



The Book Planter



Ag in the Classroom

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I Love Strawberries!

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Jolie loves strawberries—and she’s on an unstoppable (and hilarious) mission to grow her own food from seedling to table in this colorful introduction to the joy of growing the popular fruit. Through Jolie’s scrapbook-style journal entries, young readers will learn how she convinces the “old people” (aka her parents) to let her grow her own strawberries. Growing strawberries is a lot of work and responsibility, but Jolie is ready with the help of her faithful rabbit Munchy! Together they find out just how delicious, rewarding, and sometimes complicated it can be to grow your own food.

NC Ag Facts¹

- The selection process for our state’s official red berry was a long one. Students at Tommy’s Road Elementary in Wayne County petitioned for the strawberry to become the North Carolina state fruit in 2001; however, the scuppernong grape was named the state fruit, and the strawberry became the state red berry.
- Strawberries are sold for fresh consumption or to be frozen, canned, preserved, or juiced.
- Strawberries can grow in a wide range of soils and climates in North Carolina; however, they are susceptible to drought.
- Strawberries are high in Vitamin C and A, and supply 8% of the RDA (Recommended Dietary Allowance) for Iron.

Activity 1: Growing Our Vocabulary

In this activity, students identify key vocabulary words that go along with the reading.

Materials:

- Glue stick, one per group
- Scissors, one per group
- 1 dice, one per group

Procedures:

1. Read *I Love Strawberries!* as a class.
2. Write the key vocabulary words from the story on the board. Save the definitions for later.
 - a. **Blossom:** when a plant produces flowers
 - b. **Runners:** horizontal stems that run above ground to produce a new plant.
 - c. **Pest:** an insect or other animal that attacks crops, food, and livestock
 - d. **Roots:** the part of the plant that holds it in the ground and supplies water and nutrients throughout the plant
 - e. **Harvest:** a gathering of ripe crops
 - f. **Dozen:** 12 of something
3. As a class, discuss each word and its definition.
4. Go over each word one by one in a class discussion.
 - a. Ask, “What does _____ mean?”
5. Once you have gone over every vocabulary word, erase the board and break the students into groups of three. Each group gets one glue stick, one pair of scissors, and one dice.
6. Pass out the *Growing Our Vocabulary worksheet* to each group.
7. Tell the students to cut each definition out from the worksheet and mix them up in a pile.
8. Explain the game rules:
 - a. Students will take turns, going clockwise, rolling the dice.
 - b. When students roll a 1 or 6, they can select a definition from the pile and glue it next to its corresponding vocabulary word.
 - c. The object of the game is to place as many definitions correctly as possible.
 - d. The students who places the most definitions next to its corresponding vocabulary word wins.
9. Tell the students that they may begin.
10. Walk around the room to see each group’s progress. Wait until a group has completed all the definitions before checking their work.

Activity 2: Growing Grass like Jolie

In the book, Jolie grows grass in a cup to prove to her parents that she can take care of plants. In this activity, students will make their own “Grass Heads.”

Materials:

- Nylon stockings/pantyhose (knee-highs and pop socks work best)
- Grass Seed
- Potting soil/mix
- Small, clear plastic cup (cocktail size)
- Googly eyes, fabric scraps, colored paper, pipe cleaners, etc. (materials for decorating the faces)
- Water in a spray bottle



Procedures:

1. Cut off 8" section of the stocking that includes the toe. You can use a tube section without the toe, but you'll have to knot one end to close it, and turn inside out to hide the knot.
2. Sprinkle grass seed into the closed end of the stocking. You'll need about 2 teaspoons full.
3. Pack some potting soil into the stocking. Aim for the head to be about tennis ball sized. Shape the soil to be a ball.
4. Tie a knot in the top/open end to close it.
5. You can make a bulbous nose or ears by grabbing a bit of stocking and twisting. Fasten with a rubber band or thread.
6. Decorate. Use fabric scraps or permanent marker to decorate the face, and colored paper to make the plastic cup into an outfit.
7. Sit the head into the cup.
8. Saturate the head completely. Keep the head moist. The "hair" will take about one week to sprout, and a full head takes about 3-4 weeks to grow.
9. Discuss what plants need to grow (sunlight, water, air, etc.). Start a discussion with students about what would happen if you kept the grass heads in a dark room, didn't water them, etc.



Activity 3: Strawberry DNA²

In this activity, students discover what DNA is and how to extract it from a strawberry.

Materials:

- Chilled rubbing alcohol
- Measuring cup and measuring spoons
- Salt
- Water
- Dish soap
- Mixing bowl
- Paper bowls (one per student)
- Cheesecloth (enough for each student to have a piece)
- Strawberries (enough for each student to have 1)
- Resealable plastic sandwich bag (one per student)
- Bamboo skewer or toothpick (one per student)

Note: These items can be purchased in a kit to make Strawberry DNA Necklaces:

<https://agclassroomstore.com/strawberry-dna-necklace/>

Procedures:

1. After reading the book as a class, explain that today they will be scientists and will remove DNA from strawberries.
2. Ask the students if they know what DNA is.

3. Explain to students that every living thing is made of cells. Inside each cell is something called DNA. The DNA gives instructions to the cell that helps the cell grow. DNA is also passed down from generation to generation. Pause to ask students if they know what the phrase “generation to generation” means. Explain that it means that they have both their biological mom and dad’s DNA. **Note:** Be sensitive to students who may be adopted, being raised by another family member, or single parent students. Adjust conversation accordingly.
4. Pass out a plastic bag, strawberry, bamboo skewer, and paper bowl to each student.
5. Have the students watch you combine 1/3 cup of water, ½ tsp of salt, and 1 tbsp. of dish soap in a mixing bowl.
6. Ask students to bring their plastic bag with the strawberry inside so that you can distribute 1 tablespoon of the mixture into each bag.
7. Instruct the students to seal and remove all the air from their bags carefully. Once the students seal their bags, ask them to smash their strawberry until it is a smooth paste. **Note:** Warn students that they should not smash their bags too hard, or they may cause the bags to open and spill. Consider laying down trash bags or protection and asking students to do this carefully in a designated area.
8. Have the students cover their bowl with their piece of cheesecloth and pour their strawberry paste into the bowl. Once the liquid has passed through the cheesecloths, remove it and add one tbsp. of the chilled alcohol to the bowl.
9. Use the bamboo skewer or toothpick to view the thick, white substance at the top. That is the DNA!

Activity 4: U-Pick²

In this activity, students use critical thinking and math skills to complete addition and subtraction word problems.

1. Explain the concept of a U-pick strawberry farm to the class. U-Pick farms are where the customer gets to pick their products themselves by hand before purchase. You may choose to show a video showcasing strawberry farms.
 - a. [Visit Strawberry Farms in Johnston County, NC](#)
 - b. [AITC: Strawberries](#)
 - c. [Leggett Strawberries](#)
 - d. [U-Pick in Michigan](#)
 2. Split the class into groups of four. Each person in the group will be a different character: John, Anne, Isaac, and Jada.
 3. Pass out the U-Pick Worksheets to each group.
 4. Have the group cut out all of the strawberries, and the basket.
 5. Students will place strawberries into the “basket” to solve the word problems on the worksheet.
- Note: If your classroom has a pretend cash register or fake money, you can set up a real u-pick farm around the classroom! Have students take turn being the cashier and counting/collecting cash for the strawberries.

U-Pick Worksheet Answer key

1. 14
2. 5
3. 5
4. 15
5. 9
6. 12 groups of 2 (leaving one extra strawberry)
7. 10
8. 5
9. 2 groups of 10 (leaving 5 strawberries)
10. 5 groups of 2, 10 groups of 1

Sources

1. <https://www.ncpedia.org/berries-strawberry-and-blueberry>
2. American Farm Bureau Foundation for Agriculture. *I Love Strawberries Educator's Guide*; 2022.

K-5 Subject Areas: Reading, Science, and Math

Reading

- **RL.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RL.1.1** Ask and answer questions about key details in a text.
- **RL.1.3** Describe characters, settings, and major events in a story, using key details.
- **RL.1.4** Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.
- **RL.4.2** Determine a theme of a story, drama, or poem from details in the text; summarize the text.
- **RI.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RI.K.2** With prompting and support, identify the main topic and retell key details of a text.
- **RI.K.7** With prompting and support, describe how the words and illustrations work together to provide information.
- **RI.1.1** Ask and answer questions about key details in a text.
- **RI.1.2** Identify the main topic and retell key details of a text.
- **RI.1.6** Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
- **RI.1.7** Use the illustrations and details in a text to describe its key ideas.
- **RI.1.8** With guidance and support, identify the reasons an author gives to support ideas in a text.
- **RI.2.1** Answer who and what, where questions to demonstrate understanding of details in a familiar text.
- **RI.2.2** Identify the main topic of text.
- **RI.2.5** Locate key facts or information in a familiar text.
- **RI.3.5** Use text features and search tools to locate information relevant to a given topic efficiently.
- **RI.3.7** Use information gained from illustrations and the words in a text to demonstrate understanding of the text.
- **RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- **RI.4.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- **RI.4.5** Describe the overall structure of events, ideas, concepts, or information in a text or part of a text.
- **RI.4.7** Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.
- **RI.5.2** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

Science

- **K.P.2** Understand how objects are described based on their physical properties and how they are used.
- **1.E.2** Understand the physical properties of Earth materials that make them useful in different ways.
- **1.L.1** Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive.
- **1.L.2** Summarize the needs of living organisms for energy and growth.
- **3.L.2** Understand how plants survive in their environments.
- **4.L.1** Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.
- **5.L.2** Understand the interdependence of plants and animals with their ecosystem.

Math

- NC.K.CC.4 Understand the relationship between numbers and quantities.
- NC.K.CC.5 Count to answer “How many?” in various situations.
- NC.K.OA.1 Represent addition and subtraction, within 10.
- NC.K.OA.2 Solve addition and subtraction word problems, within 10, using objects or drawings to represent the problem, when solving.
- NC.K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way using objects or drawings, and record each decomposition by a drawing or expression.
- NC.K.OA.4 For any number from 0 to 10, find the number that makes 10 when added to the given number using objects or drawings, and record the answer with a drawing or expression.
- NC.K.OA.5 Demonstrate fluency with addition and subtraction within 5.
- NC.K.OA.6 Recognize and combine groups with totals up to 5.
- NC.K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further one by using drawings or expressions.
- NC.K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- NC.1.IOA.6 Add and subtract, within 20, using strategies such as: counting on, making ten, decomposing a number leading to a ten, using a relationship between addition and subtraction, using a number line, creating equivalent but simpler or known sums.
- NC.1.OA.8 Determine the unknown whole number in an addition or subtraction equation involving three whole numbers.
- NC.1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones.

Growing Our Vocabulary

Blossom:

Runners:

Pest:

Roots:

Harvest:

Dozen:

Growing Our Vocabulary

Gathering of ripe crops

An insect or other animal that attacks crops, food, and livestock

Horizontal stems that run above ground to produce a new plant

12 of something

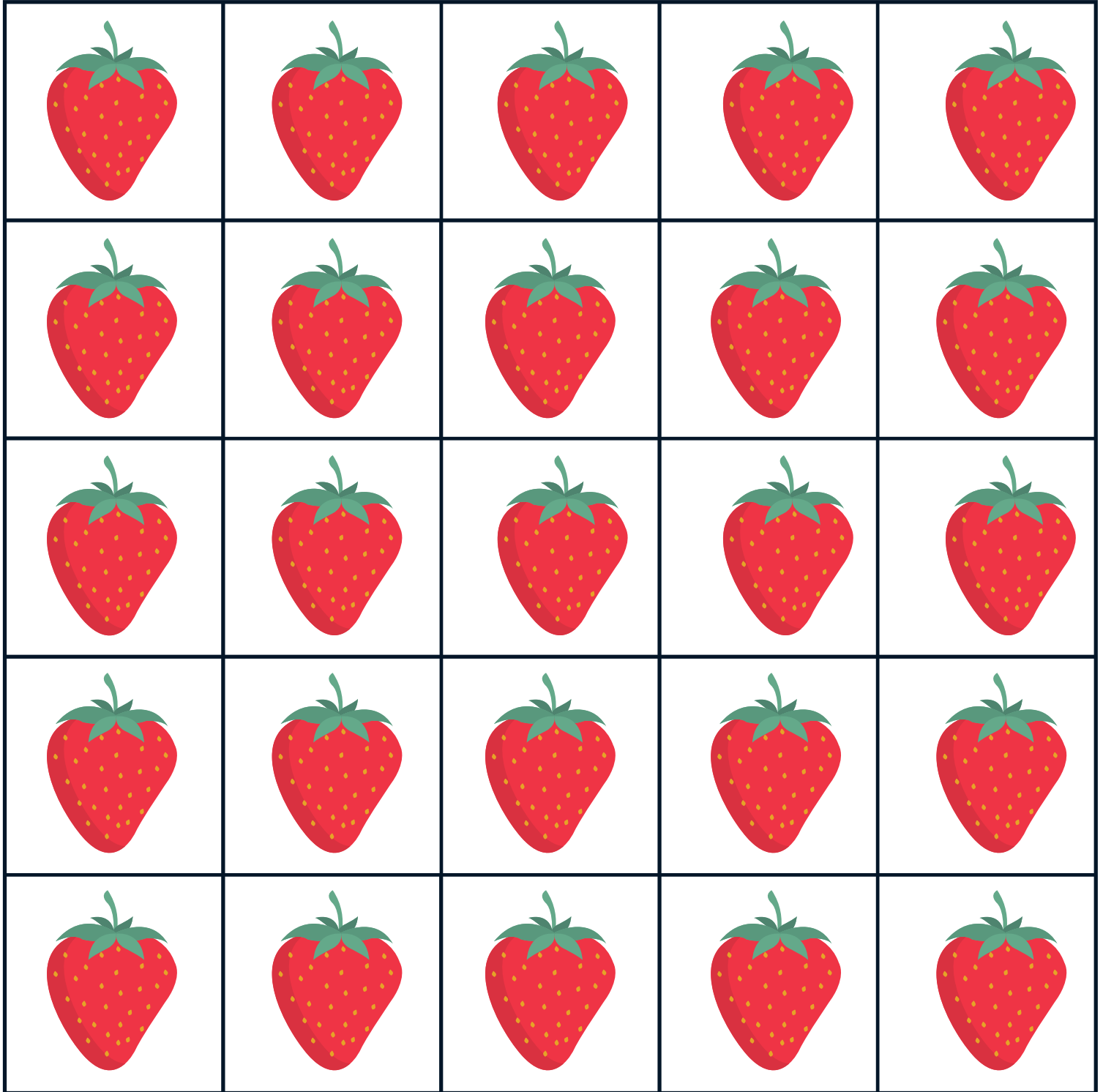
When a plant produces flowers

The part of the plant that holds it in the ground and supplies water and nutrients throughout the plant



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U-Pick Worksheet



U-Pick Worksheet



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U-Pick Worksheet

4 roles: John, Anne, Isaac, Jada

1. John has picked five strawberries, and Anne has picked nine. How many strawberries have they picked together?

2. Isaac is holding eleven strawberries and drops six. How many is he holding now?

3. Jada picked eight strawberries and then realized that only three had a stem still attached. How many of her strawberries do not have a stem attached?

4. Anne, John, and Isaac are putting strawberries into the same basket. Anne picks three strawberries, Isaac picks seven strawberries, and John picks five more. How many strawberries did they pick together?

5. Jada picks seventeen strawberries, then gives eight to her friend Anne. How many strawberries does Jada have left?

6. Jada counts all of the strawberries by two. How many groups of two are there?

7. Isaac and John go to the checkout together. Anne sees they have a total of 16 strawberries. Isaac has six strawberries. How many strawberries does John have?

8. Anne counts all of the strawberries by five. How many groups of five are there?

9. Isaac counts all of the strawberries by 10. How many groups are there? Are there any strawberries left over?

10. Everyone works together to make groups of 10 strawberries. For example, two groups of five. Write down other ways to make 10.