space in designing a garden to meet specific goals and preferences.

Academic Standards:

CCSS.MATH.1.MD.A.1, 2: Measure lengths indirectly and by iterating length units.

CCSS.MATH.1.G.3: Reason with shapes and their attributes.

NGSS.DCI.LS1.C: Organization for Matter and Energy Flow in Organisms. All animals need food in order to live and grow. They obtain their food from plants or from other animals. (K-LS1-1)

NALOS: T3.K-2.b: Recognize that agriculture provides our most basic necessities: food, fiber (fabric or clothing), energy, and shelter.

Materials: Students pre-assigned into work groups with at least one student who can read well in each group. One garden plot and set of plant sheets per group, investigation sheets and scissors for all students.

Directions

1. Read aloud *Our Food Grows*.
2. Hook: Have several trustworthy students pile into the center of the carpet and squat down in a ball shape as closely together as they can be. Tell the students they are seeds of a specific plant from the book. Ask the students to carefully and slowly grow by standing up and stretching their arms/branches (without hurting others).
3. Ask the other students, "What's wrong with this garden?" [the plants don't have enough space!]
4. Discuss with students, "How much space do plants need? Do they all need the same amount of space?" Make a prediction on the second question and tally Y/N.
5. Discuss why plants need space. It's not just the physical space for branches like we saw with the students. It's also the space underground for the roots of the plant, and the soil resources and nutrients used by each plant.
6. Show students the garden plot paper and say, "You're going to work in groups to build gardens. In your group, everyone will have a turn to cut, and then you will solve problems together."
7. Dismiss students to groups and distribute the garden plots, plant sheets, and investigation questions.
8. Circulate as the students begin solving the problems and assist where needed.
9. Call groups back to the carpet and have different groups share answers from the investigation sheet.
10. At the end, revisit the question "Do all plants need the same amount of space to grow?" [No.] Ask, "If you were all corn plants, how many could fit on the carpet?" Make this as technical as you want. Corn grows one foot apart in rows three feet apart.

Teacher Note

The plant sheets are made to scale with one inch representing one foot. The space estimates are gathered from a variety of extension program websites. In some cases, an average distance within a range of possible growing distances is used.

Name _____

Activity 5

How Does Your Garden Grow?

Investigation Sheet

Use the garden pieces to build a garden for each person. Use all the available space.

1. Tyler wants a pizza topping garden with **tomatoes** and **corn**.
   What could his garden look like?

2. Piper only likes to eat **green** foods. Design her garden.

3. Piper's brother, Max, only likes to eat **red** foods. Design his garden.

4. Fill the garden using **every plant type**.

5. Mateo wants to fit the **greatest number of plants possible** in his garden.

   Which plant should he grow? _____

   The plant that takes up the least amount of space and resources is _____

6. Ava wants to plant the **fewest number of plants** in her garden.

   Which plant should she grow? _____

   The plant that takes up the greatest amount of space and resources is _____

7. Design a garden that has something **everyone** in your group likes to eat.

Activity 5

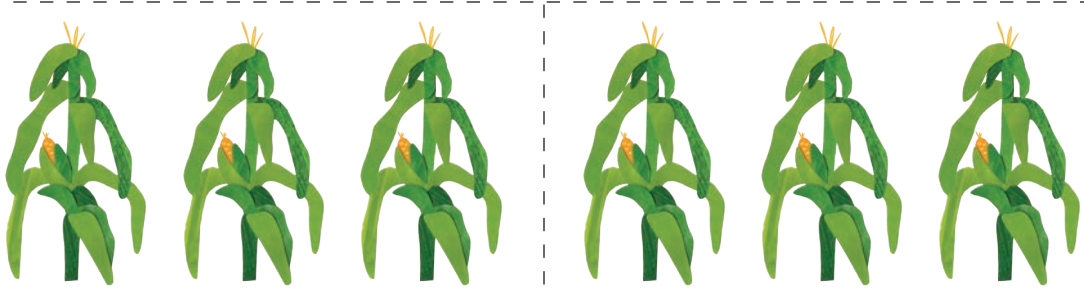
Print Single Sided at 100%

_____ Garden

name

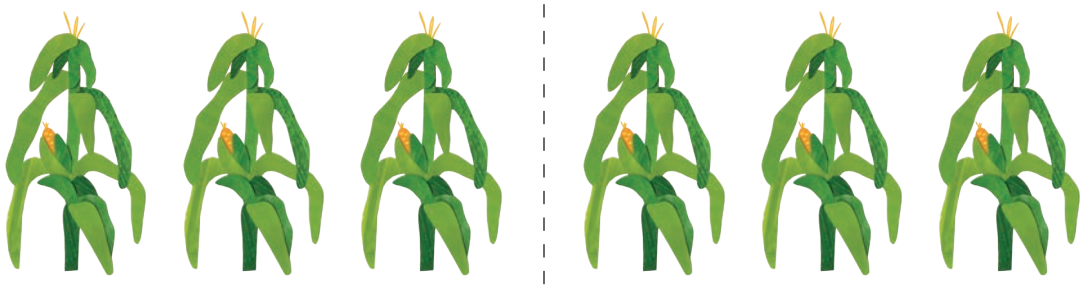
Activity 5

Print Single Sided at 100%



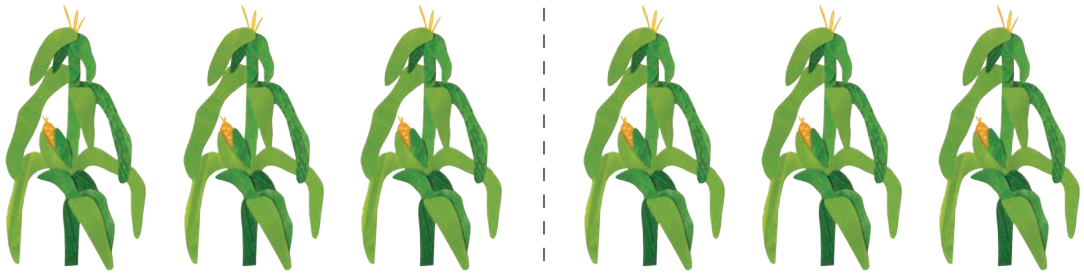
3 corn plants

3 corn plants



3 corn plants

3 corn plants



3 corn plants

3 corn plants

Print Single Sided at 100%

1 strawberry plant

1 strawberry plant

1 strawberry plant

1 strawberry plant

1 strawberry plant

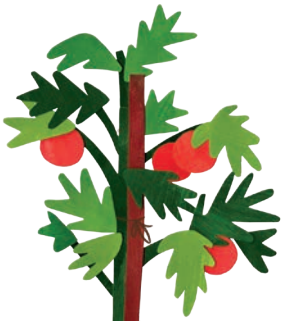
1 strawberry plant

1 strawberry plant

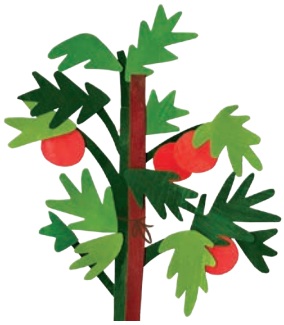
1 strawberry plant

1 strawberry plant

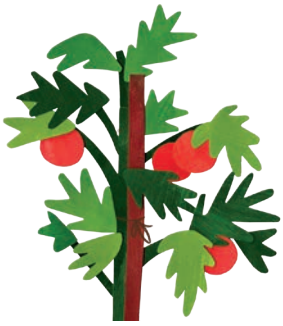
Print Single Sided at 100%



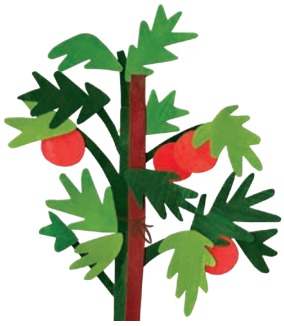
1 tomato plant



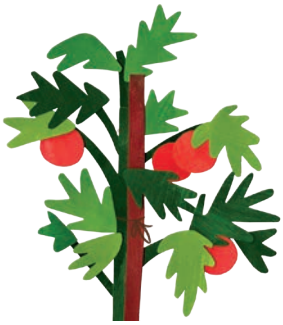
1 tomato plant



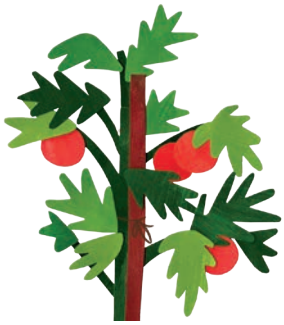
1 tomato plant



1 tomato plant



1 tomato plant



1 tomato plant

Print Single Sided at 100%

3 asparagus plants

3 asparagus plants

3 asparagus plants

3 asparagus plants

Activity 5

Print Single Sided at 100%

18 pea plants

18 pea plants

18 pea plants

18 pea plants

18 pea plants

18 pea plants

18 pea plants

18 pea plants

18 pea plants

Keep Reading!

Use this text set at home or in the classroom to learn more about how plants and food grow.

Board Books

Li, Maggie. *Seed*. Templar Books, 2022.

McDonald, Jill. *Hello, World! Garden Time*. Doubleday, 2022.

My First Book of Growing Food. Illustrated by Åsa Gilland. Duo Press, 2021.

Picture Books

Appelt, Kathi. *Watermelon Day*. Illustrated by Dale Gottlieb. H. Holt, 1996.

Ayres, Katherine. *Up, Down, and Around*. Illustrated by Nadine Nernard. Candlewick Press, 2007.

Bergame, Cécil. *Roll, Roll Little Pea*. Illustrated by Magali Attiogbé. Red Comet Press, 2023.

Gibbons, Gail. *The Berry Book*. Holiday House, 2002.

Gibbons, Gail. *From Seed to Plant*. Holiday House, 1991.

Gibbons, Gail. *The Fruits We Eat*. Holiday House, 2015, 2024.

Gibbons, Gail. *The Vegetables We Eat*. Holiday House, 2007, 2024.

Hansen, Grace. *Seeds*. Abdo Kids, 2016.

Kirkman, Marissa. *Seeds*. Little Pebble, 2020.

Portis, Antoinette. *A Seed Grows*. Neal Porter Books, 2022.

Richards, Jean. *A Fruit is a Suitcase for Seeds*. Illustrated by Anca Hariton. The Millbrook Press, 2002.

Robbins, Ken. *Seeds*. Atheneum, 2005.

Snyder, Laurel. *The Forever Garden*. Illustrated by Samantha Cotterill. Schwartz & Wade Books, 2017.

Garden Activity Books

Bradley, Kirsten. *Easy Peasy: Gardening for Kids*. Illustrated by Aitch. Little Gestalten, 2019.

Gardening for Adults

Farley, Pam. *The First-Time Gardener: Container Food Gardening*. Cool Springs Press, 2023.

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Sarah M. White is an author, educator, and mom. She writes across genres in English and Spanish and enjoys collaborating on creative projects. She's the author of the adult memoir-in-verse *Today I Left the House: Diary of a First-Time Mom* as well as several children's books for Spanish-language learners. Her work has appeared in Highlights *High Five* magazine. She studied writing at Wheaton College (IL) and is a member of SCBWI and the Redbud Writers Guild. In education, she works as a college and career counselor. Sarah lives in Madison, Wisconsin with her husband, three children, and black lab.

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Tessa Gibbs is a stay-at-home mom with a passion for creating. She paints, illustrates, designs, and more. She loves exploring new mediums to feed her curiosity and hopes to pass that same passion on to her kids in an art-focused home. Tessa is inspired by nature, food, animals, and lots of color. Born and raised in Wisconsin, Tessa now lives in Madison with her husband and two children.

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