Farm to Institution Center's

# Farm to School Student Curriculum

## San Diego County

Version 2.0



CHIP

COMMUNITY HEALTH IMPROVEMENT PARTNERS

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F2IC

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# How to Use Farm to School Student Curriculum

The Farm to School Curriculum was created to educate students on Farm to School and to assist educators with collecting information on students' school meal preferences and perceptions. This resource was originally created through the Farm 2 School Collective (a previous initiative of the Farm to Institution Center) and has since then been revised through the Escondido Agricultural Learning Program (EALP), to raise awareness of Farm to School, and to showcase the constantly improving school meals served by school districts within San Diego County. The EALP is organized and led by the Farm to Institution Center (F2IC) at Community Health Improvement Partners, whose mission is to promote healthy local communities and build a vibrant agricultural scene through facilitation, collaboration, and education. To learn more about the Farm to Institution Center, please visit www.f2icenter.org.

### Through completing this curriculum, students will:

- Gain an understanding of Farm to School and its importance.
- Learn what goes into creating a school meal.
- Understand the nutritional value of consuming a variety of fruits and vegetables.
- Examine the different tastes present in fruits and vegetables.
- Develop curiosity and a willingness to try new foods.
- Explore produce offered in school meal programs and purchased locally in San Diego County.
- Learn about locally grown food in San Diego County and farmers in the region.
- Explore and understand what can be grown in a school garden.
- Learn about the plant growing cycle and what is necessary for growing a successful harvest.

### Through completing this curriculum, educators will:

- Learn what foods students prefer to eat in a school meal program.
- Determine the role color and appearance play in the food choices students make.
- Learn what tastes students enjoy most for food offered in a school meal program.
- Understand student perceptions and interests in school garden programs.
- Understand student perceptions and interests in farming, agriculture, and environmental science.
- Learn what school districts are doing to support Farm to School, including their own district.
- Learn about challenges that farmers face and potentially connect with and learn from a local farmer.
- Gain a stronger understanding of what can be grown in San Diego County by farmers and in the school garden.

Throughout the curriculum and activities, students will be responding to questions posed by educators. We encourage educators to record student responses on a giant notepad or whiteboard to collect students' perspectives. Remember, there are no right or wrong answers here. All activities are meant to provide opportunities for open discussions between classmates and the educator.

Lesson plans from the curriculum may be completed in order, individually, or in any order the educator would like to implement it as they support their students in learning about Farm to School. We hope this resource inspires your students to participate in Farm to School activities, whether through eating colorful local foods at school or by encouraging the next generation of farmers to get their hands dirty in a school garden program.

The Farm to School Curriculum does touch on many NGSS (Next Generation Science Standards) in elementary grades, however, as a stand-alone is not sufficient to master the standards. The curriculum works well in tandem with an existing science curriculum where the standards overlap to augment the existing science curriculum.

Next Generation Science Standards that overlap with portions of the Farm to School Curriculum are denoted on the respective lesson or lesson activity. The letter or number at the beginning of the standard denotes the grade level. For example, K-ESS3-3 is a kindergarten standard and 4-ESS3-2 is a fourth-grade standard.

# About the Escondido Agricultural Learning Program (EALP)

The Farm to School Curriculum originated through a 2020-2021 initiative of Community Health Improvement Partners' (CHIP) Farm to Institution Center (F2IC) to provide agriculture education to students and to assist educators with collecting information on student food preferences and perceptions. Revisions, implementation, and evaluation of the Farm to School Curriculum are occurring in 2023-2025 through the Escondido Agricultural Learning Program (EALP) a new program facilitated by CHIP's F2IC.

The EALP also works to engage teachers and community volunteers in a Train-the-Trainer process support increased capacity, sustainability, and ongoing delivery of the curriculum. Concurrently, the program focuses on continuous improvement in school meals designed to increase access to healthy, local foods.


## Acknowledgements

Special thanks to previous staff from CHIP's Farm to Institution Center, Natalie Lareau, Dane Petersen, Gietzen for their contribution in authoring the Farm to School Curriculum and supporting documents. A special thank you to Alexis Anderson and Yeni Linqui Palomino from CHIP's Farm to Institution Center, for their revisions and contributions in authoring the Farm to School Curriculum and supporting documents through the Escondido Agricultural Learning Program. Additionally, thank you to San Diego County's Farm to School Taskforce Members, Escondido Union School District, and San Pasqual Union School District for their collaboration on improving Farm to School education for students and families across San Diego County.

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Any opinions, finding, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

# Grade Levels: K-3rd

## FOCUS GROUP DISCUSSION:

# MARKETING SCHOOL FOOD

**ASK:**

1. What makes a meal look appetizing/tasty to you?

2. How would you make your school meals look more appetizing if you were the chef at your school?

**SAY:**

At a restaurant, chefs have to consider how to make their menu items look and taste delicious. Here at school, meals are created by chefs often called "Nutrition Service Directors". When Nutrition Service Directors design menu items for students, they think about what makes food taste and look delicious for students.

- Distribute Appendix A.5 School Meal Examples or show it to the students using a document camera.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?

2. What is your favorite color to see in a school meal?

**SAY:**

School meal items need to include healthy options as well as look appetizing and tasty for students to enjoy. For example, salad bars often have multiple colors of different fruits and vegetables which make items more visually appealing, while also providing essentail nutrients such as vitamins and minerals.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 30 minutes

# Activity: Plan Your Own School Menu

Let students get creative and make their own school food menu using a list of ingredients or foods currently served in the school meal program.

**GOALS:**

- To gain a better understanding of food and color preferences in school meals.
- To recognize the impact of food presentation on school meal participation.
- To understand the careful planning and challenges that go along with creating a menu for a school meal program.

**MATERIALS:**

- Giant notepad
- Markers
- List of current foods served in school meal program
- **Appendix A.3 *Harvest of the Month Calendar***
- **Appendix B.3 *Plan Your Own School Menu***

## STEPS:

- Distribute the **Appendix B.4 *Plan Your Own School Menu*** worksheets and markers to students.
- Introduce the list of foods that are offered in your school meal program as well as the Harvest of the Month Calendar.

## SAY:

Today you will be creating your own school meal menu. As you design your healthy plate, you will need to include multiple food colors. **For older students:** Consider how you will present your menu items to make the meal taste good while being visually appealing.

- Allow students to use the provided resources to create their own school lunch menus following the template on the worksheet.

- When students are finished, review created menus and discuss what types of foods and colors are present.

## ASK:

1. What makes you more likely to eat a meal? How do you prefer your meals to look?

2. When designing your menu, what types of food did you want to include? Did you include a variety of different items (fruits, vegetables, protein, etc.)?

*Grade Levels:* Ideal for grades K-3rd

*Time:* 30 minutes

# Activity: Eating the Rainbow!

Students will identify the variety of colors found in nature, expand their knowledge of fruits and vegetables, and explore colors in their meals.

**GOALS:**

- To recognize the range of fruits and vegetables grown in San Diego County and offered in school meal programs.
- To understand the nutritional value of colorful fruits and vegetables.
- To consider the role color plays in school meal choices.

**MATERIALS:**

- Colored pencils, markers, or crayons
- Giant notepad and marker
- **Appendix A.3 *Harvest of the Month Calendar (optional)***
- ***Fresh Fruit and Vegetable Photo Cards* (optional)***
- **Appendix B.5 *Eat the Rainbow***
- **Appendix A.4 *Health Benefits by Color***

## STEPS:

- Distribute **Appendix B.5*Eat the Rainbow*** worksheets among students, either to individuals or pairs.
- Give students a few minutes to brainstorm fruits or vegetables for each color of the rainbow and complete the worksheet.

## ASK:

1. What foods did you think of for each color of the rainbow? (Prompt students with examples as needed.)

Food examples include:

- **Blue:** blueberry, blue potato, plum, blackberry
- **Green:** avocado, kiwi, lime, pea, green bean, artichoke, lettuce, broccoli, cabbage, celery, cucumber, green pepper, zucchini
- **Orange:** orange, sweet potato, apricot, peach, mango, butternut squash, carrot, orange pepper, pumpkin, cantaloupe, persimmon
- **Purple:** grape, eggplant, purple cabbage, purple carrot, fig
- **Red:** apple, cherry, cranberry, pomegranate, strawberry, raspberry, watermelon, beet, tomato, red pepper, rhubarb, radish, red onion
- **Yellow:** banana, yellow pepper, potato, yellow summer squash, corn, pineapple, lemon, wax beans

**** Fresh Fruit and Vegetable Photo Cards can be purchased through the California Department of Education:*** *cdep.klas.com/product/001650/*

## ASK:

1. Why is it important to have different colors on your plate?

2. Do you think a meal looks more appetizing when it is colorful?

3. What color of fruits and vegetables do you find most exciting?

## SAY:

Eating colorful food offers a variety of vitamins and minerals and it also makes your meal look appetizing and exciting to eat.

**OPTIONAL:** Use the **Appendix *A.3 Harvest of the Month Calendar*** or show a Fresh Fruit and Vegetable Photo Card* to display examples of foods in each color. Use the photo cards or refer to **Appendix A.4 *Health Benefits by Color*** to show the nutritional value of eating

## ASK:

1. How does your school meal program use colors in meals?

2. What kinds of colors can you find in your school lunch?

## WRAP-UP QUESTIONS:

1. What colors and items would you like to see added to your school meals?

2. Would more colors in your meal make you more or less likely to eat a school meal?

## FOCUS GROUP DISCUSSION:

**ASK:** Can you name the five types of tastes you experience when you eat?

**SAY:** The five tastes include: sweet, salty, bitter, umami, and sour.

- **Sweet** is the taste associated with sugars; you will find sweet tastes in fruit and candy. Candy has added sugar which makes it sweet, while fruits have natural sugars that give them a sweet, delicious taste. Other examples of sweet foods include watermelon, apples, and bananas.

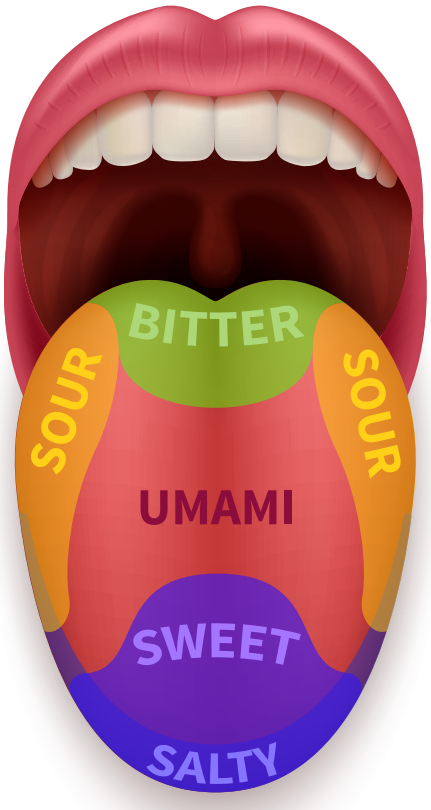
- **Salty** is the taste associated with salt. It is found in foods such as chips, meats, and seasoned vegetables. Other salty food examples include pretzels and peanuts.

- **Bitter** is often associated with sharp, unpleasant, and tart tastes. In nature, bitter tasting compounds can be toxic, which may contribute to this taste being perceived as bad. However, sometimes a little bit of bitterness can add more flavor. You can find bitter tastes in coffee, certain teas, and some leafy greens such as kale or swiss chard. A bitter taste can also be found in dark chocolate.

- **Umami** is the taste associated with meatiness. In Japanese, it means "good flavor" and can be found in foods such as soy sauce, mushrooms, and meats.

- **Sour** is the taste associated with acidity. You will find it in acidic tasting foods such as lemons or other citrus, vinegar, and pickled foods. A sour taste can also be found in oranges, grapefruit, and vinegar.

Refer to the Tongue Taste Buds Diagram to show what areas of the tongue are more sensitive to certain tastes. Please note that taste receptors are spread out throughout the tongue and no singular area only recognizes one taste.




**Tongue Taste Buds Diagram**

# Identifying Tastes

### OPTIONAL:

Have students vote on which taste is their favorite (record votes on a giant notepad). Discuss which food items from their daily meals are associated with each taste.

### ASK:

1. Which tastes are the most important to you? Which tastes would you want to see on your school menu?
2. Do you think all five of these tastes are offered in your school lunches? If not, which ones are missing?

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* All Grades

*Time:* 30 minutes

# Activity: Conduct a Taste Test

Students will learn about the different tastes associated with fruits and vegetables commonly seen at the store or in school meal programs. Students will score food based on flavor and texture.

## GOALS:

- To investigate preferred tastes in school meal programs.
- To examine which tastes are present in certain fruits and vegetables.
- To explore the produce that is offered in school meal programs as well as produce that is sourced locally in San Diego County.

## MATERIALS:

- Blindfold (optional)
- Appetizer forks
- Fruits and vegetables
  - Cut-up pieces for tasting
  - Whole fruit and/or vegetable to show the studentsKnife
- Cutting board
- **Appendix B.5 *Taste Test Schore Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables you are taste testing using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have a whole fruit and/or vegetable available for each item to show the students.

- Distribute the ***Appendix B.5 Taste Test Score Sheet*** to each student.

- Using a blindfold is optional. If a blindfold is not used, ask students to cover their eyes with their hands. Distribute cut up pieces of the fruits and vegetables and allow students to hold, smell, and taste each fruit or vegetable item. Have students complete the ***Taste Test Score Sheet.***

  - **Note:** If time is limited, ask for one brave student to volunteer to participate in the taste test using the blindfold.

- Once everyone has tasted and recorded their scores, reveal what the food was and have a discussion about the tastes, textures, smells, and appearance of the food.

## ASK:

1. Would you enjoy these food items on your school meal menu? Why or why not?

2. Are there certain types of tastes you like to try? What do you think those foods might taste like? Are there certain types of taste you enjoy more than others?

3. How could you create a meal that offers all five tastes? Would you enjoy a meal that includes all five tastes in your school meal program?

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

*Grade Levels:* All Grades

*Time:* 30 to 45 minutes

# Activity: Mystery Food Game

Students will participate in a taste test which introduces students to new flavors and textures through unique mystery food that are sourced locally in San Diego County.

## GOALS:

- To learn about preferred tastes. for school meal programs.
- To examine which tastes and textures are present in certain fruits and vegetables.
- To explore produce sourced locally in San Diego County.
- To encourage students to try new and unique foods.

## MATERIALS:

- Appetizer Forks
- Napkins
- Waste bin
- Fruits and vegetables that are unfamiliar to the students
  - Cut up pieces for tasting
  - Whole for viewing
  - Examples to try: persimmon, kumquat, loquat, kohlrabi, dragon fruit, passionfruit, mulberry, groundcherry, guava
- Knife
- Cutting board
- **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses***
- **Appendix B.6 *Taste Test Score Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have the whole fruit or vegetable available for students to view, hold, and smell.
- Present the whole fruit or vegetable to students and ask them to guess the name of the item. Next, distribute the pieces of the fruit or vegetable and have students record their thoughts on their **Appendix B.6 *Taste Test Score Sheet.***
- Reveal what the fruit or vegetable is, where it came from, and what it is commonly used for. Refer to **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses.***
- Have a discussion around which of the five tastes they identified in the food and what they recorded on their score sheets. Ask students which items they would enjoy eating more often.
- When discussing the unique fruits and vegetables, educators should be cautious of applying judgment on foods. Instead of calling fruits like dragon fruit or guava "strange," be sure to frame the lesson as a celebration of fruits and vegetables from around the world. Consider pointing out the origins of the fruits and vegetables on a world map!

## ASK:

1. How would you feel about having more foods like this in your school lunches?
2. Would having foods like this on your school meal menu make you more or less likely to eat school meals?
3. What types of food could this item be added to on a school meal menu or your packed lunch? (Examples: salad, pasta, sandwiches, etc.)

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

Farm to School Student Curriculum

## FOCUS GROUP DISCUSSION:
## Farming Overview

**ASK:**
1. Can you guess how many farmers are in San Diego County?
2. Why do you think farmers are important and necessary?

**SAY:**
San Diego County has over 5,000 farmers! Farmers help to grow the food that we eat. Without farmers, our body would not get the important nutrients it needs to function. Farming and agriculture both play big roles in our local economy. In fact, farming employs almost 23 million Americans in the United States.

**ASK**
1. What resources do you think are needed to farm?

**SAY:**
Many resources are needed to grow food such as water, energy, labor, fertilizers, land, nutrients, and sunlight.

# Farming in San Diego County

**ASK:**
1. How do you think that farming in San Diego County has changed over the last 100 years?

**SAY:** Challenges can include:
1. **Weather:** Farmers run into weather-related challenges such as flooding (too much water) and droughts (not enough water).

2. **Cost of Water:** The cost of water is a major challenge for San Diego County farmers. Water in San Diego County is among the most expensive in the country.

3. **Competition:** Farmers also have to compete with the prices of products from Mexico and other countries in Central and South America.

**ASK:**
1. What foods can grow in San Diego County?

**SAY:**
Many foods can grow in San Diego County, although a majority of local farmers are known for growing avocados, lemons, tomatoes, and oranges.

**ASK:**
1. How is farming in San Diego County different from farming in other states?

**SAY:**
**Size:** The average small farm in the United States is 231 acres, while 69% of the 5,000+ farms in San Diego County are between 1-9 acres. (For reference, one football field is 1.32 acres.)

**Weather:** San Diego County farmers are able to grow year-round due to Southern California's warm weather. In contrast, farmers in many other states are unable to grow during certain seasons due to cold weather. The warm weather means that local farmers can grover over 200 different types of food" change to "The warm weather means that local farmers can grow a variety of produce.

**Produce:** The Harvest of the Month Calendar shows which fruits and vegetables are grown in San Diego County during each season. By following this calendar and eating fruits and vegetables that are in season, you get better tasting and more nutritious food! (Show students the ***A.3 Harvest of the Month Calendar*** to share which fruits and vegetables are grown during each season.)

*Source: County of San Diego, Agricultural Weights and Measures 2018 Crop Statistics & Annual Report www.sandiegocounty.gov/content/dam/sdc/awm/docs/2018_Crop_Report_web.pdf

# HISTORY OF FARMING AND AGRICULTURE IN SAN DIEGO COUNTY

## ASK:

1. How do you think that farming has changed over the last 100 years?

2. Do you think that more or less food is being produced?

3. Do you think the types of crops grown have changed?

## SAY:

Farming and agriculture in San Diego County has changed quite a bit since the early 1900s. During the beginning of the century, San Diego County had a population of only 61,665, and one acre of land would cost a farmer just $150! Farmers drove trucks full of crops to sell to the public on the side of the highway. The top products farmers grew included lemons, tomatoes, celery, grapes, and alfalfa hay.

## ASK:

1. Why is it important to buy fruits and vegetables from a local farmer in San Diego County?

2. What types of fruits and vegetables from local farmers would you be interested in?

3. If an item on your school menu or packed lunch was from a local farmer, would you be more willing to try it?

## SAY:

San Diego County now has a population of over 3 million, and the top farm products include: a wide variety of decorative plants such as flowers or shrubs, avocados, cactus, and succulents. Many farmers sell their crops at farmers markets, which are locations set up in communities where groups of farmers sell their colorful crops directly to consumers. Farmers also grow food for restaurants, grocery stores, and schools.

**Write a letter to a farmer:**
Best for older grades (6th-12th)

**Draw a letter for a farmer:**
Best for younger grades (1st-5th)

*Time:* 30 minutes

# Activity: Write/Draw a Letter to a Farmer

Students will learn where their school food comes from and express their appreciation for the local farmers who provide fresh fruits and vegetables for their school meal program.

## GOALS:

- To connect students with farmers that grow the food they eat directly.
- To learn about the farmers in the region and the work that goes into growing crops.
- To recognize that much of the produce in school meal programs is purchased from local farmers.

## MATERIALS:

- Giant notepad
- Markers
- Blank cards or sheets of paper
- Envelopes
- Pens/pencils/colored pencils
- Thank You Letter Template (Older Students)
- **Appendix A.7 *Sample Letter to a Farmer***

## STEPS:

### ASK:

Before we get into our activity, I would like you to spend a few minutes thinking about where your food comes from. Who should we be thanking for this food?

### SAY:

When someone (e.g., mother, father, relative, or friend) cooks your food, you usually say thank you. How can we say "thank you" to the person who grows the food for us? Today we are going to take some time to thank one of the farmers who grows food for everyone at school.

- Distribute cards and pens/pencils to students.
- Offer the use of a template if students would like some guidance.
- Once letters or drawings are complete, either mail letters if you have the farmer's address or give them to Child Nutrition Services to send. (Optional: If the farmer visits your school, you can have children deliver the letters in-person)

**Thank You Letter Template (Older Students):**

Dear Farmer [name if available],

The [veggies, fruits, or both] you provide for our school are amazing! My favorite is the [favorite food item the farmer provides]. It is so [favorite quality of the food item the farmer provides (e.g., sweet, delicious, etc.)].

Thank you again for growing food for us to eat!

[Your name]

**Thank You Drawing Instructions (Younger Students):**

Today we are going to draw a thank you card for our farmer friend who grows food for us to eat at school! Here are some ideas of what to draw/include to thank our farmer(s):
- A big "Thank you!"
- A school
- A farmer
- Your favorite colorful fruits and vegetables
- Don't forget to sign your name

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 20 to 30 minutes

# Activity: Crops and Water Usage Matching

Students will learn about the importance of water for farming and growing food. They will explore some common California crops and the amount of water needed to grow these different crops.

## GOALS:

- To understand the resources needed to grow many common foods in school meal programs.
- To grasp the importance of buying local food to support your local farmers.

## MATERIALS:

- Pencils/pens
- **Appendix A.7 *Crop and Water Usage Matching Images***
- **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

## STEPS:

### ASK:

1. Why do plants need water to grow?
2. What do plants look like when they do not have enough water?

### SAY:

Water helps transport important nutrients throughout the plant. Without enough water, plants droop. Water helps a plant grow nice and tall.

### ASK:

1. Do all types of plants need the same amount of water? Why? Why not?

- **Display:** Images of different crops. Refer to **Appendix A.7 *Crop and Water Usage Matching Images***
- Distribute **Appendix B.6 *Crop and Water Usage Matching Worksheet*** and pencils/pens.
- Have students view the images provided.

### ASK:

1. Take a look at the shapes and sizes of the crops. Are these crops grown on trees or are they grown in the ground? Based on the size of the plants, do you think that there is a different amount of water required for them to grow healthy and strong?

- Give students time answer the questions, then allow them to complete the worksheet by matching the amount of water (in gallons) that it takes to produce the crops pictured. Remind students to consider the impact that shape, size, location, etc. can have on the plant's water needs.
- Once everyone is finished, review the answers. Refer to **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

### ASK:

1. Did any of the answers surprise you? Why or why not?

### SAY:

Water is one of the most important resources needed for farming. Some crops require more water than others, but it is necessary for plants to get enough water so that they can stay healthy and strong to produce food!

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* Ideal for grades 3rd-5th

*Time:* 30 minutes

# Activity: Calculate the Gallons of Water Used on a Farm

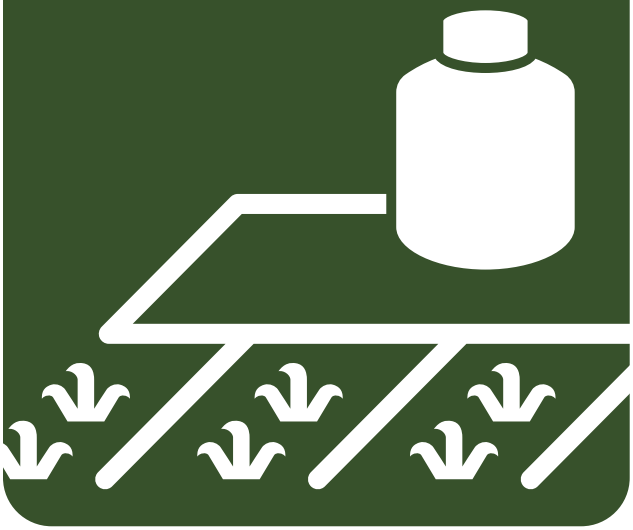
Students will use multiplication to discover the costs associated with maintaining certain crops on a farm in San Diego County.

## GOALS:

- To gain an understanding of how much water is needed to grow local fruits and vegetables.
- To think like a farmer for a day and understand the complexity of maintaining a farm.

## MATERIALS:

- Pencils/pens
- Calculator
- **Appendix B.7 *Calculate the Gallons of Water Used on a Farm***



## STEPS:

- Begin the activity by introducing the scenario below:
  - Farmer Jeff owns a 3-acre farm in Escondido where he grows tomatoes, avocados, and citrus. In a good month of growing, Farmer Jeff's land is able to produce 34 pounds of tomatoes, 102 pounds of avocados, and 75 pounds of oranges.
- Distribute **Appendix B.7 *Calculate the Gallons of Water Used on a Farm*** and pens/pencils to students. Depending on time and the mathematical abilities of the class, consider assigning only "odd" or "even" problems.
- Have students work on the math problems in pairs.
- Once every pair is finished, review and discuss answers.

## ASK:

1. Did any of these answers surprise you? Why or why not?

## SAY:

- Farmers play a crucial role in providing food for your school meal program and in the world. Think of something that you use every day that is a result of products grown by a farmer. (The group can brainstorm this together.)

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

## FOCUS GROUP DISCUSSION:
## School Garden Participation

### If your school has a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. Do you participate in the school garden?
3. Why is having a school garden important?
4. What can you learn from a garden?
5. What foods grown in your school garden could be served in your school meal program?

### If your school does not have a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. If your school had a school garden, would you want to help take care of it? Why or why not?
3. Why do you think it is important to have a school garden?
4. What would you want to learn from a school garden?
5. What would you like to see grown in a school garden that could be served in your school meal program?

# Gardening at Home

**ASK:**

1. Do you grow any fruits or vegetables at home? If so, what fruits or vegetables do you grow?

2. What do plants need to grow?

3. Are you interested in gardening at home? What fruits and vegetables would you like to grow at home?

4. What are some challenges for growing fruits and vegetables at home?

Next Generation Science Standards (NGSS):

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

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

*Grade Levels:* Ideal for grades 1st–5th

*Time:* 45 to 60 minutes

# Activity: School Garden Bingo

## *Ideal for schools WITH a school garden*

Students will explore their school gardens and green spaces through a competitive scavenger hunt. They will learn more about what is growing, the wildlife within gardens, and how gardens can serve as a peaceful learning environment.

### GOALS:

- To explore the garden at school and understand what can be grown in this space.
- To gain an appreciation for the school garden.

### MATERIALS:

- Pencils/pens
- **Appendix *B.9 School Garden Bingo***


### STEPS:

- Distribute **Appendix B.9 *School Garden Bingo*** and pens/pencils to students

- **Explain the activity:**

  - Students will participate in a scavenger hunt where they will look for the items listed on the *School Garden Bingo* worksheet. Some will be easy (such as a tree), while others will be more challenging (such as an earthworm).

  - In order to finish the activity, a student will need to complete a "bingo" (5 boxes in a row) either vertically, horizontally, or diagonally.

  - **Optional:** Consider awarding a prize for completion such as a fresh snack from the garden.

- Once someone has completed a bingo, get the group back together and discuss what they found in the garden.

### ASK:

1. What did you learn about your school garden today?

2. What is your favorite thing about the school garden and why?

*Grade Levels:* All Grades

*Time:* 45 to 60 minutes

# Activity:
# Seed Balls *Ideal for schools WITHOUT a school garden*

Students will participate in a fun and interactive activity that will encourage the planting of seeds on their school campus or around their home.

This recipe can be made in one large batch or each student can create their own individual seed ball.

## GOALS:

- To learn more about how plants grow and what is necessary for their success.
- To create a resource that will assist in growing plants in any space.

## LARGE BATCH MATERIALS:

- 2 cups of potting soil
- 5 cups of pottery clay
- 1-2 cups of water
- 1-2 cups of seeds of your choice
- Large bucket or tub to mix ingredients
- Large box to dry and store finished seed balls

## SINGLE BATCH MATERIALS:

- 2 parts of potting soil
- 5 parts of pottery clay
- 1-2 pinches of water, as needed
- 1-4 seeds of your choice
- 1 peat pot per student
- Large box to dry and store finished seed balls

## STEPS:

**Seed Ball Recipe**:

1. Combine 2 cups of potting soil, 5 cups of pottery clay, and 1-2 cups of seeds of your choice in a large tub. Refer to the Master Gardeners Vegetable Planting Guide linked at the bottom of the page to help determine what seeds to use based on recommended planting dates.
2. Mix ingredients thoroughly so there are no lumps. If you are following the single batch recipe, combine materials in hands or on a flat surface.
3. Add water slowly until the mixture is the consistency of molding clay.
4. Knead the dough to incorporate the seeds and add more water if necessary.
5. Roll the mixture into balls that are 1 inch in diameter (if the mixture is not sticking together, add more water).
6. Let the seed balls air dry for 24-48 hours in a shady place before planting. Use a cardboard box to store and dry them.
7. Finally, carefully place or gently toss the seed balls onto a section of soil to plant them.
8. Avoid burying them or watering them immediately.
9. Optional: Instead of planting at school, students can take the seed balls home to plant.

## ASK:

1. What are some benefits to planting seeds and gardening?
2. How does having a school garden help connect you to the food you eat?
3. Why do you think it is important to grow your own food?

Source: Seed Ball Recipe www.gardeningknowhow.com/special/children/making-seed-balls.htm
Master Gardeners Vegetable Planting Guide: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mastergardenerssandiego.org/Vegetable%20Planting%20Guide1.pdf

Next Generation Science Standards (NGSS):

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

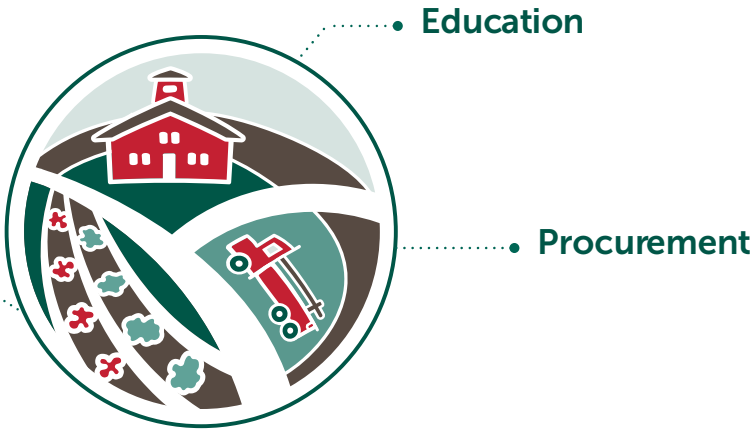
# Grade Levels: 4-8th

# LESSON 1:
## Introduction to Farm to School

Farm to School Student Curriculum

## FOCUS GROUP DISCUSSION:

CORE ELEMENTS OF
FARM *to* SCHOOL




# ABOUT FARM TO SCHOOL IN SAN DIEGO COUNTY

**ASK:**
When we talk about "Farm to School," what do you think we mean? What is involved in a "Farm to School" program?

- Distribute **Appendix B.1 *Farm to School 101*** and give students time to guess the three components of Farm to School. ***Answers can be found at Appendix C.2 [Bold] Matching Food Miles Answers***

**SAY:**
The three components of Farm to School are: 1) school gardens, 2) nutrition education, and 3) local procurement. The phrase "local procurement" refers to the purchasing of fruits, vegetables, meat, etc. from local farmers and ranchers. Schools that participate in a Farm to School program will often have local fruits and vegetables served in their school meals.

**ASK:**
Why do you think it is important to have a Farm to School program at your school? Remember the three components: 1) school gardens, 2) nutrition education, and 3) fruits and vegetables purchased from local farmers, also known as local procuremen.

**SAY:**
Farm to School programs help teach us about the importance of eating a variety of delicious fruits and vegetables that support healthy development as we grow. Farm to School programs also support local farmers by purchasing from their businesses. Through Farm to School, we can better connect to food and learn where it comes from.

**ASK:**
Have you heard of any Farm to School activities happening at your school or in San Diego County? *(Remind students of the three components of Farm to School.)*

**SAY:**
There are many amazing programs that focus on Farm to School. Here in San Diego County, there are over 200 school gardens. School meal programs regularly purchase local food from farmers to put on salad bars and incorporate into school meal menus. Refer to **Appendix A.1 *Examples of Farm to School Programs in San Diego County.***

**ASK:**

1. How would you feel knowing your school has a Farm to School program?
2. Is it important to you for your school to serve fruits and vegetables from local farmers? Why or why not?
3. Are you aware of where your food comes from?

**VOCABULARY WORDS:**

Local Procurement - purchasing of fruits, vegetables, meat, etc. from local farmers and ranchers.

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 20 to 30 minutes

# Activity: Where Does Your Food Come From?

Using fruits and vegetables from the school meal program, have students work together and determine how far their food traveled to get to their school.

## GOALS:

- To understand the importance of Farm to School and its components.
- To recognize the importance of eating local foods.
- To understand how much school meal programs source from local farmers.

## MATERIALS NEEDED:

- Giant notepad
- Markers
- On a table, display samples of the following fruits/vegetables. If conducting this as a group activity, provide samples for each group:

- Banana
- Orange
- Avocado
- Apple
- Carrot
- Cucumber
- Tomato
- Potato

- **Appendix A.2 *Examples of Food Miles***
- **Appendix A.3 *Harvest of the Month Calendar***
- **Appendix B.2 *Matching Food Miles Handout***
- ***Appendix C.2 Matching Food Miles Answers***





## DISCUSSION:

### ASK:

1. Have you heard the phrase "food mile" before? What do you think it means when I say a "food mile"?

### SAY:

A "food mile" is a mile over which a food item is transported to get from a producer or farmer to your plate. For example, if your school meal program sources oranges from San Diego County and bananas from Costa Rica, the oranges will travel very few food miles while the bananas will travel much farther over many food miles.

- Refer to **Appendix A.2 *Examples of Food Miles***

### SAY:

Fruits and vegetables can come from here in San Diego County, or from all over the world. For example, avocados are grown locally in San Diego County and Mexico, while bananas from Hawaii travel around 2,521 miles to arrive on your plate here in San Diego County.

- Distribute **Appendix B.2 *Matching Food Miles Handout***
- Give students time to work individually or in teams to determine how many miles different fruits and vegetables traveled to get to their school.

- Once students have finished the Matching Food Miles Handout, bring the group back together to review the answers. ***Refer to* Appendix C.2 *Matching Food Miles Answers.***
- Display **Appendix A.3 *Harvest of the Month Calendar***

Next Generation Science Standards (NGSS):

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

## SAY:

The Harvest of the Month Calendar is a great tool for highlighting examples of foods grown locally in San Diego County.

Have students guess some of the other foods that are grown locally, then show them the calendar and explain that their school uses this calendar to plan school meals around seasonal fruits and vegetables.

## ASK:

1. Which foods have you tried from the Harvest of the Month Calendar?

2. Why is it important for your school meal program to purchase food that is grown by local San Diego County farmers?

## SAY:

By purchasing food from local farms, less food miles are traveled. This is better for the environment, supports local farmer businesses, and the food often tastes better since it has traveled only a short distance.

## WRAP-UP QUESTIONS:

1. How do you feel knowing your school has a Farm to School program? Which of the three components of Farm to School are you most excited about?
2. What do you want to know about your school food program? Are there any questions you have about your school food and where it comes from?

## FOCUS GROUP DISCUSSION:

# MARKETING SCHOOL FOOD

**ASK:**

1. What makes a meal look appetizing/tasty to you?
2. How would you make your school meals look more appetizing if you were the chef at your school?

**SAY:**

At a restaurant, chefs have to consider how to make their menu items look and taste delicious. Here at school, meals are created by chefs often called "Nutrition Service Directors". When Nutrition Service Directors design menu items for students, they think about what makes food taste and look delicious for students.

- Distribute Appendix A.5 School Meal Examples or show it to the students using a document camera.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?
2. What is your favorite color to see in a school meal?

**SAY:**

School meal items need to include healthy options as well as look appetizing and tasty for students to enjoy. For example, salad bars often have multiple colors of different fruits and vegetables which make items more visually appealing, while also providing essentail nutrients such as vitamins and minerals.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 30 minutes

# Activity: Plan Your Own School Menu

Let students get creative and make their own school food menu using a list of ingredients or foods currently served in the school meal program.

**GOALS:**

- To gain a better understanding of food and color preferences in school meals.
- To recognize the impact of food presentation on school meal participation.
- To understand the careful planning and challenges that go along with creating a menu for a school meal program.

**MATERIALS:**

- Giant notepad
- Markers
- List of current foods served in school meal program
- **Appendix A.3 *Harvest of the Month Calendar***
- **Appendix B.3 *Plan Your Own School Menu***

## STEPS:

- Distribute the **Appendix B.4 *Plan Your Own School Menu*** worksheets and markers to students.
- Introduce the list of foods that are offered in your school meal program as well as the Harvest of the Month Calendar.

## SAY:

Today you will be creating your own school meal menu. As you design your healthy plate, you will need to include multiple food colors. **For older students:** Consider how you will present your menu items to make the meal taste good while being visually appealing.

- Allow students to use the provided resources to create their own school lunch menus following the template on the worksheet.

- When students are finished, review created menus and discuss what types of foods and colors are present.

## ASK:

1. What makes you more likely to eat a meal? How do you prefer your meals to look?

2. When designing your menu, what types of food did you want to include? Did you include a variety of different items (fruits, vegetables, protein, etc.)?

*Grade Levels:* Ideal for grades K-3rd

*Time:* 30 minutes

# Activity: Eating the Rainbow!

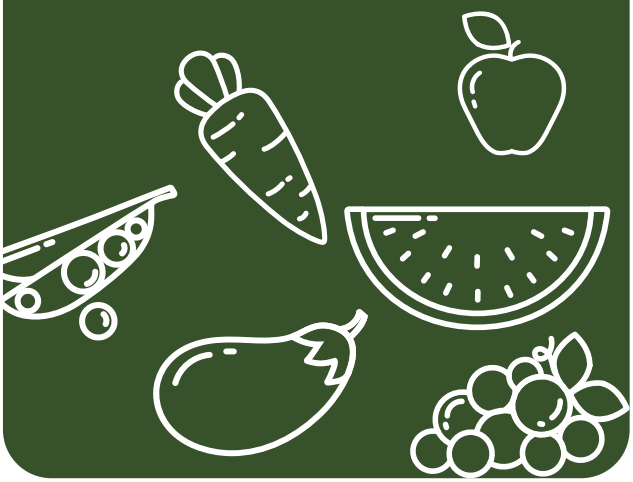
Students will identify the variety of colors found in nature, expand their knowledge of fruits and vegetables, and explore colors in their meals.

**GOALS:**

- To recognize the range of fruits and vegetables grown in San Diego County and offered in school meal programs.
- To understand the nutritional value of colorful fruits and vegetables.
- To consider the role color plays in school meal choices.

**MATERIALS:**

- Colored pencils, markers, or crayons
- Giant notepad and marker
- **Appendix A.3** ***Harvest of the Month Calendar*** *(optional)*
- ***Fresh Fruit and Vegetable Photo Cards**** *(optional)*
- **Appendix B.5** ***Eat the Rainbow***
- **Appendix A.4** ***Health Benefits by Color***



## STEPS:

- Distribute **Appendix B.5*Eat the Rainbow*** worksheets among students, either to individuals or pairs.
- Give students a few minutes to brainstorm fruits or vegetables for each color of the rainbow and complete the worksheet.

## ASK:

1. What foods did you think of for each color of the rainbow? (Prompt students with examples as needed.)

Food examples include:

- **Blue:** blueberry, blue potato, plum, blackberry
- **Green:** avocado, kiwi, lime, pea, green bean, artichoke, lettuce, broccoli, cabbage, celery, cucumber, green pepper, zucchini
- **Orange:** orange, sweet potato, apricot, peach, mango, butternut squash, carrot, orange pepper, pumpkin, cantaloupe, persimmon
- **Purple:** grape, eggplant, purple cabbage, purple carrot, fig
- **Red:** apple, cherry, cranberry, pomegranate, strawberry, raspberry, watermelon, beet, tomato, red pepper, rhubarb, radish, red onion
- **Yellow:** banana, yellow pepper, potato, yellow summer squash, corn, pineapple, lemon, wax beans

**** Fresh Fruit and Vegetable Photo Cards can be purchased through the California Department of Education:*** *cdep.klas.com/product/001650/*

## ASK:

1. Why is it important to have different colors on your plate?

2. Do you think a meal looks more appetizing when it is colorful?

3. What color of fruits and vegetables do you find most exciting?

## SAY:

Eating colorful food offers a variety of vitamins and minerals and it also makes your meal look appetizing and exciting to eat.

**OPTIONAL:** Use the **Appendix *A.3 Harvest of the Month Calendar*** or show a Fresh Fruit and Vegetable Photo Card* to display examples of foods in each color.

Use the photo cards or refer to **Appendix A.4 *Health Benefits by Color*** to show the nutritional value of eating a variety of colors.

## ASK:

1. How does your school meal program use colors in meals?

2. What kinds of colors can you find in your school lunch?

## WRAP-UP QUESTIONS:

1. What colors and items would you like to see added to your school meals?

2. Would more colors in your meal make you more or less likely to eat a school meal?

## FOCUS GROUP DISCUSSION:

**ASK:** Can you name the five types of tastes you experience when you eat?

**SAY:** The five tastes include: sweet, salty, bitter, umami, and sour.

- **Sweet** is the taste associated with sugars; you will find sweet tastes in fruit and candy. Candy has added sugar which makes it sweet, while fruits have natural sugars that give them a sweet, delicious taste. Other examples of sweet foods include watermelon, apples, and bananas.

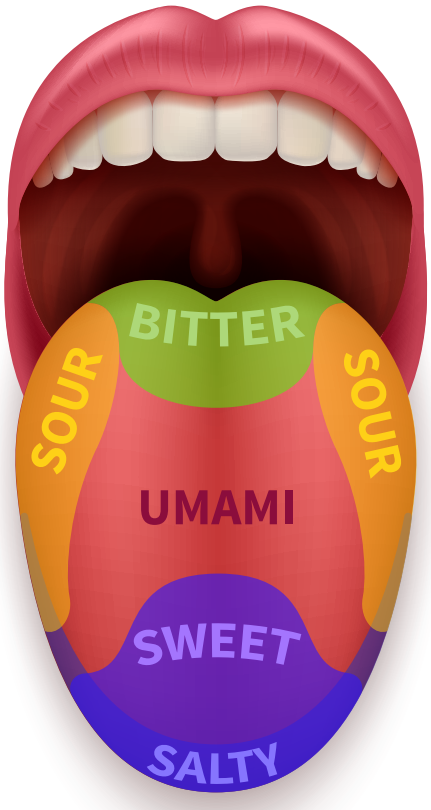
- **Salty** is the taste associated with salt. It is found in foods such as chips, meats, and seasoned vegetables. Other salty food examples include pretzels and peanuts.

- **Bitter** is often associated with sharp, unpleasant, and tart tastes. In nature, bitter tasting compounds can be toxic, which may contribute to this taste being perceived as bad. However, sometimes a little bit of bitterness can add more flavor. You can find bitter tastes in coffee, certain teas, and some leafy greens such as kale or swiss chard. A bitter taste can also be found in dark chocolate.

- **Umami** is the taste associated with meatiness. In Japanese, it means "good flavor" and can be found in foods such as soy sauce, mushrooms, and meats.

- **Sour** is the taste associated with acidity. You will find it in acidic tasting foods such as lemons or other citrus, vinegar, and pickled foods. A sour taste can also be found in oranges, grapefruit, and vinegar.

Refer to the Tongue Taste Buds Diagram to show what areas of the tongue are more sensitive to certain tastes. Please note that taste receptors are spread out throughout the tongue and no singular area only recognizes one taste.




**Tongue Taste Buds Diagram**

# Identifying Tastes

### OPTIONAL:

Have students vote on which taste is their favorite (record votes on a giant notepad). Discuss which food items from their daily meals are associated with each taste.

### ASK:

1. Which tastes are the most important to you? Which tastes would you want to see on your school menu?
2. Do you think all five of these tastes are offered in your school lunches? If not, which ones are missing?

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* All Grades

*Time:* 30 minutes

# Activity: Conduct a Taste Test

Students will learn about the different tastes associated with fruits and vegetables commonly seen at the store or in school meal programs. Students will score food based on flavor and texture.

## GOALS:

- To investigate preferred tastes in school meal programs.
- To examine which tastes are present in certain fruits and vegetables.
- To explore the produce that is offered in school meal programs as well as produce that is sourced locally in San Diego County.

## MATERIALS:

- Blindfold (optional)
- Appetizer forks
- Fruits and vegetables
  - Cut-up pieces for tasting
  - Whole fruit and/or vegetable to show the studentsKnife
- Cutting board
- **Appendix B.5 *Taste Test Schore Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables you are taste testing using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have a whole fruit and/or vegetable available for each item to show the students.

- Distribute the ***Appendix B.5 Taste Test Score Sheet*** to each student.

- Using a blindfold is optional. If a blindfold is not used, ask students to cover their eyes with their hands. Distribute cut up pieces of the fruits and vegetables and allow students to hold, smell, and taste each fruit or vegetable item. Have students complete the ***Taste Test Score Sheet.***

  - **Note:** If time is limited, ask for one brave student to volunteer to participate in the taste test using the blindfold.

- Once everyone has tasted and recorded their scores, reveal what the food was and have a discussion about the tastes, textures, smells, and appearance of the food.

## ASK:

1. Would you enjoy these food items on your school meal menu? Why or why not?

2. Are there certain types of tastes you like to try? What do you think those foods might taste like? Are there certain types of taste you enjoy more than others?

3. How could you create a meal that offers all five tastes? Would you enjoy a meal that includes all five tastes in your school meal program?

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

*Grade Levels:* All Grades

*Time:* 30 to 45 minutes

# Activity: Mystery Food Game

Students will participate in a taste test which introduces students to new flavors and textures through unique mystery food that are sourced locally in San Diego County.

## GOALS:

- To learn about preferred tastes. for school meal programs.
- To examine which tastes and textures are present in certain fruits and vegetables.
- To explore produce sourced locally in San Diego County.
- To encourage students to try new and unique foods.

## MATERIALS:

- Appetizer Forks
- Napkins
- Waste bin
- Fruits and vegetables that are unfamiliar to the students
  - Cut up pieces for tasting
  - Whole for viewing
  - Examples to try: persimmon, kumquat, loquat, kohlrabi, dragon fruit, passionfruit, mulberry, groundcherry, guava
- Knife
- Cutting board
- **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses***
- **Appendix B.6 *Taste Test Score Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have the whole fruit or vegetable available for students to view, hold, and smell.
- Present the whole fruit or vegetable to students and ask them to guess the name of the item. Next, distribute the pieces of the fruit or vegetable and have students record their thoughts on their **Appendix B.6 *Taste Test Score Sheet.***
- Reveal what the fruit or vegetable is, where it came from, and what it is commonly used for. Refer to **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses.***
- Have a discussion around which of the five tastes they identified in the food and what they recorded on their score sheets. Ask students which items they would enjoy eating more often.
- When discussing the unique fruits and vegetables, educators should be cautious of applying judgment on foods. Instead of calling fruits like dragon fruit or guava "strange," be sure to frame the lesson as a celebration of fruits and vegetables from around the world. Consider pointing out the origins of the fruits and vegetables on a world map!

## ASK:

1. How would you feel about having more foods like this in your school lunches?
2. Would having foods like this on your school meal menu make you more or less likely to eat school meals?
3. What types of food could this item be added to on a school meal menu or your packed lunch? (Examples: salad, pasta, sandwiches, etc.)

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

## FOCUS GROUP DISCUSSION:
## Farming Overview

**ASK:**
1. Can you guess how many farmers are in San Diego County?
2. Why do you think farmers are important and necessary?

**SAY:**
San Diego County has over 5,000 farmers! Farmers help to grow the food that we eat. Without farmers, our body would not get the important nutrients it needs to function. Farming and agriculture both play big roles in our local economy. In fact, farming employs almost 23 million Americans in the United States.

**ASK**
1. What resources do you think are needed to farm?

**SAY:**
Many resources are needed to grow food such as water, energy, labor, fertilizers, land, nutrients, and sunlight.

# Farming in San Diego County

**ASK:**
1. How do you think that farming in San Diego County has changed over the last 100 years?

**SAY:** Challenges can include:
1. **Weather:** Farmers run into weather-related challenges such as flooding (too much water) and droughts (not enough water).

2. **Cost of Water:** The cost of water is a major challenge for San Diego County farmers. Water in San Diego County is among the most expensive in the country.

3. **Competition:** Farmers also have to compete with the prices of products from Mexico and other countries in Central and South America.

**ASK:**
1. What foods can grow in San Diego County?

**SAY:**
Many foods can grow in San Diego County, although a majority of local farmers are known for growing avocados, lemons, tomatoes, and oranges.

**ASK:**
1. How is farming in San Diego County different from farming in other states?

**SAY:**
**Size:** The average small farm in the United States is 231 acres, while 69% of the 5,000+ farms in San Diego County are between 1-9 acres. (For reference, one football field is 1.32 acres.)

**Weather:** San Diego County farmers are able to grow year-round due to Southern California's warm weather. In contrast, farmers in many other states are unable to grow during certain seasons due to cold weather. The warm weather means that local farmers can grover over 200 different types of food" change to "The warm weather means that local farmers can grow a variety of produce.

**Produce:** The Harvest of the Month Calendar shows which fruits and vegetables are grown in San Diego County during each season. By following this calendar and eating fruits and vegetables that are in season, you get better tasting and more nutritious food! (Show students the ***A.3 Harvest of the Month Calendar*** to share which fruits and vegetables are grown during each season.)

*Source: County of San Diego, Agricultural Weights and Measures 2018 Crop Statistics & Annual Report www.sandiegocounty.gov/content/dam/sdc/awm/docs/2018_Crop_Report_web.pdf

# HISTORY OF FARMING AND AGRICULTURE IN SAN DIEGO COUNTY

## ASK:

1. How do you think that farming has changed over the last 100 years?

2. Do you think that more or less food is being produced?

3. Do you think the types of crops grown have changed?

## SAY:

Farming and agriculture in San Diego County has changed quite a bit since the early 1900s. During the beginning of the century, San Diego County had a population of only 61,665, and one acre of land would cost a farmer just $150! Farmers drove trucks full of crops to sell to the public on the side of the highway. The top products farmers grew included lemons, tomatoes, celery, grapes, and alfalfa hay.

## ASK:

1. Why is it important to buy fruits and vegetables from a local farmer in San Diego County?

2. What types of fruits and vegetables from local farmers would you be interested in?

3. If an item on your school menu or packed lunch was from a local farmer, would you be more willing to try it?

## SAY:

San Diego County now has a population of over 3 million, and the top farm products include: a wide variety of decorative plants such as flowers or shrubs, avocados, cactus, and succulents. Many farmers sell their crops at farmers markets, which are locations set up in communities where groups of farmers sell their colorful crops directly to consumers. Farmers also grow food for restaurants, grocery stores, and schools.

**Write a letter to a farmer:**
Best for older grades (6th-12th)

**Draw a letter for a farmer:**
Best for younger grades (1st-5th)

*Time:* 30 minutes

# Activity: Write/Draw a Letter to a Farmer

Students will learn where their school food comes from and express their appreciation for the local farmers who provide fresh fruits and vegetables for their school meal program.

## GOALS:

- To connect students with farmers that grow the food they eat directly.
- To learn about the farmers in the region and the work that goes into growing crops.
- To recognize that much of the produce in school meal programs is purchased from local farmers.

## MATERIALS:

- Giant notepad
- Markers
- Blank cards or sheets of paper
- Envelopes
- Pens/pencils/colored pencils
- Thank You Letter Template (Older Students)
- **Appendix A.7 *Sample Letter to a Farmer***

## STEPS:

### ASK:

Before we get into our activity, I would like you to spend a few minutes thinking about where your food comes from. Who should we be thanking for this food?

### SAY:

When someone (e.g., mother, father, relative, or friend) cooks your food, you usually say thank you. How can we say "thank you" to the person who grows the food for us? Today we are going to take some time to thank one of the farmers who grows food for everyone at school.

- Distribute cards and pens/pencils to students.
- Offer the use of a template if students would like some guidance.
- Once letters or drawings are complete, either mail letters if you have the farmer's address or give them to Child Nutrition Services to send. (Optional: If the farmer visits your school, you can have children deliver the letters in-person)

**Thank You Letter Template (Older Students):**

Dear Farmer [name if available],

The [veggies, fruits, or both] you provide for our school are amazing! My favorite is the [favorite food item the farmer provides]. It is so [favorite quality of the food item the farmer provides (e.g., sweet, delicious, etc.)].

Thank you again for growing food for us to eat!

[Your name]

**Thank You Drawing Instructions (Younger Students):**

Today we are going to draw a thank you card for our farmer friend who grows food for us to eat at school! Here are some ideas of what to draw/include to thank our farmer(s):
- A big "Thank you!"
- A school
- A farmer
- Your favorite colorful fruits and vegetables
- Don't forget to sign your name

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 20 to 30 minutes

# Activity: Crops and Water Usage Matching

Students will learn about the importance of water for farming and growing food. They will explore some common California crops and the amount of water needed to grow these different crops.

## GOALS:

- To understand the resources needed to grow many common foods in school meal programs.
- To grasp the importance of buying local food to support your local farmers.

## MATERIALS:

- Pencils/pens
- **Appendix A.7 *Crop and Water Usage Matching Images***
- **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

## STEPS:

### ASK:

1. Why do plants need water to grow?
2. What do plants look like when they do not have enough water?

### SAY:

Water helps transport important nutrients throughout the plant. Without enough water, plants droop. Water helps a plant grow nice and tall.

### ASK:

1. Do all types of plants need the same amount of water? Why? Why not?

- **Display:** Images of different crops. Refer to **Appendix A.7 *Crop and Water Usage Matching Images***
- Distribute **Appendix B.6 *Crop and Water Usage Matching Worksheet*** and pencils/pens.
- Have students view the images provided.

### ASK:

1. Take a look at the shapes and sizes of the crops. Are these crops grown on trees or are they grown in the ground? Based on the size of the plants, do you think that there is a different amount of water required for them to grow healthy and strong?

- Give students time answer the questions, then allow them to complete the worksheet by matching the amount of water (in gallons) that it takes to produce the crops pictured. Remind students to consider the impact that shape, size, location, etc. can have on the plant's water needs.
- Once everyone is finished, review the answers. Refer to **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

### ASK:

1. Did any of the answers surprise you? Why or why not?

### SAY:

Water is one of the most important resources needed for farming. Some crops require more water than others, but it is necessary for plants to get enough water so that they can stay healthy and strong to produce food!

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* Ideal for grades 3rd-5th

*Time:* 30 minutes

# Activity: Calculate the Gallons of Water Used on a Farm

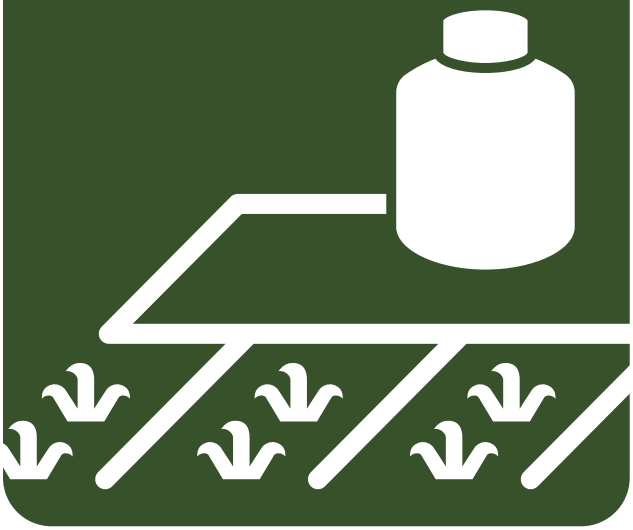
Students will use multiplication to discover the costs associated with maintaining certain crops on a farm in San Diego County.

## GOALS:

- To gain an understanding of how much water is needed to grow local fruits and vegetables.
- To think like a farmer for a day and understand the complexity of maintaining a farm.

## MATERIALS:

- Pencils/pens
- Calculator
- **Appendix B.7 *Calculate the Gallons of Water Used on a Farm***



## STEPS:

- Begin the activity by introducing the scenario below:
  - Farmer Jeff owns a 3-acre farm in Escondido where he grows tomatoes, avocados, and citrus. In a good month of growing, Farmer Jeff's land is able to produce 34 pounds of tomatoes, 102 pounds of avocados, and 75 pounds of oranges.
- Distribute **Appendix B.7 *Calculate the Gallons of Water Used on a Farm*** and pens/pencils to students. Depending on time and the mathematical abilities of the class, consider assigning only "odd" or "even" problems.
- Have students work on the math problems in pairs.
- Once every pair is finished, review and discuss answers.

## ASK:

1. Did any of these answers surprise you? Why or why not?

## SAY:

- Farmers play a crucial role in providing food for your school meal program and in the world. Think of something that you use every day that is a result of products grown by a farmer. (The group can brainstorm this together.)

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

## FOCUS GROUP DISCUSSION:
## School Garden Participation

### If your school has a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. Do you participate in the school garden?
3. Why is having a school garden important?
4. What can you learn from a garden?
5. What foods grown in your school garden could be served in your school meal program?

### If your school does not have a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. If your school had a school garden, would you want to help take care of it? Why or why not?
3. Why do you think it is important to have a school garden?
4. What would you want to learn from a school garden?
5. What would you like to see grown in a school garden that could be served in your school meal program?

# Gardening at Home

**ASK:**

1. Do you grow any fruits or vegetables at home? If so, what fruits or vegetables do you grow?

2. What do plants need to grow?

3. Are you interested in gardening at home? What fruits and vegetables would you like to grow at home?

4. What are some challenges for growing fruits and vegetables at home?

Next Generation Science Standards (NGSS):

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

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

*Grade Levels:* Ideal for grades 1st–5th

*Time:* 45 to 60 minutes

# Activity: School Garden Bingo

## *Ideal for schools WITH a school garden*

Students will explore their school gardens and green spaces through a competitive scavenger hunt. They will learn more about what is growing, the wildlife within gardens, and how gardens can serve as a peaceful learning environment.

### GOALS:

- To explore the garden at school and understand what can be grown in this space.
- To gain an appreciation for the school garden.

### MATERIALS:

- Pencils/pens
- **Appendix *B.9 School Garden Bingo***


### STEPS:

- Distribute **Appendix B.9 *School Garden Bingo*** and pens/pencils to students

- **Explain the activity:**

  - Students will participate in a scavenger hunt where they will look for the items listed on the *School Garden Bingo* worksheet. Some will be easy (such as a tree), while others will be more challenging (such as an earthworm).

  - In order to finish the activity, a student will need to complete a "bingo" (5 boxes in a row) either vertically, horizontally, or diagonally.

  - **Optional:** Consider awarding a prize for completion such as a fresh snack from the garden.

- Once someone has completed a bingo, get the group back together and discuss what they found in the garden.

### ASK:

1. What did you learn about your school garden today?

2. What is your favorite thing about the school garden and why?

*Grade Levels:* All Grades

*Time:* 45 to 60 minutes

# Activity: Seed Balls *Ideal for schools WITHOUT a school garden*

Students will participate in a fun and interactive activity that will encourage the planting of seeds on their school campus or around their home.

This recipe can be made in one large batch or each student can create their own individual seed ball.

## GOALS:

- To learn more about how plants grow and what is necessary for their success.
- To create a resource that will assist in growing plants in any space.

## LARGE BATCH MATERIALS:

- 2 cups of potting soil
- 5 cups of pottery clay
- 1-2 cups of water
- 1-2 cups of seeds of your choice
- Large bucket or tub to mix ingredients
- Large box to dry and store finished seed balls

## SINGLE BATCH MATERIALS:

- 2 parts of potting soil
- 5 parts of pottery clay
- 1-2 pinches of water, as needed
- 1-4 seeds of your choice
- 1 peat pot per student
- Large box to dry and store finished seed balls

## STEPS:

**Seed Ball Recipe**:

1. Combine 2 cups of potting soil, 5 cups of pottery clay, and 1-2 cups of seeds of your choice in a large tub. Refer to the Master Gardeners Vegetable Planting Guide linked at the bottom of the page to help determine what seeds to use based on recommended planting dates.
2. Mix ingredients thoroughly so there are no lumps. If you are following the single batch recipe, combine materials in hands or on a flat surface.
3. Add water slowly until the mixture is the consistency of molding clay.
4. Knead the dough to incorporate the seeds and add more water if necessary.
5. Roll the mixture into balls that are 1 inch in diameter (if the mixture is not sticking together, add more water).
6. Let the seed balls air dry for 24-48 hours in a shady place before planting. Use a cardboard box to store and dry them.
7. Finally, carefully place or gently toss the seed balls onto a section of soil to plant them.
8. Avoid burying them or watering them immediately.
9. Optional: Instead of planting at school, students can take the seed balls home to plant.

## ASK:

1. What are some benefits to planting seeds and gardening?
2. How does having a school garden help connect you to the food you eat?
3. Why do you think it is important to grow your own food?

Source: Seed Ball Recipe www.gardeningknowhow.com/special/children/making-seed-balls.htm
Master Gardeners Vegetable Planting Guide: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mastergardenerssandiego.org/Vegetable%20Planting%20Guide1.pdf

Next Generation Science Standards (NGSS):

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

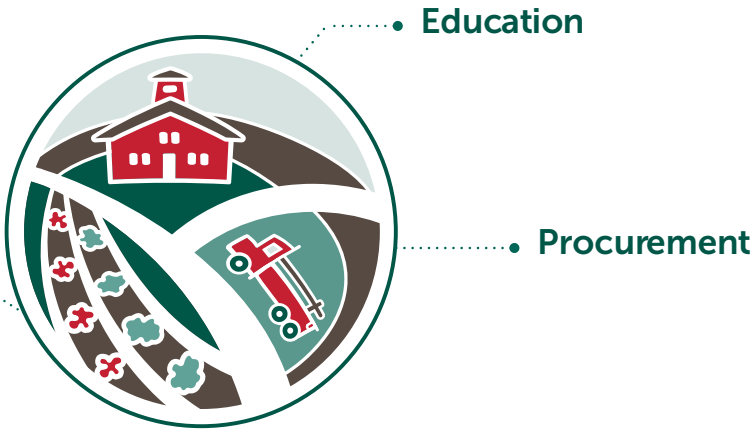
# Grade Levels: 9-12th

# LESSON 1:
## Introduction to Farm to School

Farm to School Student Curriculum

## FOCUS GROUP DISCUSSION:

CORE ELEMENTS OF
FARM *to* SCHOOL




# ABOUT FARM TO SCHOOL IN SAN DIEGO COUNTY

**ASK:**
When we talk about "Farm to School," what do you think we mean? What is involved in a "Farm to School" program?

- Distribute **Appendix B.1 *Farm to School 101*** and give students time to guess the three components of Farm to School. ***Answers can be found at Appendix C.2 [Bold] Matching Food Miles Answers***

**SAY:**
The three components of Farm to School are: 1) school gardens, 2) nutrition education, and 3) local procurement. The phrase "local procurement" refers to the purchasing of fruits, vegetables, meat, etc. from local farmers and ranchers. Schools that participate in a Farm to School program will often have local fruits and vegetables served in their school meals.

**ASK:**
Why do you think it is important to have a Farm to School program at your school? Remember the three components: 1) school gardens, 2) nutrition education, and 3) fruits and vegetables purchased from local farmers, also known as local procuremen.

**SAY:**
Farm to School programs help teach us about the importance of eating a variety of delicious fruits and vegetables that support healthy development as we grow. Farm to School programs also support local farmers by purchasing from their businesses. Through Farm to School, we can better connect to food and learn where it comes from.

**ASK:**
Have you heard of any Farm to School activities happening at your school or in San Diego County? *(Remind students of the three components of Farm to School.)*

**SAY:**
There are many amazing programs that focus on Farm to School. Here in San Diego County, there are over 200 school gardens. School meal programs regularly purchase local food from farmers to put on salad bars and incorporate into school meal menus. Refer to **Appendix A.1 *Examples of Farm to School Programs in San Diego County.***

**ASK:**

1. How would you feel knowing your school has a Farm to School program?
2. Is it important to you for your school to serve fruits and vegetables from local farmers? Why or why not?
3. Are you aware of where your food comes from?

**VOCABULARY WORDS:**

Local Procurement - purchasing of fruits, vegetables, meat, etc. from local farmers and ranchers.

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 20 to 30 minutes

# Activity: Where Does Your Food Come From?

Using fruits and vegetables from the school meal program, have students work together and determine how far their food traveled to get to their school.

## GOALS:

- To understand the importance of Farm to School and its components.
- To recognize the importance of eating local foods.
- To understand how much school meal programs source from local farmers.

## MATERIALS NEEDED:

- Giant notepad
- Markers
- On a table, display samples of the following fruits/vegetables. If conducting this as a group activity, provide samples for each group:

- Banana
- Orange
- Avocado
- Apple
- Carrot
- Cucumber
- Tomato
- Potato

- **Appendix A.2 *Examples of Food Miles***
- **Appendix A.3 *Harvest of the Month Calendar***
- **Appendix B.2 *Matching Food Miles Handout***
- ***Appendix C.2 Matching Food Miles Answers***





## DISCUSSION:

### ASK:

1. Have you heard the phrase "food mile" before? What do you think it means when I say a "food mile"?

### SAY:

A "food mile" is a mile over which a food item is transported to get from a producer or farmer to your plate. For example, if your school meal program sources oranges from San Diego County and bananas from Costa Rica, the oranges will travel very few food miles while the bananas will travel much farther over many food miles.

- Refer to **Appendix A.2 *Examples of Food Miles***

### SAY:

Fruits and vegetables can come from here in San Diego County, or from all over the world. For example, avocados are grown locally in San Diego County and Mexico, while bananas from Hawaii travel around 2,521 miles to arrive on your plate here in San Diego County.

- Distribute **Appendix B.2 *Matching Food Miles Handout***
- Give students time to work individually or in teams to determine how many miles different fruits and vegetables traveled to get to their school.

- Once students have finished the Matching Food Miles Handout, bring the group back together to review the answers. ***Refer to* Appendix C.2 *Matching Food Miles Answers.***
- Display **Appendix A.3 *Harvest of the Month Calendar***

Next Generation Science Standards (NGSS):

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

## SAY:

The Harvest of the Month Calendar is a great tool for highlighting examples of foods grown locally in San Diego County.

Have students guess some of the other foods that are grown locally, then show them the calendar and explain that their school uses this calendar to plan school meals around seasonal fruits and vegetables.

## ASK:

1. Which foods have you tried from the Harvest of the Month Calendar?

2. Why is it important for your school meal program to purchase food that is grown by local San Diego County farmers?

## SAY:

By purchasing food from local farms, less food miles are traveled. This is better for the environment, supports local farmer businesses, and the food often tastes better since it has traveled only a short distance.

## WRAP-UP QUESTIONS:

1. How do you feel knowing your school has a Farm to School program? Which of the three components of Farm to School are you most excited about?
2. What do you want to know about your school food program? Are there any questions you have about your school food and where it comes from?

## FOCUS GROUP DISCUSSION:

# MARKETING SCHOOL FOOD

**ASK:**

1. What makes a meal look appetizing/tasty to you?
2. How would you make your school meals look more appetizing if you were the chef at your school?

**SAY:**

At a restaurant, chefs have to consider how to make their menu items look and taste delicious. Here at school, meals are created by chefs often called "Nutrition Service Directors". When Nutrition Service Directors design menu items for students, they think about what makes food taste and look delicious for students.

- Distribute Appendix A.5 School Meal Examples or show it to the students using a document camera.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?
2. What is your favorite color to see in a school meal?

**SAY:**

School meal items need to include healthy options as well as look appetizing and tasty for students to enjoy. For example, salad bars often have multiple colors of different fruits and vegetables which make items more visually appealing, while also providing essentail nutrients such as vitamins and minerals.

**ASK:**

1. Are there certain colors that make you more likely to eat a school meal?

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 30 minutes

# Activity: Plan Your Own School Menu

Let students get creative and make their own school food menu using a list of ingredients or foods currently served in the school meal program.

**GOALS:**

- To gain a better understanding of food and color preferences in school meals.
- To recognize the impact of food presentation on school meal participation.
- To understand the careful planning and challenges that go along with creating a menu for a school meal program.

**MATERIALS:**

- Giant notepad
- Markers
- List of current foods served in school meal program
- **Appendix A.3 *Harvest of the Month Calendar***
- **Appendix B.3 *Plan Your Own School Menu***

## STEPS:

- Distribute the **Appendix B.4 *Plan Your Own School Menu*** worksheets and markers to students.
- Introduce the list of foods that are offered in your school meal program as well as the Harvest of the Month Calendar.

## SAY:

Today you will be creating your own school meal menu. As you design your healthy plate, you will need to include multiple food colors. **For older students:** Consider how you will present your menu items to make the meal taste good while being visually appealing.

- Allow students to use the provided resources to create their own school lunch menus following the template on the worksheet.

- When students are finished, review created menus and discuss what types of foods and colors are present.

## ASK:

1. What makes you more likely to eat a meal? How do you prefer your meals to look?

2. When designing your menu, what types of food did you want to include? Did you include a variety of different items (fruits, vegetables, protein, etc.)?

*Grade Levels:* Ideal for grades K-3rd

*Time:* 30 minutes

# Activity: Eating the Rainbow!

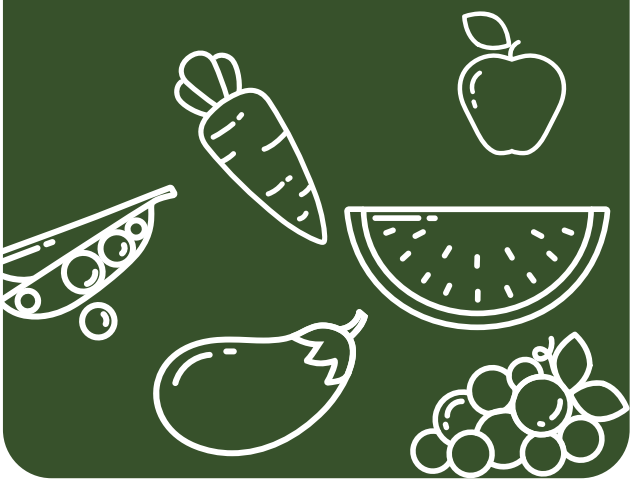
Students will identify the variety of colors found in nature, expand their knowledge of fruits and vegetables, and explore colors in their meals.

**GOALS:**

- To recognize the range of fruits and vegetables grown in San Diego County and offered in school meal programs.
- To understand the nutritional value of colorful fruits and vegetables.
- To consider the role color plays in school meal choices.

**MATERIALS:**

- Colored pencils, markers, or crayons
- Giant notepad and marker
- **Appendix A.3** ***Harvest of the Month Calendar*** *(optional)*
- ***Fresh Fruit and Vegetable Photo Cards**** *(optional)*
- **Appendix B.5** ***Eat the Rainbow***
- **Appendix A.4** ***Health Benefits by Color***



## STEPS:

- Distribute **Appendix B.5*Eat the Rainbow*** worksheets among students, either to individuals or pairs.
- Give students a few minutes to brainstorm fruits or vegetables for each color of the rainbow and complete the worksheet.

## ASK:

1. What foods did you think of for each color of the rainbow? (Prompt students with examples as needed.)

Food examples include:

- **Blue:** blueberry, blue potato, plum, blackberry
- **Green:** avocado, kiwi, lime, pea, green bean, artichoke, lettuce, broccoli, cabbage, celery, cucumber, green pepper, zucchini
- **Orange:** orange, sweet potato, apricot, peach, mango, butternut squash, carrot, orange pepper, pumpkin, cantaloupe, persimmon
- **Purple:** grape, eggplant, purple cabbage, purple carrot, fig
- **Red:** apple, cherry, cranberry, pomegranate, strawberry, raspberry, watermelon, beet, tomato, red pepper, rhubarb, radish, red onion
- **Yellow:** banana, yellow pepper, potato, yellow summer squash, corn, pineapple, lemon, wax beans

**** Fresh Fruit and Vegetable Photo Cards can be purchased through the California Department of Education:*** cdep.klas.com/product/001650/



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## ASK:

1. Why is it important to have different colors on your plate?

2. Do you think a meal looks more appetizing when it is colorful?

3. What color of fruits and vegetables do you find most exciting?

## SAY:

Eating colorful food offers a variety of vitamins and minerals and it also makes your meal look appetizing and exciting to eat.

**OPTIONAL:** Use the **Appendix *A.3 Harvest of the Month Calendar*** or show a Fresh Fruit and Vegetable Photo Card* to display examples of foods in each color.

Use the photo cards or refer to **Appendix A.4 *Health Benefits by Color*** to show the nutritional value of eating a variety of colors.

## ASK:

1. How does your school meal program use colors in meals?

2. What kinds of colors can you find in your school lunch?

## WRAP-UP QUESTIONS:

1. What colors and items would you like to see added to your school meals?

2. Would more colors in your meal make you more or less likely to eat a school meal?

## FOCUS GROUP DISCUSSION:

**ASK:** Can you name the five types of tastes you experience when you eat?

**SAY:** The five tastes include: sweet, salty, bitter, umami, and sour.

- **Sweet** is the taste associated with sugars; you will find sweet tastes in fruit and candy. Candy has added sugar which makes it sweet, while fruits have natural sugars that give them a sweet, delicious taste. Other examples of sweet foods include watermelon, apples, and bananas.

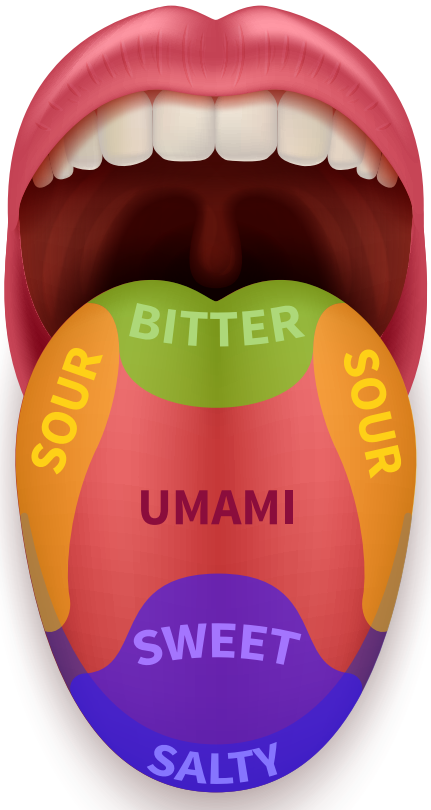
- **Salty** is the taste associated with salt. It is found in foods such as chips, meats, and seasoned vegetables. Other salty food examples include pretzels and peanuts.

- **Bitter** is often associated with sharp, unpleasant, and tart tastes. In nature, bitter tasting compounds can be toxic, which may contribute to this taste being perceived as bad. However, sometimes a little bit of bitterness can add more flavor. You can find bitter tastes in coffee, certain teas, and some leafy greens such as kale or swiss chard. A bitter taste can also be found in dark chocolate.

- **Umami** is the taste associated with meatiness. In Japanese, it means "good flavor" and can be found in foods such as soy sauce, mushrooms, and meats.

- **Sour** is the taste associated with acidity. You will find it in acidic tasting foods such as lemons or other citrus, vinegar, and pickled foods. A sour taste can also be found in oranges, grapefruit, and vinegar.

Refer to the Tongue Taste Buds Diagram to show what areas of the tongue are more sensitive to certain tastes. Please note that taste receptors are spread out throughout the tongue and no singular area only recognizes one taste.




**Tongue Taste Buds Diagram**

# Identifying Tastes

### OPTIONAL:

Have students vote on which taste is their favorite (record votes on a giant notepad). Discuss which food items from their daily meals are associated with each taste.

### ASK:

1. Which tastes are the most important to you? Which tastes would you want to see on your school menu?
2. Do you think all five of these tastes are offered in your school lunches? If not, which ones are missing?

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* All Grades

*Time:* 30 minutes

# Activity: Conduct a Taste Test

Students will learn about the different tastes associated with fruits and vegetables commonly seen at the store or in school meal programs. Students will score food based on flavor and texture.

## GOALS:

- To investigate preferred tastes in school meal programs.
- To examine which tastes are present in certain fruits and vegetables.
- To explore the produce that is offered in school meal programs as well as produce that is sourced locally in San Diego County.

## MATERIALS:

- Blindfold (optional)
- Appetizer forks
- Fruits and vegetables
  - Cut-up pieces for tasting
  - Whole fruit and/or vegetable to show the studentsKnife
- Cutting board
- **Appendix B.5 *Taste Test Schore Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables you are taste testing using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have a whole fruit and/or vegetable available for each item to show the students.

- Distribute the ***Appendix B.5 Taste Test Score Sheet*** to each student.

- Using a blindfold is optional. If a blindfold is not used, ask students to cover their eyes with their hands. Distribute cut up pieces of the fruits and vegetables and allow students to hold, smell, and taste each fruit or vegetable item. Have students complete the ***Taste Test Score Sheet.***

  - **Note:** If time is limited, ask for one brave student to volunteer to participate in the taste test using the blindfold.

- Once everyone has tasted and recorded their scores, reveal what the food was and have a discussion about the tastes, textures, smells, and appearance of the food.

## ASK:

1. Would you enjoy these food items on your school meal menu? Why or why not?

2. Are there certain types of tastes you like to try? What do you think those foods might taste like? Are there certain types of taste you enjoy more than others?

3. How could you create a meal that offers all five tastes? Would you enjoy a meal that includes all five tastes in your school meal program?

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

*Grade Levels:* All Grades

*Time:* 30 to 45 minutes

# Activity: Mystery Food Game

Students will participate in a taste test which introduces students to new flavors and textures through unique mystery food that are sourced locally in San Diego County.

## GOALS:

- To learn about preferred tastes. for school meal programs.
- To examine which tastes and textures are present in certain fruits and vegetables.
- To explore produce sourced locally in San Diego County.
- To encourage students to try new and unique foods.

## MATERIALS:

- Appetizer Forks
- Napkins
- Waste bin
- Fruits and vegetables that are unfamiliar to the students
  - Cut up pieces for tasting
  - Whole for viewing
  - Examples to try: persimmon, kumquat, loquat, kohlrabi, dragon fruit, passionfruit, mulberry, groundcherry, guava
- Knife
- Cutting board
- **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses***
- **Appendix B.6 *Taste Test Score Sheet***

## STEPS:

- Cut up pieces of the fruits and vegetables using a knife and cutting board. Place appetizer forks in the pieces of food. Be sure to have the whole fruit or vegetable available for students to view, hold, and smell.
- Present the whole fruit or vegetable to students and ask them to guess the name of the item. Next, distribute the pieces of the fruit or vegetable and have students record their thoughts on their **Appendix B.6 *Taste Test Score Sheet.***
- Reveal what the fruit or vegetable is, where it came from, and what it is commonly used for. Refer to **Appendix A.6 *Unique Fruit/Vegetable Origins and Uses.***
- Have a discussion around which of the five tastes they identified in the food and what they recorded on their score sheets. Ask students which items they would enjoy eating more often.
- When discussing the unique fruits and vegetables, educators should be cautious of applying judgment on foods. Instead of calling fruits like dragon fruit or guava "strange," be sure to frame the lesson as a celebration of fruits and vegetables from around the world. Consider pointing out the origins of the fruits and vegetables on a world map!

## ASK:

1. How would you feel about having more foods like this in your school lunches?
2. Would having foods like this on your school meal menu make you more or less likely to eat school meals?
3. What types of food could this item be added to on a school meal menu or your packed lunch? (Examples: salad, pasta, sandwiches, etc.)

## WRAP-UP:

- Have students name a food in their school meal program or packed lunch and the taste(s) associated with the item.

## FOCUS GROUP DISCUSSION:
## Farming Overview

**ASK:**
1. Can you guess how many farmers are in San Diego County?
2. Why do you think farmers are important and necessary?

**SAY:**
San Diego County has over 5,000 farmers! Farmers help to grow the food that we eat. Without farmers, our body would not get the important nutrients it needs to function. Farming and agriculture both play big roles in our local economy. In fact, farming employs almost 23 million Americans in the United States.

**ASK**
1. What resources do you think are needed to farm?

**SAY:**
Many resources are needed to grow food such as water, energy, labor, fertilizers, land, nutrients, and sunlight.

# Farming in San Diego County

**ASK:**
1. How do you think that farming in San Diego County has changed over the last 100 years?

**SAY:** Challenges can include:
1. **Weather:** Farmers run into weather-related challenges such as flooding (too much water) and droughts (not enough water).

2. **Cost of Water:** The cost of water is a major challenge for San Diego County farmers. Water in San Diego County is among the most expensive in the country.

3. **Competition:** Farmers also have to compete with the prices of products from Mexico and other countries in Central and South America.

**ASK:**
1. What foods can grow in San Diego County?

**SAY:**
Many foods can grow in San Diego County, although a majority of local farmers are known for growing avocados, lemons, tomatoes, and oranges.

**ASK:**
1. How is farming in San Diego County different from farming in other states?

**SAY:**
**Size:** The average small farm in the United States is 231 acres, while 69% of the 5,000+ farms in San Diego County are between 1-9 acres. (For reference, one football field is 1.32 acres.)

**Weather:** San Diego County farmers are able to grow year-round due to Southern California's warm weather. In contrast, farmers in many other states are unable to grow during certain seasons due to cold weather. The warm weather means that local farmers can grover over 200 different types of food" change to "The warm weather means that local farmers can grow a variety of produce.

**Produce:** The Harvest of the Month Calendar shows which fruits and vegetables are grown in San Diego County during each season. By following this calendar and eating fruits and vegetables that are in season, you get better tasting and more nutritious food! (Show students the ***A.3 Harvest of the Month Calendar*** to share which fruits and vegetables are grown during each season.)

*Source: County of San Diego, Agricultural Weights and Measures 2018 Crop Statistics & Annual Report www.sandiegocounty.gov/content/dam/sdc/awm/docs/2018_Crop_Report_web.pdf

# HISTORY OF FARMING AND AGRICULTURE IN SAN DIEGO COUNTY

## ASK:

1. How do you think that farming has changed over the last 100 years?

2. Do you think that more or less food is being produced?

3. Do you think the types of crops grown have changed?

## SAY:

Farming and agriculture in San Diego County has changed quite a bit since the early 1900s. During the beginning of the century, San Diego County had a population of only 61,665, and one acre of land would cost a farmer just $150! Farmers drove trucks full of crops to sell to the public on the side of the highway. The top products farmers grew included lemons, tomatoes, celery, grapes, and alfalfa hay.

## ASK:

1. Why is it important to buy fruits and vegetables from a local farmer in San Diego County?

2. What types of fruits and vegetables from local farmers would you be interested in?

3. If an item on your school menu or packed lunch was from a local farmer, would you be more willing to try it?

## SAY:

San Diego County now has a population of over 3 million, and the top farm products include: a wide variety of decorative plants such as flowers or shrubs, avocados, cactus, and succulents. Many farmers sell their crops at farmers markets, which are locations set up in communities where groups of farmers sell their colorful crops directly to consumers. Farmers also grow food for restaurants, grocery stores, and schools.

**Write a letter to a farmer:**
Best for older grades (6th-12th)

**Draw a letter for a farmer:**
Best for younger grades (1st-5th)

*Time:* 30 minutes

# Activity: Write/Draw a Letter to a Farmer

Students will learn where their school food comes from and express their appreciation for the local farmers who provide fresh fruits and vegetables for their school meal program.

## GOALS:

- To connect students with farmers that grow the food they eat directly.
- To learn about the farmers in the region and the work that goes into growing crops.
- To recognize that much of the produce in school meal programs is purchased from local farmers.

## MATERIALS:

- Giant notepad
- Markers
- Blank cards or sheets of paper
- Envelopes
- Pens/pencils/colored pencils
- Thank You Letter Template (Older Students)
- **Appendix A.7 *Sample Letter to a Farmer***

## STEPS:

### ASK:

Before we get into our activity, I would like you to spend a few minutes thinking about where your food comes from. Who should we be thanking for this food?

### SAY:

When someone (e.g., mother, father, relative, or friend) cooks your food, you usually say thank you. How can we say "thank you" to the person who grows the food for us? Today we are going to take some time to thank one of the farmers who grows food for everyone at school.

- Distribute cards and pens/pencils to students.
- Offer the use of a template if students would like some guidance.
- Once letters or drawings are complete, either mail letters if you have the farmer's address or give them to Child Nutrition Services to send. (Optional: If the farmer visits your school, you can have children deliver the letters in-person)

**Thank You Letter Template (Older Students):**

Dear Farmer [name if available],

The [veggies, fruits, or both] you provide for our school are amazing! My favorite is the [favorite food item the farmer provides]. It is so [favorite quality of the food item the farmer provides (e.g., sweet, delicious, etc.)].

Thank you again for growing food for us to eat!

[Your name]

**Thank You Drawing Instructions (Younger Students):**

Today we are going to draw a thank you card for our farmer friend who grows food for us to eat at school! Here are some ideas of what to draw/include to thank our farmer(s):
- A big "Thank you!"
- A school
- A farmer
- Your favorite colorful fruits and vegetables
- Don't forget to sign your name

*Grade Levels:* Ideal for grades 4th-8th

*Time:* 20 to 30 minutes

# Activity: Crops and Water Usage Matching

Students will learn about the importance of water for farming and growing food. They will explore some common California crops and the amount of water needed to grow these different crops.

## GOALS:

- To understand the resources needed to grow many common foods in school meal programs.
- To grasp the importance of buying local food to support your local farmers.

## MATERIALS:

- Pencils/pens
- **Appendix A.7 *Crop and Water Usage Matching Images***
- **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

## STEPS:

### ASK:

1. Why do plants need water to grow?
2. What do plants look like when they do not have enough water?

### SAY:

Water helps transport important nutrients throughout the plant. Without enough water, plants droop. Water helps a plant grow nice and tall.

### ASK:

1. Do all types of plants need the same amount of water? Why? Why not?

- **Display:** Images of different crops. Refer to **Appendix A.7 *Crop and Water Usage Matching Images***
- Distribute **Appendix B.6 *Crop and Water Usage Matching Worksheet*** and pencils/pens.
- Have students view the images provided.

### ASK:

1. Take a look at the shapes and sizes of the crops. Are these crops grown on trees or are they grown in the ground? Based on the size of the plants, do you think that there is a different amount of water required for them to grow healthy and strong?

- Give students time answer the questions, then allow them to complete the worksheet by matching the amount of water (in gallons) that it takes to produce the crops pictured. Remind students to consider the impact that shape, size, location, etc. can have on the plant's water needs.
- Once everyone is finished, review the answers. Refer to **Appendix C.3 *Crop and Water Usage Matching Worksheet Answers***

### ASK:

1. Did any of the answers surprise you? Why or why not?

### SAY:

Water is one of the most important resources needed for farming. Some crops require more water than others, but it is necessary for plants to get enough water so that they can stay healthy and strong to produce food!

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

*Grade Levels:* Ideal for grades 3rd-5th

*Time:* 30 minutes

# Activity: Calculate the Gallons of Water Used on a Farm

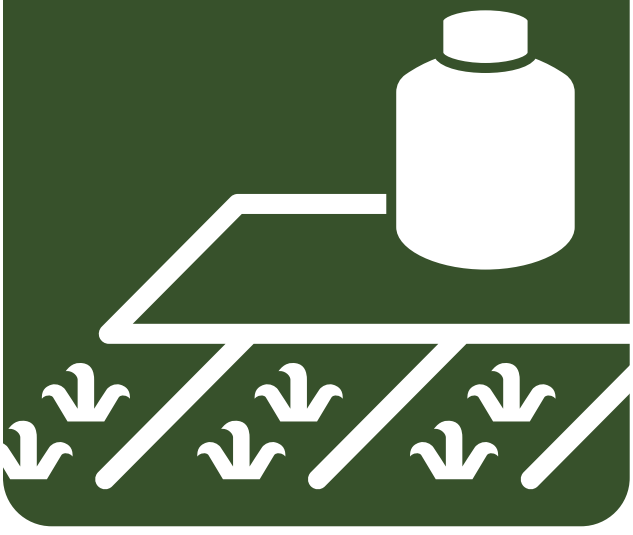
Students will use multiplication to discover the costs associated with maintaining certain crops on a farm in San Diego County.

## GOALS:

- To gain an understanding of how much water is needed to grow local fruits and vegetables.
- To think like a farmer for a day and understand the complexity of maintaining a farm.

## MATERIALS:

- Pencils/pens
- Calculator
- **Appendix B.7 *Calculate the Gallons of Water Used on a Farm***



## STEPS:

- Begin the activity by introducing the scenario below:
  - Farmer Jeff owns a 3-acre farm in Escondido where he grows tomatoes, avocados, and citrus. In a good month of growing, Farmer Jeff's land is able to produce 34 pounds of tomatoes, 102 pounds of avocados, and 75 pounds of oranges.
- Distribute **Appendix B.7 *Calculate the Gallons of Water Used on a Farm*** and pens/pencils to students. Depending on time and the mathematical abilities of the class, consider assigning only "odd" or "even" problems.
- Have students work on the math problems in pairs.
- Once every pair is finished, review and discuss answers.

## ASK:

1. Did any of these answers surprise you? Why or why not?

## SAY:

- Farmers play a crucial role in providing food for your school meal program and in the world. Think of something that you use every day that is a result of products grown by a farmer. (The group can brainstorm this together.)

Next Generation Science Standards (NGSS):

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

MS-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

## FOCUS GROUP DISCUSSION:
## School Garden Participation

### If your school has a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. Do you participate in the school garden?
3. Why is having a school garden important?
4. What can you learn from a garden?
5. What foods grown in your school garden could be served in your school meal program?

### If your school does not have a garden:

**ASK:**

1. How do you feel about having a school garden on your campus?
2. If your school had a school garden, would you want to help take care of it? Why or why not?
3. Why do you think it is important to have a school garden?
4. What would you want to learn from a school garden?
5. What would you like to see grown in a school garden that could be served in your school meal program?

# Gardening at Home

**ASK:**

1. Do you grow any fruits or vegetables at home? If so, what fruits or vegetables do you grow?

2. What do plants need to grow?

3. Are you interested in gardening at home? What fruits and vegetables would you like to grow at home?

4. What are some challenges for growing fruits and vegetables at home?

Next Generation Science Standards (NGSS):

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

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

*Grade Levels:* Ideal for grades 1st–5th

*Time:* 45 to 60 minutes

# Activity: School Garden Bingo

## *Ideal for schools WITH a school garden*

Students will explore their school gardens and green spaces through a competitive scavenger hunt. They will learn more about what is growing, the wildlife within gardens, and how gardens can serve as a peaceful learning environment.

### GOALS:

- To explore the garden at school and understand what can be grown in this space.
- To gain an appreciation for the school garden.

### MATERIALS:

- Pencils/pens
- **Appendix *B.9 School Garden Bingo***


### STEPS:

- Distribute **Appendix B.9 *School Garden Bingo*** and pens/pencils to students

- **Explain the activity:**

  - Students will participate in a scavenger hunt where they will look for the items listed on the *School Garden Bingo* worksheet. Some will be easy (such as a tree), while others will be more challenging (such as an earthworm).

  - In order to finish the activity, a student will need to complete a "bingo" (5 boxes in a row) either vertically, horizontally, or diagonally.

  - **Optional:** Consider awarding a prize for completion such as a fresh snack from the garden.

- Once someone has completed a bingo, get the group back together and discuss what they found in the garden.

### ASK:

1. What did you learn about your school garden today?

2. What is your favorite thing about the school garden and why?

*Grade Levels:* All Grades

*Time:* 45 to 60 minutes

# Activity:
# Seed Balls *Ideal for schools WITHOUT a school garden*

Students will participate in a fun and interactive activity that will encourage the planting of seeds on their school campus or around their home.

This recipe can be made in one large batch or each student can create their own individual seed ball.

## GOALS:

- To learn more about how plants grow and what is necessary for their success.
- To create a resource that will assist in growing plants in any space.

## LARGE BATCH MATERIALS:

- 2 cups of potting soil
- 5 cups of pottery clay
- 1-2 cups of water
- 1-2 cups of seeds of your choice
- Large bucket or tub to mix ingredients
- Large box to dry and store finished seed balls

## SINGLE BATCH MATERIALS:

- 2 parts of potting soil
- 5 parts of pottery clay
- 1-2 pinches of water, as needed
- 1-4 seeds of your choice
- 1 peat pot per student
- Large box to dry and store finished seed balls

## STEPS:

**Seed Ball Recipe**:

1. Combine 2 cups of potting soil, 5 cups of pottery clay, and 1-2 cups of seeds of your choice in a large tub. Refer to the Master Gardeners Vegetable Planting Guide linked at the bottom of the page to help determine what seeds to use based on recommended planting dates.
2. Mix ingredients thoroughly so there are no lumps. If you are following the single batch recipe, combine materials in hands or on a flat surface.
3. Add water slowly until the mixture is the consistency of molding clay.
4. Knead the dough to incorporate the seeds and add more water if necessary.
5. Roll the mixture into balls that are 1 inch in diameter (if the mixture is not sticking together, add more water).
6. Let the seed balls air dry for 24-48 hours in a shady place before planting. Use a cardboard box to store and dry them.
7. Finally, carefully place or gently toss the seed balls onto a section of soil to plant them.
8. Avoid burying them or watering them immediately.
9. Optional: Instead of planting at school, students can take the seed balls home to plant.

## ASK:

1. What are some benefits to planting seeds and gardening?
2. How does having a school garden help connect you to the food you eat?
3. Why do you think it is important to grow your own food?

Source: Seed Ball Recipe www.gardeningknowhow.com/special/children/making-seed-balls.htm
Master Gardeners Vegetable Planting Guide: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.mastergardenerssandiego.org/Vegetable%20Planting%20Guide1.pdf

Next Generation Science Standards (NGSS):

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

# Appendices

# Appendix A: Additional Information

## A.1 Examples of Farm to School Programs in San Diego County

- **Cajon Valley Union School District (CVUSD):** CVUSD has incorporated smoothie bikes into their school gardens. Students are able to pull and wash the fresh fruits and vegetables growing in the garden to use as ingredients for a human-powered smoothie bike blender. Students pick their favorite ingredients, pedal the bike, and share their healthy creations.

- **Escondido Union School District (EUSD):** EUSD excels at sourcing local produce for their district's school meal program. Through partnering with local farmers such as Sundial Farms and Rio Del Rey Heirloom Beans, Escondido is committed to sourcing fresh, healthy, and local food to their families and students.

- **Lakeside Union School District (LUSD):** LUSD is a leader in integrating scratch cooking and scratch baking techniques into their district's school meal program. The USDA Food and Nutrition Services announced LUSD was one of the six national Champions of Breakfast Award winners from the state of California in 2019. This award was partially due to their success in boosting breakfast participation through the use of scratch cooking to improve meal quality and increase cost effectiveness.

- **La Mesa-Spring Valley School District (LMSVSD):** LMSVSD is dedicated to supporting Farm to School for their students, families, and community members with the goal of supporting learning through promotion of healthy habits and lifelong nutrition and fitness practices.

    - La Mesa Arts Academy middle school has an outstanding culinary program, with the goal of providing students with opportunities to connect with fresh, healthy food and try new recipes to bring home. The school district also encourages family luncheons to allow parents to experience school lunches.

    - La Mesa-Spring Valley uses dairy from Hollandia Dairy, a family-owned business in San Diego County, in their cafes.

    - La Mesa-Spring Valley is proud to be a part of the Farm to School Collective to provide continuous opportunities for growing health and wellness in their district.

- **San Diego Unified School District (SDUSD):** SDUSD's Farm to School program started in 2010 with three areas of focus: 1) incorporating local products in school meals, 2) providing nutrition/food curriculum in the classroom, and 3) fostering development and learning opportunities through school gardens.

    - Through the Harvest of the Month program, SDUSD features a produce item from a specific San Diego County farmer every Wednesday.

    - The school district started the Garden 2 Cafe program in 2013, which allows Food & Nutrition Services to serve garden grown produce as part of the school meal program, specifically through the salad bar. By allowing students to be involved in planting, growing, and harvesting their own food, they come to a better understanding of where food comes from and are able to make healthy eating choices.

- **San Ysidro School District (SYSD):** The SYSD Child Nutrition Department works with American Produce to source the majority of their fruits and vegetables from California growers.

- **Santee School District (SSD):** SSD partners with Food 4 Thought, LLC to bring farmers market assemblies to schools within the district. This activity educates future food shoppers on where their food comes from, the importance of eating fruits and vegetables, and how to make smart food purchases.

- **Sweetwater Union High School District (SUHSD):** SUHSD continues to redefine what Farm to School means. Students, faculty, and community members from Southwest High School have built a chicken farm managed by student leaders. The chicken farm houses close to 400 birds, producing between 10-12 dozen eggs every day and providing fresh eggs for students all over the district through the school meal program.

## A.2 Examples of Food Miles*

- **Apple** – Apples originated in Central Asia and China is now the number one producer in the world, accounting for 48% of global apple production. Within the United States, California, Pennsylvania **(2,603 miles)**, Washington **(1,271 miles)**, New York **(2,760 miles)**, Michigan **(2,341 miles)**, and Virginia **(2,539 miles)** are all top apple producers.

- **Avocado** - Sometimes called "Alligator Pears" due to their rough green skin, avocados originated in South-Central Mexico, specifically in the Tehuacán Valley **(1,891 miles away)**. Mexico is the number one producer of avocados today, but Southern California is also well-known for its avocado production. San Diego County currently has roughly 16,870 acres of avocado trees, many of which are located in Fallbrook, Escondido, and Valley Center.

- **Banana** – In the US, bananas are grown in warm tropical corners like Hawaii and Florida. However, the majority of the bananas we eat today are grown in Latin America and the Caribbean. A banana from Hawaii travels **2,521 miles** to arrive in San Diego County, while a banana from Florida travels **2,488 miles. Background on bananas for older students:** Bananas are technically berries, which originated in Indomalaya. The earliest record of their domestication comes from New Guinea up to 10,000 years ago. Currently, India **(8,597 miles away)** is the top producer closely followed by China **(6,992 miles away).**

- **Carrot** - Carrots are grown year-round throughout California, with 85% of all carrots in the US coming from California! Michigan **(2,341 miles)** and Texas **(1,168 miles)** grow the other 15% of all commercial US carrots. Globally, China **(6,992 miles)** is the largest producer of carrots.

- **Cucumber** – In the US, Florida **(2,490 miles)** grows the most cucumbers while Michigan **(2,341 miles)** grows the most pickling cucumbers. China **(6,992 miles)**, India **(8,597 miles)**, and Russia **(5,502 miles)** are also large producers of cucumbers worldwide.

- **Orange** - Research indicates citrus fruits originated in Australia, New Caledonia, New Guinea, and South Asia. Brazil is currently the leading orange producer in the world. An orange from Brazil travels **5,383 miles** to arrive in San Diego County. In the states, Florida has the highest production of oranges, followed closely by California, Arizona, and Texas.

- **Potato** – The US ranks 5th in the world in potato production, with Idaho **(959 miles)** leading the way as the top producer. Internationally, China **(6,992 miles)** is the largest producer in the world, followed by India **(8,597 miles)**, Russia **(5,502 miles)**, and Ukraine **(6,498 miles).**

- **Tomato** – In the US, most tomatoes are grown in Florida **(2,490 miles)** and California. However, the US only ranks 4th in the world in tomato production with China **(6,992 miles)** by far leading other countries followed by India **(8,597 miles)** and Turkey **(7,173 miles).**

***Note: Miles reflect the approximate distance food travels from the country of origin to San Diego County.***

## A.3 Harvest of the Month Calendar

San Diego's seasonal produce helps communities maintain healthy lifestyle habits.

### Fall • September, October, November


Dried Fruits


Persimmon


Grapes


Peppers


Tomatoes


Root Vegetables

### Winter • December, January, February


Beets


Apples


Citrus


Salad Greens


Winter Squash


Kiwi

### Spring • March, April, May


Strawberries


Berries


Grapefruit


Cucumber

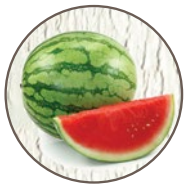

Cooked Greens


Peas

### Summer • June, July, August


Melon


Stone Fruit


Watermelon


Summer Squash


Avocado


Beans

The Harvest of the Month seasonal calendar for San Diego County was developed by UC San Diego Center for Community Health with input from Community Health Improvement Partners Food Systems' San Diego County Crop Availability Report and Escondido Union, San Ysidro, and Vista Unified School District Nutrition Services.

For more ways to use the Harvest of the Month Calendar, check out the online toolkit: https://ucsdcommunityhealth.org/work/harvest-of-the-month/

## A.4 Health Benefits by Colors

- **Red: Vitamin C, Antioxidants**
  - **Vitamin C:** Our body cannot make its own Vitamin C, so we need to get it from our food! Vitamin C is important for the immune system and for assisting in healing wounds. During the fifteenth and sixteenth centuries, pirates and sailors suffered from a disease called "scurvy" due to not getting enough Vitamin C. This caused many symptoms including the reopening of previously closed wounds. Citrus fruits with plenty of Vitamin C would have helped prevent this illness.
  - **Antioxidants:** These are molecules that fight free radicals in your body. Free radicals can cause damage to the body's cells if there are too many in the body at once. It is important to eat foods high in antioxidants to prevent this damage.
- **White/Brown: Vitamin C, Sulfur Compounds**
  - **Sulfur Compounds:** Sulfur helps in making proteins, repairing DNA, and assisting your body with moving food.
- **Green: Vitamin C, B Vitamins, Fiber, Minerals**
  - **B Vitamins:** B Vitamins play an important role in producing energy and making red blood cells to help your body transport oxygen.
  - **Fiber:** Fiber is the part of plant-based foods that cannot be digested by humans. It is important for digestive health and bowel movements.
  - **Minerals:** Minerals are essential nutrients that help the body perform necessary activities for life. They help your body grow, develop, and stay healthy. Examples of minerals are Potassium and Calcium.
- **Blue/Purple: Fiber, Antioxidants**
- **Yellow/Orange: Antioxidants, Fiber, Potassium, Calcium**
  - **Potassium:** A mineral needed for regulating fluid balance, muscle contractions, and nerve signals in your body.
  - **Calcium:** A mineral needed to maintain strong and healthy bones.

## A.5 School Meal Examples

## A.6 Unique Fruit/Vegetable Origins and Uses

Fruit and vegetable options to use for a taste test:

- **Dragon Fruit:** The dragon fruit is native to Central America. Today, it also commonly grows in Southern California and is often used in smoothies and fruit salads.

- **Groundcherry:** Groundcherries are native to South America and are closely related to the Tomatillo. They were introduced to the United States in the 1800s and are often used in both sweet and savory dishes. They can be eaten plain, used in a salsa, or used to create jams and jellies.

- **Guava:** Guavas are native to Central America and were introduced to the United States in the 1800s. They are commonly eaten plain, used in jams and jellies, or made into juice.

- **Kohlrabi:** Kohlrabi originated in Northern Europe and was introduced to the United States in the 1800s. It is similar to cabbage and often used in savory dishes and salads or simply eaten fresh with dip.

- **Kumquat:** The kumquat is native to China and was introduced to California in the 1880s. They are often used in jellies and jams or as a unique, tart taste in many dishes.

- **Loquat:** The loquat is another fruit native to China that was introduced to California in the 1850s. Loquats are often eaten plain or used in jams, jellies, and chutneys.

- **Mulberry:** Mulberries are native to China and were introduced to the United States in the 1730s due to the use of mulberry leaves as food for silkworms. Mulberries are commonly used in jellies and jams or eaten plain. They can also be substituted for blackberries in many dishes.

- **Passion Fruit:** The passion fruit is native to South America and was introduced to the United States in the late 1800s. This fruit is commonly eaten plain, used in baked goods, or made into juice.

- **Persimmon:** The persimmon is native to China but was introduced to California in the 1800s where many persimmons still grow today! These fruits are often eaten plain or used in baked goods and salads.

## A.7 Sample Letter to a Farmer

Dear Long Road Farm,

The tomatoes and peppers you provided for our school are amazing! My favorite is the cherry tomatoes! They are so delicious!

Thank you again for growing food for us to eat.

From,

Malcom,
4th Grade Student
Avocado Elementary

## A.8 Crop and Water Usage Matching Images

**Tomatoes**

**Oranges**

**Lettuce**

**Avocados**

**Peaches**

**Strawberries**

# Farm to School 101

Write in the 3 components of Farm to School in their designated section of the Farm to School circle.

# Where does your food come from?

If your school had to purchase all these fruits from outside of San Diego, how many miles do you think they would have to travel to arrive in San Diego? Match the number of miles it travels from where it is grown to arrive in San Diego.

**1,891 miles**

**2,488 miles**

**1,271 miles**

**5,383 miles**

Can you guess which of these fruits we can grow in San Diego County?

# B.3 - Measure the Environmental Impact of Your Meal

# Plan Your Own Healthy Plate

**Can you create a tasty, colorful, and healthy school meal using the below food groups?**

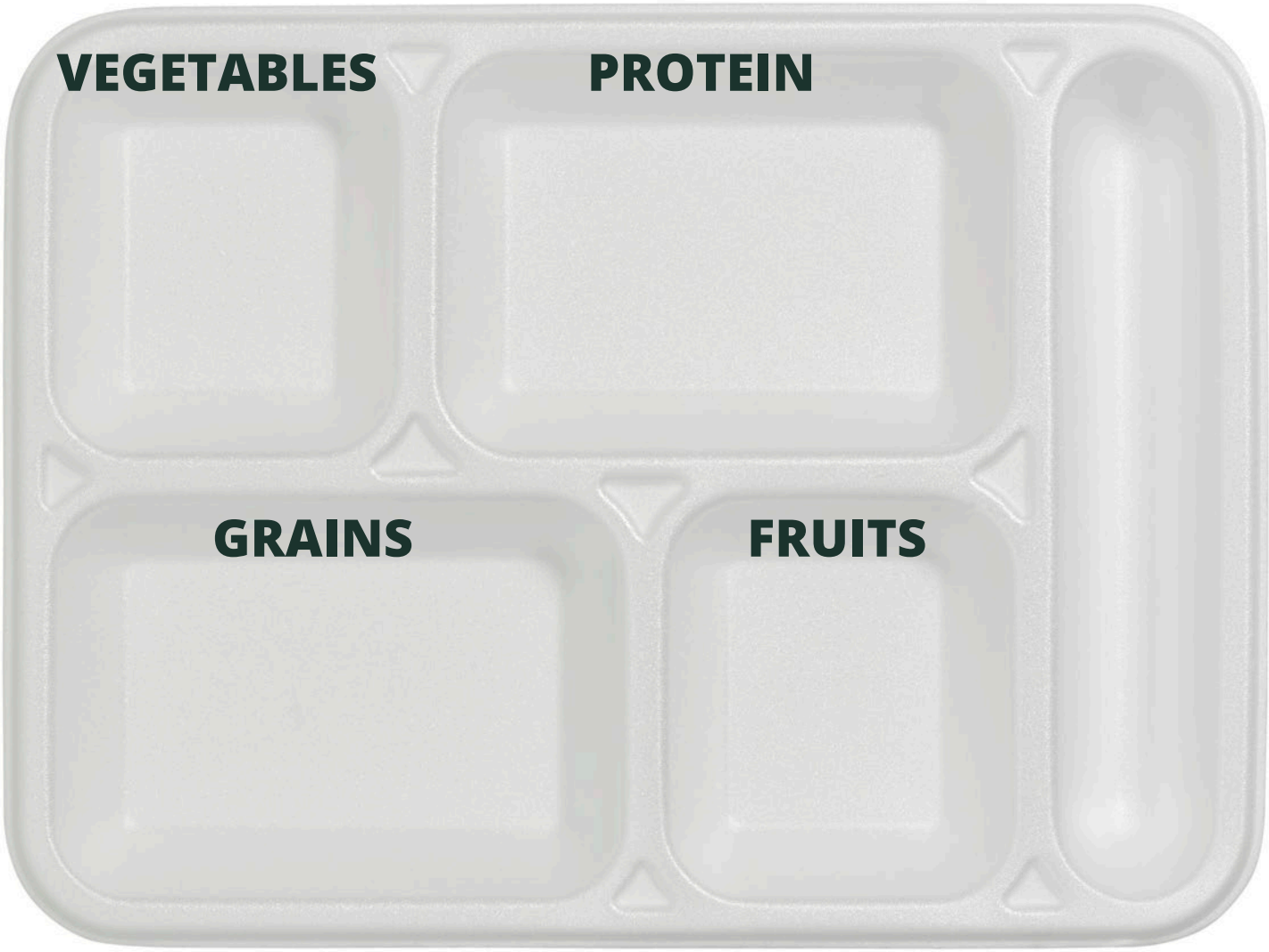
**Vegetables:** Lettuce, peppers, cucumbers, peas, carrots, squash, beats, onion, broccoli, brussels sprouts

**Fruits:** Orange slices, tomatoes, avocados, kiwis, strawberries, watermelon, pears

**Protein:** Chicken, tofu, lentils, almonds, yogurt, tuna

**Grains:** Pasta, rice, bread, oats, quinoa

The list of food items mentioned above are examples of the four food groups that this activity is focusing on: vegetables, protein, grains, and fruits. You can use food items from this list or think of your own to make your own healthy plate!



# Eat the Rainbow

Draw/write the name of a fruit or vegetable for each color of the rainbow.

**Fruit or Vegetable**

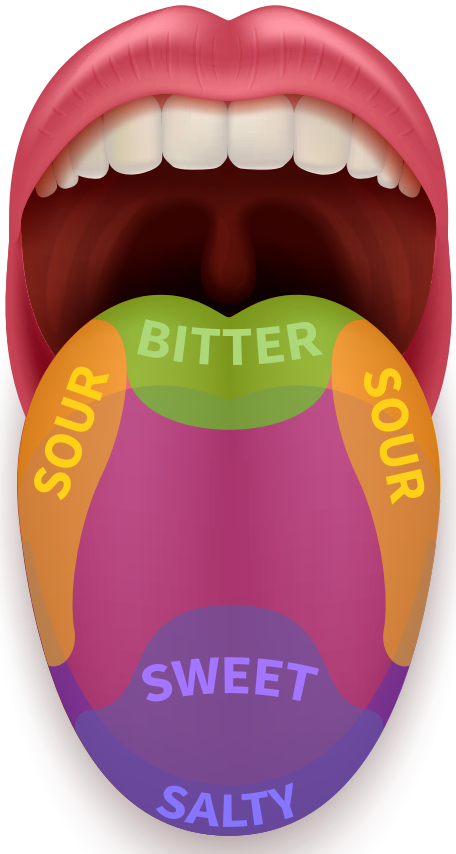
**Fruit or Vegetable**

**Fruit or Vegetable**

**Fruit or Vegetable**

**Fruit or Vegetable**

**Fruit or Vegetable**




# Taste Test Score Sheet

Rank each area of taste listed below from 1 – 5 with 1 meaning you "dislike very much" and 5 meaning you "like very much."

## SCALE

| | |
|---|---|
| Dislike Very Much: | 1 |
| Somewhat Dislike: | 2 |
| Neither Like nor Dislike: | 3 |
| Somewhat Like: | 4 |
| Like Very Much: | 5 |

**How does the food look?**

1 2 3 4 5

**How does the food smell?**

1 2 3 4 5

**How does the food taste?**

1 2 3 4 5

**How is the texture of the food?**

1 2 3 4 5

**How does the food look?**

1 2 3 4 5

**How does the food smell?**

1 2 3 4 5

**How does the food taste?**

1 2 3 4 5

**How is the texture of the food?**

1 2 3 4 5

# Crop and Water Usage

Match the gallons of water it takes to produce 1 pound of each fruit or vegetable. Consider the size and shape of the crop, as well as if the crop is grown on trees or in the ground.

| CROP | WATER |
| --- | --- |
|  1 pound of Tomatoes | 74.1 gallons of water |
|  1 pound of Oranges | 42.1 gallons of water |
|  1 pound of Lettuce | 12.2 gallons of water |
|  1 pound of Avocados | 10.8 gallons of water |
|  1 pound of Peaches | 9.8 gallons of water |
|  1 pound of Strawberries | 5.5 gallons of water |

# Calculate Gallons of Water on a Farm

## SCENARIO:

Farmer Jeff owns an 8-acre farm in Escondido where he grows tomatoes, avocados, and citrus. In a good month, Farmer Jeff's land is able to produce:

- 34 pounds of tomatoes
- 102 pounds of avocados, and
- 75 pounds of oranges

## QUESTIONS:

1. If it takes 11 gallons of water to produce 1 pound of tomatoes, how many gallons of water does Jeff use in one month on his tomatoes?

2. If it takes 74 gallons of water to produce 1 pound of avocados, how many gallons of water does Jeff use in one month on his avocados?

3. If it takes 12 gallons of water to produce 1 pound of oranges, how many gallons of water does Jeff use in one month on his oranges?

4. How many total gallons of water does Jeff use on all three of his crops during a month?

5. Which of these crops uses the most water? Why do you think this crop uses the most water?

# SCHOOL GARDEN

| B | I | N | G | O |
|---|---|---|---|---|
| COMPOST | LADYBUG | A SHADY TREE | BUGS | SOIL |
| LETTUCE | PLANTING POTS | BUMBLEBEE | HERBS | GARDEN GLOVES |
| HOSE | EARTHWORM | FREE SPACE | PEAS | WEEDS |
| BUTTERFLY | ROOT VEGGIES | SEEDS | TOMATOES | A FRUIT TREE |
| RAISED BED | WATERING CAN | NICE SMELLING FLOWER | SPIDER OR SPIDER WEB | SHOVEL |

# Appendix C: Worksheet Answers

## C.1 Farm to School 101 Answers

- The three components of Farm to School: **School Gardens, Nutrition Education, and purchasing local fruits and vegetables from local farmers (or local procurement).**

## C.2 Matching Food Miles Answers

- Bananas – **2,488 miles traveled**
- Oranges – **5,383 miles traveled**
- Avocados – **1,891 miles traveled**
- Apples – **1,271 miles traveled**
- Items grown locally: **Avocados, oranges, and apples**

## C.3 Crop and Water Usage Matching Worksheet Answers

- Tomatoes – **9.8 gallons of water**
- Oranges – **12.2 gallons of water**
- Lettuce – **10.8 gallons of water**
- Avocados – **74.1 gallons of water**
- Peaches - **42.1 gallons of water**
- Strawberries – **5.5 gallons of water**

## C.4 Calculate the Gallons of Water Used on a Farm Answers

1. If it takes 11 gallons of water to produce 1 pound of tomatoes, how many gallons of water does Jeff use in one month on his tomatoes? **A: 374 gallons of water**
2. If it takes 74 gallons of water to produce 1 pound of avocados, how many gallons of water does Jeff use in one month on his avocados? **A: 7,548 gallons of water**
3. If it takes 12 gallons of water to produce 1lbs of citrus, how many gallons of water does Jeff use in one month on his oranges? **A: 900 gallons of water**
4. How many total gallons of water does Jeff use on all three of his crops during a month? **A: 8,822 gallons of water**
5. Which of these crops uses the most water? Why do you think this crop uses the most water? **A: Avocados use the most water. Reasons why may vary, but include: avocados grow on large trees, each tree produces a lot of avocados and requires a lot of water, and water is used to transport nutrients to feed avocado trees.**

**The Farm to Institution Center | Community Health Improvement Partners**
**5095 Murphy Canyon Road Suite #105 | San Diego, CA 92123 | (858) 609-7960**