

## Overview of Sci-Cuisine

Sci-Cuisine is an offshoot of the Consult 4 Kids’ science program, Sci-Gineering. Just like Sci-Gineering is based on hands-on, minds-on learning experiences for children and youth, so too is Sci-Cuisine. In Sci-Cuisine youth learn about the science of the spotlighted fruit or vegetable and then have the opportunity to prepare food from the same product. Whether the spotlight is on bananas, tomatoes, citrus fruit, potatoes, carrots or whether a food is a fruit or vegetable, the six lessons of each Sci-Cuisine unit will provide both science and nutrition learning.

## Lesson Format

Each lesson will follow the same format. The lesson will begin with an opening during which the objective of the lesson is stated, prior knowledge is activated, and background knowledge is built through a variety of means including vocabulary development. The opening is followed by the presentation of the lesson’s content. The learning task will be explained, modeled, and demonstrated to ensure youth will have a full understanding of what they need to do. After the explanation, modeling, and demonstration, youth will go to work on the learning project and the adult will facilitate the learning by asking questions, stopping the entire group to take advantage of a teaching moment during which youth communicate with one another. The facilitator will offer words of encouragement. The lesson is followed by the “Cuisine” section of the lesson plan which includes a Taste Test or preparing something to eat. The closing of the lesson includes Review (what did we do), Reflect (what did we learn), and Commit (how will we use what we learned).

Prior to beginning the lessons please review the entire lesson plan, review the supplies and materials needed, and be as prepared as possible to facilitate the learning. If you would like, try the learning project for yourself. Nothing can take the place of experiencing something for yourself. Keep in mind throughout the lesson what you want the children/youth to learn.

This Sci-Cuisine unit is Spotlight on Fruit or Vegetable? An overview of the six lessons follows.

#	Objective	Description of Learning Opportunity	Time
1	Children categorize food items as either fruit or vegetable.	<b>Learning Opportunity:</b> Determine what youth know about classifying food as either fruit or vegetable.  <b>Food:</b> Dip for Carrots and Zucchini	60-90 minutes
2	Children learn about root and stem vegetables we eat.	<b>Learning Opportunity:</b> Review the vegetables we eat which are roots (potatoes, carrots) and stems (asparagus, celery) we eat.  <b>Food:</b> Taste Test for Roots and Stems we eat Rating Sheet	60-90 minutes
3	Children learn about vegetable leaves and flowers we eat.	<b>Learning Opportunity:</b> When planting a garden it is important to consider how close together to plant the items and how deep to plant the seeds.	60-90 minutes

		<b>Food:</b> Vegetable Dips and leaves and flowers we eat	
4	Children learn about fruits	<b>Learning Opportunity:</b> Children look at fruits and the seeds which are inside them.  <b>Food:</b> Pico de Gallo—(really a fruit dip) and Corn Chips—One Healthy Snack	60-90 minutes
5	Children learn about three types of fruits: drupes, berries, and aggregate fruits.	<b>Learning Opportunity:</b> Children learn about the characteristics of fruit which help scientists categorize them as drupes, berries, and aggregate fruits. (Most fruits identified as berries really aren't—they are aggregate fruits.)  <b>Food:</b> Aggregate Fruit Delight (Three Berry-Yogurt Parfait)	60-90 minutes
6	Children categorize food items as either fruit or vegetable.	<b>Learning Opportunity:</b> Children will repeat the activity from Lesson #1 and categorize foods as fruit or vegetables, based on the information they have gained in the past 5 lessons  <b>Food:</b> Symphony of Fruit Pizza	60-90 minutes

Lessons 1-3 will be done in August, Lessons 4-6 will be done in September.

## Lesson #1 Fruit of Vegetable

**Background Information:** Our perception of whether a food is a fruit or a vegetable is in part based on how the item tastes. If it is sweet, we tend to think it is a fruit, if more bland and maybe salty, we think of it as a vegetable. This is because in the “culinary world” this would tend to be the case, however when it comes to the scientific classification and the attributes need for that classification, taste is not a factor. Today lesson will give children/youth the opportunity to sort food items into fruit or vegetable, discuss the characteristics that caused them to categorize the item as they did, and then share their opinions with others. At the end of the six lessons, children/youth will be asked to repeat this task based on the information they have learned during the 6 lessons.

<b>Supplies &amp; Materials</b>	<b>Preparation</b>
<ul style="list-style-type: none"> <li>• Vocabulary Notebook or ½ of composition book</li> <li>• Picture cards (attached to this lesson plan) for each group</li> <li>• Scissors</li> <li>• Chart paper (probably ½ sheet will be sufficient)</li> <li>• Pencils, pens</li> <li>• Glue sticks</li> <li>• Carrots</li> <li>• Zucchini</li> <li>• Greek Yogurt (plain)</li> <li>• Dried chives, parsley, dill weed</li> <li>• Garlic powder</li> <li>• Onion powder</li> <li>• Salt and pepper</li> <li>• Small bowl</li> <li>• Measuring spoons</li> <li>• Plastic spoons</li> <li>• Paper towels</li> <li>• Chart paper and pens</li> </ul>	<p>Read through the entire lesson plan, start to finish</p> <p>Be sure the supplies are organized to-distribute easily</p> <p>Review the key vocabulary and consider how you will use these words effectively</p> <p>If you would like, make the recipe in advance so you will know how it tastes</p> <p>Write the recipe on chart paper</p>

**Objective:** Children categorize food items as either fruit or vegetable and explain the characteristics of the food item shared by others in the same category.

### Introduction:

**Prior Knowledge: Ask children the following questions.**

1. What are some of the things you should include in a healthy diet?
2. Why do you think nutritionists clump fruits and vegetables together rather than keeping them separate?
3. When you think about fruit, what are three fruits you think of? (Make a list) What do these fruits have in common, how are they alike? List the criteria

4. When you think about vegetables, what are three vegetables you think of? (Add to list). What do these vegetables have in common, how are they alike? List the criteria

**Build Vocabulary Knowledge:**




1. Here are the words to review today: fruit, vegetable, characteristic
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. The explanation in the lesson plan are for you, not for the children.
5. In Column #3 youth should draw a picture or representation of the word.
6. Do at least one of the words together
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.

**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**fruit:** the product of a plant you eat

**vegetable:** part of the plant you eat

**characteristic:** something you can see or taste that makes you think different things are alike

Word	Explanation	Picture/Graphic
fruit	product of the plant you can eat	
vegetable	plant you can eat	
characteristic	ways to describe something	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

**Fruit or Vegetable?**

**What you will need:**

- Picture cards (attached to this lesson plan) for each group
- Scissors
- Chart paper (probably ½ sheet will be sufficient)
- Pencils, pens

- Glue sticks

**What you will do:**

1. Divide children into pairs or groups of three
2. Distribute the supplies to each group (pictures, chart paper, pens, glue sticks, scissors)
3. Explain they will cut apart the pictures of the food items
4. Explain as a group they will decide which of the items are fruits and which are vegetables
5. Explain they will make a chart with two columns. They will label Column #1 Fruit and Column #2 Vegetable
6. Explain they will decide which picture goes in which column
7. Once they have the items sorted, as a group they need to decide what similarities the food items have which they put into categories.
8. Each group should list a minimum of 2 characteristics all of the items in a single group have in common and write them on the chart
9. When charts are finished, have youth share with another pair
10. Collect all of the charts (save for the final lesson). Have children/youth put names on the back of the chart.

**Cuisine: Fruits and Vegetables**

**Be sure to have children wash hand prior to cooking.**

**Eating Carrots and Zucchini****What you will need:**

- Carrots
- Zucchini
- Greek Yogurt (plain)
- Dried chives, parsley, dill weed
- Garlic powder
- Onion powder
- Salt and pepper
- Small bowl
- Measuring spoons
- Plastic spoons
- Paper towels

**Recipe**

- 1 ½ cups plain Greek yogurt
- ½ teaspoon dried chives
- ¾ teaspoon dried parsley
- ¼ teaspoon dried dill weed
- ¼ teaspoon garlic powder
- ¼ teaspoon onion powder
- ⅛ teaspoon salt
- ¼ teaspoon black pepper

**What you will do:**

1. Divide children into groups of 5

2. Assign different tasks to different children (collect the supplies, measurer, stirrer, plater, clean-up)
3. In a large bowl combine all of the ingredients together and mix well.
4. Cover the bowl with plastic wrap and refrigerate for at least 2 hours or overnight for the best results.
5. Serve with fresh veggies or any other dippers that you'd like.

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)


















**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?

Lesson #1 Fruit or Vegetable? Picture Cards



## Lesson #2 Fruit of Vegetable

**Background Information:** Unlike fruit which is the product of the plant, vegetables **ARE** the plant. Vegetables are the roots, stems, leaves, and flowers of the plants which we eat. Once you have consumed the “vegetable” the plant ceases to exist. When you eat the fruit of the plant, the plant lives on and can bear more fruit. Examples of roots include potatoes, carrots and radishes; of stems both celery and rhubarb, of leaves all kinds of lettuce and kale, and of flowers both broccoli and cauliflower. In this lesson, children will be taking a close look at roots and stems we eat. Plant stems have a variety of functions. Stems support the entire plant and have buds, leaves, flowers, and fruits. Stems are also a vital connection between leaves and roots. They conduct water and mineral nutrients through xylem tissue from roots upward, and organic compounds and some mineral nutrients through phloem tissue in any direction within the plant. Root vegetables grow underground, they absorb a great amount of nutrients from the soil. They are packed with a high concentration of antioxidants, Vitamins C, B, A, and iron, helping to cleanse your system. They are also filled with slow-burning carbohydrates and fiber, which make you feel full, and help regulate your blood sugar and digestive system.

<b>Supplies &amp; Materials</b>	<b>Preparation</b>
<ul style="list-style-type: none"> <li>• Vocabulary Notebook or ½ of composition book</li> <li>• Structure of a Plant graphic at end of the lesson plan</li> <li>• Fun Facts About Roots and Stems at the end of the lesson plan</li> <li>• Chart paper (probably ½ sheet will be sufficient)</li> <li>• Crayons, colored pencils, fine point marker for labeling</li> <li>• Pencils, pens</li> <li>• Celery</li> <li>• Potato</li> <li>• Radish</li> <li>• Green onion</li> <li>• Turnip</li> <li>• Sweet potato</li> <li>• Asparagus</li> <li>• Rhubarb (not always available)</li> <li>• Taste Test Rating Sheet</li> <li>• Small plates</li> <li>• Pencils</li> </ul>	<p>Read through the entire lesson plan, start to finish</p> <p>Be sure the supplies are organized to-distribute easily</p> <p>Review the key vocabulary and consider how you will use these words effectively</p> <p>Prepare the food for the taste test—small ½ “ cubes is plenty big enough. Be sure the taste test is correctly labeled.</p>

**Objective:** Children learn about root and stem vegetables we eat.

**Introduction:**

**Prior Knowledge:** Ask children the following questions.



What are some of the vegetables you enjoy eating? Which part of the plant do these vegetables come from?

What are the vegetables you like the least? What about them makes you not like them very much?

What are some different ways you can prepare vegetables? (raw, fried, boiled, sautéed, steamed)

What are some of the different ways you can buy vegetables? (fresh, frozen, canned)

**Build Vocabulary Knowledge:**



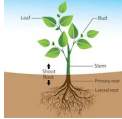
1. Here are the words to review today: root, stem, plant
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. The explanation in the lesson plan are for you, not for the children.
5. In Column #3 youth should draw a picture or representation of the word.
6. Do at least one of the words together
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.

**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**root:** the part of the plant that is under the ground

**stem:** the part of the plant which carries nutrients from the roots to the other parts of the plant

**plant:** living things that grow from seeds and are not animals

Word	Explanation	Picture/Graphic
root	part of the plant that is underground	
stem	part of plant which connects the roots to the other parts of the plant	
plant	roots, leaves, stems, and flowers which grow	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

**Roots and Stems**

**What you will need:**

- Structure of a Plant graphic at end of the lesson plan
- Fun Facts About Roots and Stems at the end of the lesson plan

- Chart paper (probably  $\frac{1}{2}$  sheet will be sufficient)
- Crayons, colored pencils, fine point marker for labeling
- Pencils, pens

**What you will do:**

1. Divide children into pairs or groups of three
2. Distribute the supplies to each group (Structure of a Plant, Fun Facts About Roots and Stems, chart paper, crayons, colored pencils, fine point marker, pencils)
3. Ask children to look at the Structure of a Plant graphic
4. Ask them what kind of a plant this is? Ask them if they would eat the roots or stem of this plant (probably no)
5. Ask them what they think the roots do for the plant (provide nutrients from the ground, anchor the plant so it doesn't fly away during a wind storm)
6. Ask them what they think the stem does for the plant (connects the roots and the leaves and other plant parts, hold the plant erect)
7. Ask children to look at the Fun Facts About Roots and Stems cards
8. If children are in Kindergarten or 1<sup>st</sup> grade, read the cards together with you taking the lead. If children are in 2<sup>nd</sup> through 6<sup>th</sup> grade, ask them to review the cards as a pair.
9. Ask the group to identify things they found interesting about the plant roots and stems
10. Now ask children to work together to create a drawing of a plant to share with the remainder of the group. Explain they should incorporate some of the "fun facts" by writing them on the chart as well
11. When groups are finished, have them share with other groups.

**Cuisine: Taste Test for Roots and Stems**

**Be sure to have children wash hand prior to cooking.**

**Taste Test****What you will need:**

- Celery
- Potato
- Radish
- Green onion
- Turnip
- Sweet potato
- Asparagus
- Rhubarb (not always available)
- Taste Test Rating Sheet
- Small plates
- Pencils

**What you will do:**

1. Divide children into groups of 5
2. Distribute Taste Test Rating Sheet and pencils to each group
3. Organize the small pieces ( $\frac{1}{2}$  " cubes) onto plates (you will need to cut this prior to the children arriving) (you will need 4 set-ups)
4. Explain they will come and taste each of the items and then rate the item as to the taste

5. Review the Taste Test Rating Sheet with the children, discuss each of the three categories
6. Have children complete the Taste Test and then share the results with another student
7. When all is cleaned up, ask children why they think some of the items they ate tasted better than other items.
8. Have children share their rating sheet with another youth.

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)

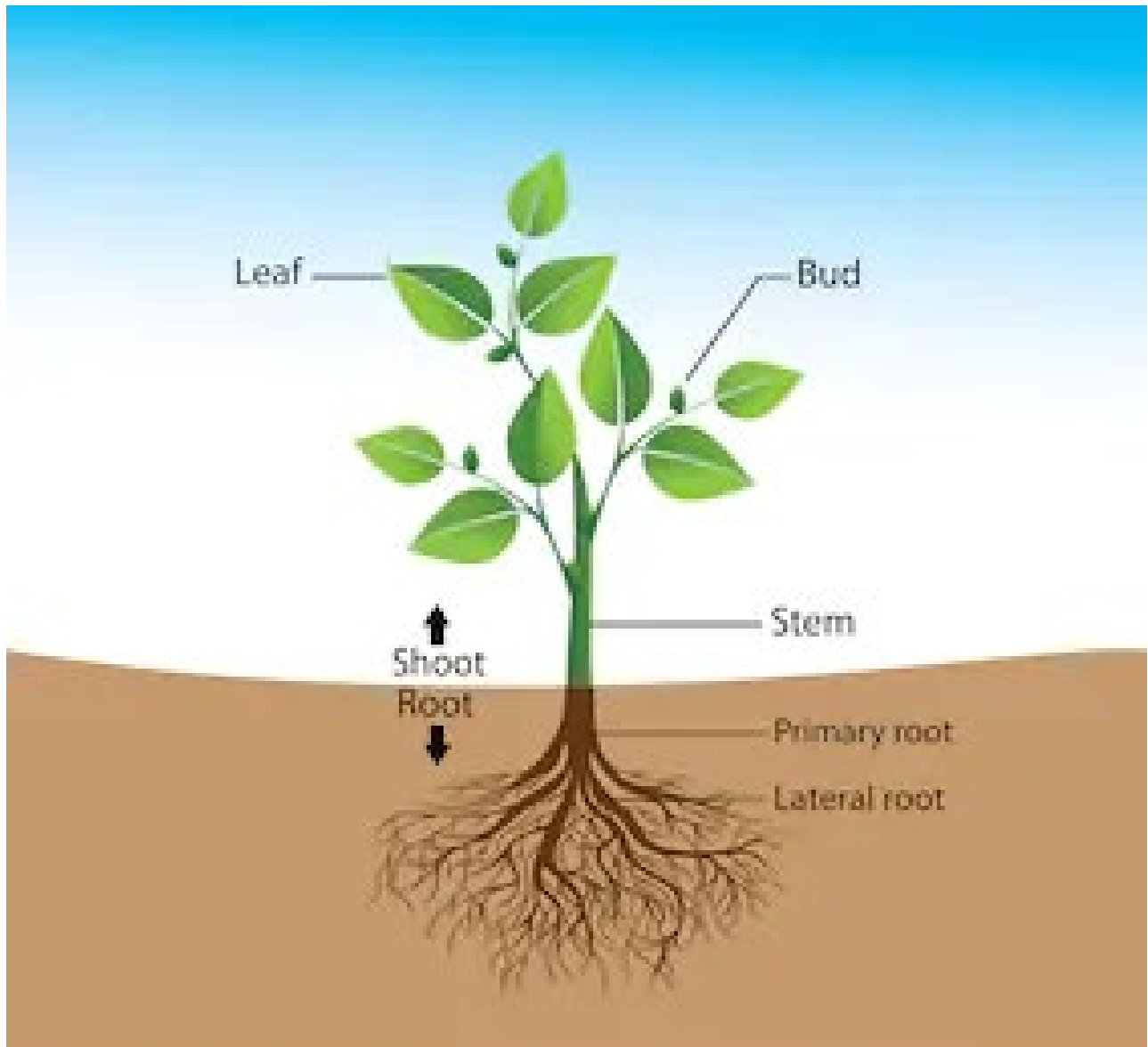
**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?

Lesson #2 Structure of a Plant



**Lesson #2 Fun Facts About Roots and Stems**

Fun Facts About Stems	Fun Facts About Roots
<p>Bamboo can be a fast growing plant, some types can grow almost a yard (3 feet) in just one day! You can eat Bamboo “shoots” (stems)</p> <p>While using energy from sunlight, plants turn carbon dioxide into food in a process called photosynthesis. Stems help gather the sunlight.</p> <p>Asparagus is a member of the lily family, which also includes onions, leeks, and garlic. Asparagus that we eat is a stem.</p> <p>Celery can reach the height of 3 feet. That’s a really big stem.</p> <p>Celery is also known as a “bunch of celery” because it consists of 10-12 individual pale green stalks. These stalks are the stems.</p> <p>Although you can eat all parts of the celery plant, most people eat the crunchy stems or stalks.</p> <p>Rhubarb develops long, thin stalks with rounded ridges on the surface. They grow from short, thick rhizome. Color of the stalks varies from deep red to light green. Flesh is always white-colored. Stalks (petioles) are edible part of rhubarb. Shape of the rhubarb stalks resembles celery.</p>	<p>In the agricultural industry, to ensure crops of food grow well water is often added to soil in the form of irrigation. This is how the roots absorb moisture and nutrients.</p> <p>Around 2000 different types of plants are used by humans to make food. Roots are part of these plants and some are roots we eat.</p> <p>The first potatoes were cultivated in Peru about 7,000 years ago. Potatoes are the roots.</p> <p>Onions contain a mild antibiotic that fights infections, soothes burns, tames bee stings and relieves the itch of athlete’s foot. Onions are roots.</p> <p>The bright orange color of carrots tell you they are an excellent source of Vitamin A which is important for good eyesight, especially at night. Vitamin A helps your body fight infection, and keeps your skin and hair healthy. Carrots are the roots we eat.</p> <p>The size of a potato depends on variety. It usually grows 24 inches in height. The largest potato ever recorded weighed 18 pounds and 4 ounces.</p> <p>Potatoes can produce white, red, purple, or blue flowers.</p>

## Lesson #2 Taste Test Rating Sheet

Write the name of each sample in the first column

In the second column share the consistency of the sample. Was it crunchy, soft, stringy or some other texture?

In the third column share how the sample tasted. Was it bland, salty, sweet, bitter, other?

In the fourth column rate the overall “taste”. 1 means it didn’t have much taste, it was not either a good taste or a bad taste. 2 means it had a reasonable amount of flavor—this is not about being a good taste or a bad taste, but the strength of the taste. 3 means that the taste of the sample was strong (remember whether or not you liked or did not like the flavor)

Stem or Root	Consistency	Taste	Overall Rating

**Note:** When you set up the samples for the children/youth, be sure they are clearly labeled.

### Lesson #3 Fruit of Vegetable

**Background Information:** Not only do we eat the roots and stems of plants when we eat vegetables, we also eat the leaves and the flowers. Eating the leaves would include lettuce, kale, and spinach, while eating the flowers would include cauliflower and broccoli. Most of the leaves we eat are green (makes sense), but the flowers can be a variety of color. We also eat the seeds from flowers as well. Think about sunflower seeds. These come from the very large flower, are dried and roasted, and people eat them both shelled and unshelled. These are often a snack or add a little extra crunch to a leafy salad.

<b>Supplies &amp; Materials</b>	<b>Preparation</b>
<ul style="list-style-type: none"> <li>• Vocabulary Notebook or ½ of composition book</li> <li>• Poster board (22" x 28" white) one for each three children/youth</li> <li>• Crayons, colored pencils, water color pencils</li> <li>• Pencils</li> <li>• Planting Facts (end of lesson plan)</li> <li>• Broccoli</li> <li>• Cauliflower</li> <li>• Spinach</li> <li>• Lettuce leaves</li> <li>• Sour cream</li> <li>• Mayonnaise</li> <li>• Dried minced onion</li> <li>• Garlic salt</li> <li>• Dill weed</li> <li>• Dried parsley</li> <li>• Worcestershire Sauce</li> <li>• Small bowls</li> <li>• Plastic spoons and knives</li> <li>• Measuring cups and spoons</li> <li>• Small plates</li> </ul>	<ul style="list-style-type: none"> <li>• Read through the entire lesson plan, start to finish</li> <li>• Be sure the supplies are organized to-distribute easily</li> <li>• Review the key vocabulary and consider how you will use these words effectively</li> <li>• If you would like, make the recipe in advance so you will know how it tastes</li> <li>• Write the recipe on chart paper</li> <li>• Make necessary copies</li> </ul>

**Objective:** Children learn about vegetable leaves and flowers we eat.

**Introduction:**

**Prior Knowledge: Ask children the following questions.**

1. What does it mean when someone says "That's a leafy vegetable?" What are some vegetable leaves you eat?
2. We can also eat flowers. What are some flowers you eat? Would you eat a rose? Why or why not?
3. Why would a colorful flower be important on a plant? Why do you answer as you do? (attract bees and other insects which helps to pollinate the flowers)
4. Would you rather eat a leaf or a flower? Why do you answer as you do?



**Build Vocabulary Knowledge:**



1. Here are the words to review today: leaf, flower, edible
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. The explanation in the lesson plan are for you, not for the children.
5. In Column #3 youth should draw a picture or representation of the word.
6. Do at least one of the words together
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.

**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**leaf:** the green part of the plant that capture the sunshine for photosynthesis

**flower:** a blossom that is essential for growing seeds

**edible:** humans can eat and not worry about being poisoned

Word	Explanation	Picture/Graphic
Leaf	Green pieces which gather the sunlight	
flowers	Blossoms which are essential for producing seeds	
Edible	Able to eat, not harmful to people	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

**Leaves and Flowers—Planting a Garden**
**What you will need:**

- Poster board (22" x 28" white) one for each three children/youth
- Crayons, colored pencils, water color pencils
- Pencils
- Planting Facts

**What you will do:**

1. Divide children into groups of 3

2. Distribute the supplies
3. Explain they are going to “plant” a vegetable garden
4. Explain they are to consider the different types of vegetables they would like to eat
5. Explain they need to read the Planting Facts for each of the items they choose to plant so they can be sure the plant will flourish
6. Explain that the poster board represents the size of the garden
7. Explain that as a group they will select the plants to put in their garden and lay out where they place them
8. Explain they should pretend they are looking down on the garden from a helicopter
9. When they have carefully laid out the garden, ask trios to share with other trios.

### **Cuisine: Eating Leaves and Flowers**

**Be sure to have children wash hand prior to cooking.**

#### **What you will need:**

- Broccoli
- Cauliflower
- Spinach
- Lettuce leaves
- Sour cream
- Mayonnaise
- Dried minced onion
- Garlic salt
- Dill weed
- Dried parsley
- Worcestershire Sauce
- Small bowls
- Plastic spoons and knives
- Measuring cups and spoons
- Small plates

#### **Recipe**

$\frac{3}{4}$  c sour cream

$\frac{3}{8}$  c mayonnaise

2 tsp dried minced onion

$\frac{1}{2}$  tsp garlic salt

$\frac{1}{2}$  tsp dried parsley

$\frac{1}{2}$  tsp dill weed

$\frac{1}{4}$  tsp Worcestershire sauce

#### **What you will do:**

1. Divide children into groups of 5
2. Assign different tasks to different children (collect the supplies, measurer, stirrer, plater, clean-up)

3. In a small bowl, mix the ingredients together
4. Cover and wait at least 1 hour before eating
5. Prepare the vegetables—wash and cut
6. Serve to the entire group

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)











**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?

**Lesson #3 Planting Facts**

 <p><b>Onions</b> 3" apart ¼" deep</p>	 <p><b>Carrots</b> 4" apart ¼" deep</p>	 <p><b>Green Bean</b> 3" apart 1" deep</p>	 <p><b>Bell Pepper</b> 18" apart ½" deep</p>
 <p><b>Zucchini</b> 24" apart 1" deep</p>	 <p><b>Radish</b> 1" apart ½" deep</p>	 <p><b>Celery</b> 8" apart ¼" deep</p>	 <p><b>Pumpkin</b> 24" apart 1" deep</p>
 <p><b>Artichokes</b> 36" apart 1 ½" deep</p>	 <p><b>Cantelope</b> 12" apart ½" deep</p>	 <p><b>Broccoli</b> 3" apart ½" deep</p>	 <p><b>Lettuce</b> 6" apart ⅛" deep</p>
 <p><b>Potatoes</b> 12" apart 4" deep</p>	 <p><b>Kale</b> 8" apart ½" deep</p>	 <p><b>Watermelon</b> 36" apart 1" deep</p>	 <p><b>Tomatoes</b> 18" apart ½" deep</p>

## Lesson #4 Fruit of Vegetable

**Background Information:** It may surprise you which of the things we eat are fruits, even though we consider them vegetables because of the taste. A fruit is the part of the plant that holds the seeds. A fruit may have a single seed (called a pit) or multiple seeds. Sometimes the seeds are large (think about an avocado) and sometimes they are very small (think about a banana). Some fruits have been “engineered” so they no longer have seeds at all. This is especially true of grapes and certain types of oranges. Care will need to be taken to ensure these fruits do not become extinct. There is a belief that the most popular banana will become extinct at some point because the seeds are so limited.

Supplies & Materials	Preparation
<ul style="list-style-type: none"> <li>• Vocabulary Notebook or ½ of composition book</li> <li>• 12” x 18” white construction paper</li> <li>• Crayons, colored pencils, water color pencils</li> <li>• Pencils</li> <li>• Different Fruits and Their Seeds attached to this lesson plan</li> <li>• Roma tomatoes</li> <li>• Green onions</li> <li>• Cilantro</li> <li>• Green chilies (can used canned, chopped)</li> <li>• Garlic salt</li> <li>• Lime</li> <li>• Bowl</li> <li>• Plastic knives</li> <li>• Paper plates</li> <li>• Corn chips</li> <li>• Measuring cups and spoons</li> </ul>	<ul style="list-style-type: none"> <li>• Read through the entire lesson plan, start to finish</li> <li>• Be sure the supplies are organized to-distribute easily</li> <li>• Review the key vocabulary and consider how you will use these words effectively</li> <li>• If you would like, make the recipe in advance so you will know how it tastes</li> <li>• Write the recipe on chart paper</li> <li>• Make necessary copies</li> </ul>

**Objective:** Children learn about fruits.

### Introduction:

**Prior Knowledge:** Ask children the following questions.

1. What are some of the fruits you enjoy eating? Make a list. What about them do you like?
2. What are some of the things you notice about the different fruits you mentioned?
3. What are some of the colors of fruit? Why do you think fruits tend to be colorful?
4. When you think about fruits, what kind of plants do they grown on?

**Build Vocabulary Knowledge:**

1. Here are the words to review today: fruit, pit, peels
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. The explanation in the lesson plan are for you, not for the children.



5. In Column #3 youth should draw a picture or representation of the word.
6. Do at least one of the words together
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.

**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**fruit:** the part of the plant that contains seeds

**pit:** another name for seeds (usually on one larger seed)

**peels:** the skin on a fruit which can be thin (like an apple), or thick like a watermelon)

Word	Explanation	Picture/Graphic
fruit	The part of the plant that holds the seeds	
pit	Another name for seed, usually one bigger seed	
peels	The skin on a piece of fruit whether it is thin or thick	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

### Fruits—It's the Seed

#### What you will need:

- 12" x 18" white construction paper
- Crayons, colored pencils, water color pencils
- Pencils
- Different Fruits and Their Seeds

#### What you will do:

1. Divide children into groups of 3
2. Distribute the supplies (paper, crayons, pencils, Different Fruits and Their Seeds)
3. Explain to children they will need to cut apart the pictures on the Different Fruits and Their Seeds
4. Explain as a trio they will determine how to categorize the seeds in these pictures (color, size, number, location are possible categories)
5. Explain to children even if they have considered these food items as vegetables, they are in fact fruits because they have seeds on the inside
6. Explain there is no right or wrong way to categorize the fruits, and there is more than one way

7. Ask them to explore different classifications, and when they have the one they want to preserve, they should create a chart and glue stick the pictures in the correct column
8. When they have finished the trios should share with another trio

**Cuisine: Healthy Snack**

**Be sure to have children wash hand prior to cooking.**

**What you will need:**

- Roma tomatoes
- Green onions
- Cilantro
- Green chilies (can used canned, chopped)
- Garlic salt
- Lime
- Bowl
- Plastic knives
- Paper plates
- Corn chips
- Measuring cups and spoons

**Recipe**

2 tomatoes (diced)

2 green onions

8 cilantro leaves

2 T chopped green chilies (finely chopped)—remove the seeds

Juice from  $\frac{1}{4}$  of a lime

Sprinkle of garlic salt

**What you will do:**

**Be sure children wash their hands before cooking.**

1. Divide children into groups of 5
2. Assign different tasks to different children (collect the supplies, measurer, stirrer, plater, clean-up)
3. Explain to youth they are going to make Pico de Gallo
4. Discuss what it means to dice a tomato, slice or chop an onion, cilantro
5. Discuss how “finely” chopped is different than “rough” chop
6. Talk about how to squeeze the lime so the juice comes out
7. Discuss what is meant by the word “sprinkle” of garlic (less than can be measured in the smallest measuring spoon)
8. Have youth work together to create the Pico de Gallo
9. If there is time, let the Pico de Gallo “blend” for at least 30 minutes
10. Distribute the chips



11. Eat and enjoy

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)

















**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?

Lesson #4 Different Fruits and Their Seeds

## Lesson #5 Fruit of Vegetable

**Background Information:** There are two main classes of fleshy fruits: drupes and berries. Drupes are characterized by having a fleshy mesocarp but a tough-leathery or bony endocarp. They are said to have "stones" or "pits" rather than seeds (example: peaches). Also, a drupe usually has only a single seed.

Berries, to the contrary, are characterized by having a fleshy endocarp, as well as mesocarp, and may have more than one seed.

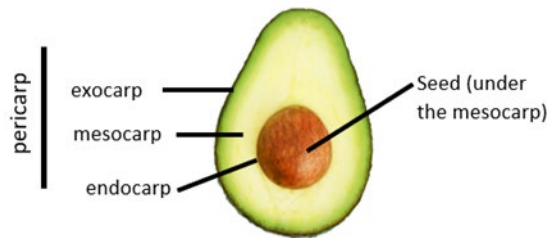
(<http://ucavo.ucr.edu/General/FruitBerry.html> )

Grapes are one of the oldest cultivated plants.

They are classified as true berries because the fruit wall or pericarp is fleshy all the way

through. The cultivation of grapes dates back more than 5,000 years in Egypt, and they were

highly developed by the Greeks and Romans. However, there is a third fruit classification: aggregate fruits. Blackberries and raspberries are classified as aggregate fruits because they are clusters of one-seeded drupelets, each cluster of drupelets developing from a single flower. The drupelets are typically eaten as a cluster, and not individually. "Aggregate fruit" forms from a flower that has many ovaries; the ovary being the part of the flower that eventually develops and ripens into a fruit. Strawberries are also an aggregate fruit instead of a berry and the seeds are on the outside rather than the inside. Once the ovaries are pollinated, they swell and eventually form the strawberry. Fruits that grow from a flower with many ovaries are a complex fruit. In reality, berries are a simple fruit—one flower-one ovary, like the banana, avocado, and watermelon



### Supplies & Materials

- Vocabulary Notebook or ½ of composition book
- Pictures of raspberry, blackberry, boysenberry, and pomegranate (end of lesson plan)
- Vocabulary pictures: drupes, berries, aggregate fruits
- 12" x 18" white construction paper
- Crayons, colored pencils, water color pencils
- Pencils
- Nature's Three Berries (purchase at COSTCO)
- Vanilla yogurt
- Granola cereal
- Clear plastic cups
- Plastic spoons

### Preparation

- Read through the entire lesson plan, start to finish
- Be sure the supplies are organized to-distribute easily
- Review the key vocabulary and consider how you will use these words effectively
- If you would like, make the recipe in advance so you will know how it tastes
- Write the recipe on chart paper
- Make necessary copies

**Objective:** Children learn about types of fruits.

**Introduction:**

**Prior Knowledge: Ask children the following questions.**

1. Ask children to name several types of fruit that have a single hard seed or pit in the middle. (peach, cherry, avocado, date, mango, plums, nectarines, apricots, ) Make a list.
2. Ask children to name several types of fruit which have more than one seed in the middle. (pineapple, apple, pear, kiwi, oranges, tomatoes) Make a list.
3. Ask children to look at the pictures of raspberries, blackberries, and boysenberries. (attached to the lesson plan) Ask them how they would describe these fruits. (lots of small little pieces hooked together) Explain that this is called an aggregate fruit because they are a lot of different pieces hooked together. Ask if they think they could eat just one of those little pieces easily. Ask how this is the same or different than a pomegranate.

**Build Vocabulary Knowledge:**


1. Here are the words to review today: drupe, berry, aggregate fruit
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. There are several pictures to illustrate each of these words at the end of the lesson plan. Show them the pictures and have them describe what they see.
5. In Column #3 youth should draw a picture or representation of the word.
6. You will need to do all of these words together with all grade levels. These are not words children will use. You will need to guide rather than just ask questions. Before they draw, share the pictures and examples and have them choose from the example given.
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.


**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**drupe:** fruits that usually have one seed or pit in the middle

**berry:** fleshy, easy to eat, all the way through like a grape. Or, once you have the peel or outside layer off, like a banana or a watermelon. (Don't be confused by the word berry in a fruit's name. Blueberries and cranberries are really berries, strawberries and other berries are not)

**aggregate fruit:** small separate pieces hooked together and generally eaten as one

Word	Explanation	Picture/Graphic
drupe	Fruits with a pit or seed in the middle	

berry	Fleshy, easy to eat, once you are past the skin or outside layer	
aggregate fruit	Small pieces of fruit clumped together and eaten as one	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

### Fruits—Drupes, Berries, or Aggregates

#### What you will need:

- 12" x 18" white construction paper
- Crayons, colored pencils, water color pencils
- Pencils

#### What you will do:

1. Divide children into groups of 3
2. Distribute the supplies (paper, crayons, pencils)
3. Explain the will create posters which will share the differences between drupes, berries, and aggregate fruits
4. Explain each child in the trio will select one of the types of fruit and illustrate it and capture the essential facts about this type of fruit (together the three of them will have posters for all three types)
5. Once the trio has completed the posters, the trio will meet with another trio and explain their posters to one another

### Cuisine: Aggregate Fruit Delight

**Be sure to have children wash hand prior to cooking.**

#### What you will need:

- Nature's Three Berries (purchase at COSTCO)
- Vanilla yogurt
- Granola cereal
- Clear plastic cups
- Plastic spoons



#### What you will do:

1. Divide children into groups of 5
2. Assign different tasks to different children (collect the supplies, measurer, stirrer, plater, clean-up)

3. Explain to youth they will create a parfait by layering the yogurt, berries, granola, yogurt, berries, and yogurt.
4. When layers are finished, youth should eat and enjoy.

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)

**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?



Lesson #5 Background Knowledge—Boysenberry, Raspberry, Blackberry, and Pomegranate



**Boysenberry**

**Raspberry**



**Blackberry**







**Pomegranate**







Lesson #5 Build Background Knowledge--Vocabulary

Drupes

 <p><b>Peach</b></p>	 <p><b>Apricot</b></p>
 <p><b>Plum</b></p>	 <p><b>Avocado</b></p>

**Berries**

 <p><b>Banana</b></p>	 <p><b>Tomato</b></p>
 <p><b>Grapes</b></p>	 <p><b>Kiwi</b></p>

Aggregate Fruits



Boysenberry



Raspberry



Blackberry



Strawberry

**Note:** A strawberry is an aggregate, the seeds are just on the outside. When you see all of the seeds, imagine what the strawberry would look like if each of those seeds were on the inside of a small piece like the blackberry.

## Lesson #6 Fruit of Vegetable

**Background Information:** Fruits and vegetables are often put in the same category because they both represent plants and the product from the plants or the segment of the plants we eat. The separation of fruits and vegetables is often determined from a culinary or taste point of view rather than the scientific criteria. In this unit children have had an opportunity to look at the “scientific” classification of fruits and vegetables. When we eat vegetables, we are consuming the plant itself (stem, leaves, roots, and flowers). When we eat fruit we are eating the product or fruit of the plant, which can live on and produce more fruit. In fact, when it comes to fruit which grows on trees, when the trees are more mature, the fruit is often tastier and more abundant.

### Supplies & Materials

- Vocabulary Notebook or ½ of composition book
- Picture cards (attached to this lesson plan) for each group
- Scissors
- Chart paper (probably ½ sheet will be sufficient)
- Pencils, pens
- Glue sticks
- English muffin (1 muffin for 2 children)
- Fat-free strawberry cream cheese
- Strawberries
- Grapes (green)
- Mandarin oranges (canned)
- Plastic knives
- Paper plates
- Toaster (optional)

### Preparation

- Read through the entire lesson plan, start to finish
- Be sure the supplies are organized to-distribute easily
- Review the key vocabulary and consider how you will use these words effectively
- If you would like, make the recipe in advance so you will know how it tastes
- Write the recipe on chart paper
- Make necessary copies

**Objective:** Children identify characteristics of fruits and vegetables.

### Introduction:

**Prior Knowledge:** Ask children the following questions.

1. What parts of the plant can we eat when we are eating vegetables?
2. What are some different classifications of fruit?
3. What is an aggregate fruit?
4. What did you learn in the last five lessons that you found the most surprising? What about this did you find interesting?

### Build Vocabulary Knowledge:

1. Here are the words to review today. These are the words from the first lesson. Children should provide information for these words based on the past five lessons. The words are: fruit, vegetable, characteristic




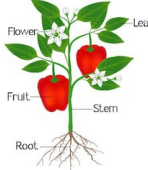
2. Create a 3 Column Chart and ask children/youth to do the same in their Vocabulary Notebook
3. In Column #1 ask children to write the word.
4. In Column #2 ask children to describe the word. The explanation in the lesson plan are for you, not for the children.
5. In Column #3 youth should draw a picture or representation of the word.
6. Do at least one of the words together
7. For children in Kindergarten and 1<sup>st</sup> grade, create a group chart not individual charts.

**Note:** For a Vocabulary Notebook, either use ½ of a Composition book, or have them create a Notebook with writing paper and colored paper for the cover.

**fruit:** the product of the plant that you eat but not the plant itself

**vegetable:** a part of the plant, leaf, stem, root, or flower that you eat

**characteristic:** something you can see or taste that makes you think different things are alike

Word	Explanation	Picture/Graphic
fruit	Product of the plant you can eat	
vegetable	Parts of a plant you can eat (stem, root, leaf, flowers)	
characteristic	ways to describe something	

You will add to this 3 Column Chart and/or Vocabulary Notebook, during each of the lessons in Fruits or Vegetables.

**Lesson:** During the lesson children will engage in hands-on, minds-on, collaborative work to promote critical thinking.

### Fruit or Vegetable?

#### What you will need:

- Picture cards (attached to this lesson plan) for each group
- Scissors
- Chart paper (probably ½ sheet will be sufficient)
- Pencils, pens
- Glue sticks

#### What you will do:

1. Divide children into pairs or groups of three
2. Distribute the supplies to each group (pictures, chart paper, pens, glue sticks, scissors)
3. Explain they will cut apart the pictures of the food items

4. Explain as a group they will decide which of the items are fruits and which are vegetables
5. Explain they will make a chart with two columns. They will label Column #1 Fruit and Column #2 Vegetable
6. Explain they will decide which picture goes in which column
7. Once they have the items sorted, as a group they need to decide what similarities the food items have which they put into categories.
8. Each group should list a minimum of 2 characteristics all of the items in a single group have in common and write them on the chart
9. When charts are finished, have youth share with another pair
10. Collect all of the charts (save for the final lesson). Have children/youth put names on the back of the chart.

**Cuisine: Symphony of Fruit Pizza**

**Be sure to have children wash hand prior to cooking.**

**What you will need:**

- English muffin (1 muffin for 2 children)
- Fat-free strawberry cream cheese
- Strawberries
- Grapes (green)
- Mandarin oranges (canned)
- Plastic knives
- Paper plates
- Toaster (optional)

**Recipe**

- ½ English muffin
- 1 T fat-free strawberry cream cheese
- 2 strawberries sliced
- 3 grapes quartered
- 3 slices of mandarin orange (you will buy this in a can packed in juice)

**What you will do:****Be sure children wash hands before cooking**

1. Divide children into groups of 4
2. Assign different tasks to different children (collect the supplies, measurer, stirrer, plater, clean-up)
3. Explain to youth they will create a Symphony of Fruit Pizza
4. Explain each pizza is ½ of an English muffin (toasting optional)
5. Spread the pizza with cream cheese
6. Arrange strawberries, grapes, and mandarin oranges on top of the cream cheese
7. Eat and enjoy

**Closing:** During this part of the lesson you will reconnect with the objective.

**Review:** Recap what we did today. **Ask** the question:

1. What did we do today?
2. What new words did we discuss today? (record the responses)

**Reflect:** Think about what was learned. **Ask:**

1. What was something you learned today that you did not know before?
2. What was something you did today that confirmed for you something you already knew?

**Debrief:** Consider how what you learned today can be used tomorrow in school and in your life. **Ask:**

1. How might you use what you learned about today in making good food choices tomorrow?
2. How will you share your learning with others?



Lesson #6 Picture Cards

