



## From Seed to Salad



## A Garden-Based Curriculum

Developed by The Southern Boone Learning Garden



## ABOUT

A disconnect between youth and their food is more apparent than ever. With modern technology playing more and more of a role in the production of our food, young students are becoming less familiar with *what* they are actually eating and where it originated. Throughout this unit students trace where their food comes from and learn how to make healthy food choices by partaking in the many tiers involved within the food system. Even if your school or community doesn't have a garden space, lessons can be taught using produce purchased from local farmer's markets or grocery stores. All of the lessons tie to either Common Core or Next Generation Science standards, geared towards preschool and elementary aged children.

## HOW TO USE THIS UNIT

- The lessons are divided into two sections: nutrition and cooking.
- Lessons within these can be done as stand-alone activities or used in the sequential order. They are laid out in a template form with the specific standards written out.
- Refer to the *Extension, Digging Deeper* segment for ideas on how to modify lessons for different grade levels and/or to substitute or add activities.
- Consider starting a science journal with your class to keep track of the foods they ate each day, along with any other recordings
- This unit was created with the intention to utilize during the 'off' season—emphasizing indoor nutrition and cooking activities. As always, alter and add what works best for your individual needs!





# Nutrition Activities



## Taste the Rainbow of Plant Parts

Time & Description	45 min.- 1 hour Students get to sample a wide variety of healthy snacks as they learn about the parts that make up a plant.
Objective	To identify parts of the plant through a taste test.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>1-LS1-1:</b> All organisms have external parts. Plants have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.</li> <li>• <b>4-PS4-2:</b> Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.</li> </ul> <b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>Math.Content.K.CC.C.6:</b> Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.</li> <li>• <b>Math.Content.2.OA.A.1:</b> Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Samples of fruits and vegetables from each edible plant part: root, stem, leaf, fruit, flower, seed; e.g. carrot, asparagus, spinach, broccoli, grape, almond</li> <li>❖ Knives and cutting boards</li> <li>❖ Plates and/or bowls</li> <li>❖ Chart paper or whiteboard</li> <li>❖ Science journals</li> <li>❖ Pencils and markers</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Depending on the season, produce available, and time allotted—harvest and cut up samples, supplement selected produce from farmer's market or store</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. If applicable, harvest edible plant parts, wash, and chop</li> <li>2. Either in regular classroom or outdoor, in a buffet style, students serve themselves—no more than four pieces of a type. Encourage them to try at least one of each</li> <li>3. As they snack, each will individually track with tally marks the amount of each edible plant part tried</li> <li>4. When finished snacking, count the total of each snack tried—each student will write this total on the class chart</li> <li>5. Ask students to order the foods that were tasted from the least to most. Briefly talk about how they calculated it and ask for explanations for the results.</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ Over a series of days, dissect and observe each part plant one by one starting with the root. Allow students to hypothesize the function of each after looking closely at all the parts.</li> <li>❖ Assign a plant part to a pair or group to research—function, germination, transpiration, pollination, etc. Share findings in a PowerPoint, poster, skit, etc. and the class must identify the part of the plant the presenters researched. Discuss similarities and differences between parts. How are they all related?</li> </ul>





## Harvesting Leaf and Root Parts (Spring/Winter)

Time & Description	30-45 min. Students experience harvesting wintergreens (kale, spinach, chard) and root vegetables (carrots, radishes, beets, turnips) from the garden.
Objective	To demonstrate harvesting methods while observing first hand where food comes from.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"><li>• <b>LS1.A.</b> Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.</li><li>• <b>LS4.D.</b> There are many different kinds of living things in any area, and they exist in different places on land and in water.</li><li>• <b>K-2-ETS1-2.</b> The shape and stability of structures of natural and designed objects are related to their function(s).</li></ul>
Materials	<ul style="list-style-type: none"><li>❖ Containers (bowls, buckets, bags, etc.)</li><li>❖ Hand tools</li></ul>
Preparation	<ul style="list-style-type: none"><li>○ Check on vegetables beforehand to ensure that there is enough for students to harvest. Supplement from store if needed.</li><li>○ Gather and set out materials</li><li>○ Salad spinners</li></ul>
Procedure	<ol style="list-style-type: none"><li>1. Discuss: what does the word harvest mean?</li><li>2. Brainstorm: how is it possible for plants to grow in a covered raised bed during the winter?</li><li>3. Briefly demonstrate how to harvest each crop before splitting up, instructing where to place the harvest &amp; reviewing safety expectations</li><li>4. Split the class into different harvesting groups, ideally with an adult supervising at each, and dismiss them to harvest a certain amount depending on what's available</li><li>5. As groups finish, use hand tools to till the bed for future spring planting &amp; wash produce. Use salad spinner for wintergreens.</li><li>6. Regroup: identify the different parts of the plant (roots, stems, leaves, flowers, fruits) questioning which part we will eat</li><li>7. Wrap up: finish washing remaining produce</li></ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"><li>❖ Use a thesaurus to find synonyms for the word harvest (pick, gather, collect, reap) and till (harrow, plow, cultivate)</li><li>❖ Prepare the soil and plant new seeds in the empty raised beds.</li><li>❖ Use the vegetables to make a salad, see the <a href="#">Making a "Cool Season" Salad</a> lesson for more details!</li></ul>



## It All Groups Together

Time & Description	45 min.- 1 hour As students analyze the lunch menu from the cafeteria they will learn about the different food groups, eating a rainbow of foods, and portion sizes.
Objective	To identify the different food groups according to USDA's MyPlate icon—understanding why it's used as an important guideline.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>3-LS3-1:</b> Similarities and differences in patterns can be used to sort and classify natural phenomena</li> </ul> <b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>Math.Content.3.NF.A.2b:</b> Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</li> <li>• <b>ELA-Literacy.RI.3.1:</b> Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.A.HPE, 2:</b> Recognize that food fits into different groups and that different amounts are needed from each food group for healthy eating</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Picture of the MyPlate icon</li> <li>❖ Access to cafeteria or a copy of the lunch menu</li> <li>❖ Science journals</li> <li>❖ Writing utensils</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Obtain and set out materials</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Define classification; ask for examples used in the real world—eventually leading to a discussion on how we categorize our food <ul style="list-style-type: none"> <li>• Botanists categorize food by its function/location—e.g. cucumbers, tomatoes, and pumpkins are considered fruits because they contain seeds</li> <li>• Nutritionists categorize food by what it provides our bodies for health, how it tastes, and how it's eaten—e.g. cucumbers, tomatoes, and pumpkins are considered vegetables because of the similar nutrients we get when we eat these foods</li> </ul> </li> <li>2. Show the diagram of the MyPlate icon. Identify the food groups questioning which groups come from plants.</li> <li>3. Use fractions to discuss what the icon tells us about how much of our plate should be fruits and vegetables.</li> <li>4. Take a trip to the cafeteria or obtain a copy of the lunch menu. In pairs or groups, students identify the ingredients, which food group the ingredients belong to, whether it came from a plant, and if so, its' edible plant part.</li> <li>5. Share and discuss results—are we getting the correct portions of each food group according to the MyPlate icon?</li> <li>6. Collect worksheets</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ As a homework or additional assignment, students brainstorm tips for the community on how to eat healthier—how to get the appropriate amount of nutrients from each food group</li> <li>❖ Create their own ideal school lunch menu ensuring there is a variety of each good group—explain why variety is important</li> </ul>



## Healthy People vs. Healthy Plants

Time & Description	30-45 min. After learning about important nutrients people and plants need, students will evaluate plants growing in the garden and, as a result, provide the missing nutrients through garden maintenance.
Objective	Students will be able to determine whether a plant is receiving all the proper nutrients for best growth and production.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>2-LS2-1:</b> Plants depend on water and light to grow.</li> <li>• <b>5-LS1-1:</b> Support an argument that plants get the materials they need for growth chiefly from air and water</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.A.HPE, 2:</b> Identify the six essential nutrients and their functions</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Chart paper or whiteboard</li> <li>❖ Writing utensils and markers</li> <li>❖ Science journals</li> <li>❖ Nutrient checklist: sun, soil, and water</li> <li>❖ Clipboards</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Draw t-chart labeled: Healthy People vs. Healthy Plants</li> <li>○ Make and print checklists</li> <li>○ Set out materials</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Call on students to share what healthy people and plants require or need writing down ideas on t-chart—eventually conclude that <i>both</i> need certain <b>nutrients</b> to maintain good health: <ul style="list-style-type: none"> <li>• Carbohydrates</li> <li>• Proteins</li> <li>• Fats</li> <li>• Vitamins</li> <li>• Minerals</li> <li>• Water</li> </ul> </li> <li>2. Depending on time allotted, briefly discuss the role each of the six nutrients plays or divide class into six groups to investigate—take notes in science journal</li> <li>3. Regroup: where do plants and humans get these nutrients? <ul style="list-style-type: none"> <li>• Photosynthesis –sun, soil, water, and air vs. eating a variety of foods</li> </ul> </li> <li>4. Pass out nutrient checklists to partnerships. Assign a crop for each pair to evaluate: are they getting enough nutrients? They will mark each category (sun, soil, water) with a checkmark and/or notes.</li> <li>5. Regroup: gather student ideas on how to treat certain plants Maintain them according to specific needs e.g. watering, adding new soil, pruning, etc.</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ Conduct a controlled experiment. Plant two seeds and change one variable e.g. the soil type, amount of light or water it receives, etc. Make hypotheses and draw conclusions about the nutrients it needs to survive.</li> </ul>



## Combo Tasting & Companion Planting

Time & Description	45 min. – 1 hour Knowledge about the food groups is enhanced further in this lesson as students learn about sub-groups within the vegetable food group—why they are categorized this way and applying it when preparing, tasting, or even planting produce.
Objective	Students will be able to connect and build on information learned about food groups by combining certain foods and crops together.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>3-LS4-3:</b> Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all</li> </ul> <b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>ELA-Literacy.RI.3.2:</b> Determine the main idea of a text; recount the key details and explain how they support the main idea.</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.B.HPE, 2:</b> Recognize we need a variety of foods in each day</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Picture of MyPlate icon</li> <li>❖ Chart paper or whiteboard</li> <li>❖ Markers</li> <li>❖ Red peppers and hummus—bean or other veggie dip</li> <li>❖ Plates and serving utensils</li> <li>❖ ‘The Three Sisters’ legend read by Lois Thomas, Canada.</li> <li>❖ Corn, squash, and bean seeds</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Harvest, wash, and slice pepper</li> <li>○ Purchase or make hummus/dips</li> <li>○ Set out materials for tasting</li> <li>○ Find ‘The Three Sisters’ legend for read aloud</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Review the food groups, revisiting the MyPlate icon.</li> <li>2. Within the vegetable food group, there are sub-groups: <ul style="list-style-type: none"> <li>• <u>Dark-green</u>: lettuce, collards, kale, swiss chard, bok choy</li> <li>• <u>Red and Orange</u>: pumpkin, squash</li> <li>• <u>Beans and Peas</u>: split peas, pinto beans</li> <li>• <u>Starchy</u>: potatoes, plantains</li> <li>• <u>Other</u>: artichoke, asparagus, cucumber, eggplant</li> </ul> </li> <li>3. Question students why the vegetable food group is categorized this way—because different vegetables have different amounts of vitamins, minerals, fiber, and protein, so they are grouped accordingly</li> <li>4. Since we need a variety of these food groups and sub groups, ask students what foods they often combine together</li> <li>5. Provide peppers to taste with bean dip, hummus, or other veggie dip—talk about how it can act as a ‘vehicle’ combo, meaning it tastes good paired with these types of other foods.</li> <li>6. Just like certain foods taste better together, certain plants grow better together—companion planting</li> <li>7. Introduce the legend ‘The Three Sisters’ by reading it aloud. Afterwards, discuss what the three sisters represent.</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ Visit the website: <a href="http://www.choosemyplate.gov/food-groups/vegetables.html">http://www.choosemyplate.gov/food-groups/vegetables.html</a> for more food group information</li> <li>❖ After reading the ‘Three Sisters’ legend, students design their own three sisters garden considering placement, shade and sun areas, etc. Designate a spot for students to plant! Come back to maintain and observe firsthand how the three crops (beans, corn, and squash) work together.</li> </ul>



## Mystery Vegetable Tasting

Time & Description	45 min- 1 hour Students will taste test a variety of in-season vegetables from the garden and try to figure out what they are.
Objective	Students will be able to taste and guess vegetables growing in season.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>K-2-ETS1-1:</b> Ask questions based on observations to find more information about the natural and/or designed world(s).</li> <li>• <b>3-LS4-3:</b> Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all</li> </ul> <b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>ELA-Literacy.SL.K.6:</b> Speak audibly and express thoughts, feelings, and ideas clearly.</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.B.HPE, 2:</b> Recognize we need a variety of foods in each day</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Assorted garden vegetables, cooked and raw samples of each.</li> <li>❖ Plates or sample cups for each student.</li> <li>❖ An example of the whole vegetable for each food that students taste.</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Prepare the vegetables for tasting</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Begin with a discussion of what it means for a food to be “in season”. What are the four seasons? Does the garden have the same vegetables growing in it every season or do they change?</li> <li>2. Explain that today we will taste different vegetables that grow in the garden during this season. That means those vegetables are “in season”.</li> <li>3. Pass around the whole examples of the vegetables students will taste. If outdoors, visit the whole plants themselves. Encourage students to explore them with all of their senses except taste.</li> <li>4. Now that students know the possible vegetables they will taste, pass around the samples. Ask for guesses with each one. Unveil the correct answer from underneath a dishtowel or handkerchief, with a drumroll from the students.</li> <li>5. Hear a few descriptive words of how the students thought the vegetable tasted- not opinions, but descriptions.</li> <li>6. Wrap up with a discussion of how the vegetables tasted compared to how students expected they would taste.</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ For older students, identify the sub-groups each vegetable belongs to.</li> <li>❖ Create simple recipes including combo vegetables or fruits that will work well with what they tasted in the lesson.</li> </ul>





## Farm to Plate

Time & Description	45 min.- 1 hour In this lesson, students walk through the many steps the majority of food products in the U.S. go through before ending up on their plate.
Objective	Students will be able to demonstrate the steps included in our food system at large and analyze the current approach.
Teaching Standards	<p><b>Next Generation Science</b></p> <ul style="list-style-type: none"> <li><b>3-5-ETS1-2:</b> Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.</li> </ul> <p><b>Common Core</b></p> <ul style="list-style-type: none"> <li><b>ELA-Literacy.SL.3.1:</b> Engage effectively in a range of collaborative discussions with diverse partners on <i>grade 3 topics and texts</i>, building on others' ideas and expressing their own clearly.</li> <li><b>ELA-Literacy.SL.4.4, 5.4:</b> Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</li> </ul> <p><b>MO State Grade Level Expectations</b></p> <ul style="list-style-type: none"> <li><b>2.A.HPE, 2:</b> Recognize that foods come from plant and animal sources and provide the body with energy</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Science journals</li> <li>❖ Chart paper or whiteboard</li> <li>❖ Writing utensils and markers</li> <li>❖ Farm to Plate cards</li> <li>❖ Fruit/vegetable from the garden</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Make and print out Farm to Plate cards</li> <li>○ Obtain produce and set out materials</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>Students write down everything they ate/drank so far throughout the day. Circle if it came from a plant.</li> <li>Select students to share one example and create a class list.</li> <li>Discuss: where did this food come from—how far did it travel? How did it get onto your plate?</li> <li>Introduce the process typical food bought at a grocery store travels through—don't share in the correct order <ul style="list-style-type: none"> <li>• Production</li> <li>• Processing</li> <li>• Distribution</li> <li>• Consumption</li> <li>• Composting/Recycling</li> </ul> </li> <li>Divide the class into groups of five. Students in each group receive a different Farm to Plate card with one of the processes of the food system portrayed on it.</li> <li>They must order themselves in the order they believe their food travels through. As they finish, walk around to verify.</li> <li>Choose one group to demonstrate for the whole class. Pass a fruit/vegetable through this chain to gain a better visual of the complete process. They should announce their card, or role, when they are holding the fruit/vegetable.</li> <li>Reflect: this whole process is commonly called the food system. Draw conclusions about this food system—what are some potential problems with it? Benefits? Do you think it is working or should it be changed—why or how?</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ As homework or an additional assignment, write a short story from the point of view of a fruit/vegetable found in the garden. How does it feel from seed to harvest, where does it go, what does it see, and experience?</li> <li>❖ Buy bags of spinach from a wide variety of states. Students read the label to discover where it came from. Find the location on a map and track how many miles it had to travel to reach their hometown. Discuss thoughts related to the food system.</li> </ul>



## Getting Global

Time & Description	45 min.- 1 hour Students 'get global' as they take a step outside of the U.S. food system learning about crops, cuisines, and cultural traditions surrounding these topics in regards to different regions around the world!
Objective	Students will investigate international food systems and recipes leading to measurement practice with varied ingredient amounts and types.
Teaching Standards	<b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>ELA-Literacy.W.3.7, 4.7, 5.7:</b> Conduct short research projects that build knowledge on a topic</li> <li>• <b>Math.Content.3.MD.A.2:</b> Measure and estimate liquid volume and masses of objects using standard units.</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.B.HPE, 2:</b> Describe and assess the relationship of family preferences and culture to food choices</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Chart paper or whiteboard</li> <li>❖ Markers and writing utensils</li> <li>❖ Science journals</li> <li>❖ Computer/library access</li> <li>❖ Measuring cups</li> <li>❖ Samples of different ingredients to measure (flour, fresh produce, milk, etc.)</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Obtain materials and set out</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Start by sharing cuisines from foreign countries students have eaten and enjoyed—refer back to the region originated from</li> <li>2. Pairs or groups choose a region from the class list to research its food and related traditions taking notes in science journals—how it's prepared, how it grows, seasonality, locality, similarities/differences, etc.</li> <li>3. Partnerships decide on one main recipe to type up, including the information gathered from research, and combine with the rest of the class to make one global recipe book.</li> <li>4. Talk about key things found and included in their recipes—measurements &amp; servings, etc. and why this information is important</li> <li>5. Briefly discuss volume vs. weight</li> <li>6. Write an amount on the board for students in same pairs or groups to practice measuring out amounts of different samples</li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ Instead of creating a recipe book, make a 'passport' for their food and combine into class booklet</li> <li>❖ Pass out recipes in which students must convert, e.g. cups to ml</li> </ul>



# Preserving the Harvest



Time & Description	45 min.- 1 hour Introduce students to important information provided on nutrition labels and what types of foods contain them.
Objective	Students will be able to practice reading nutrition labels and participate in one method of preserving food.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>3-5-ETS1-2:</b> Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.</li> </ul> <b>Common Core</b> <ul style="list-style-type: none"> <li>• <b>ELA-Literacy.RI.3.2, 4.2, 5.2:</b> Determine the main idea of a text; recount the key details and explain how they support the main idea</li> </ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"> <li>• <b>2.C.HPE, 2:</b> Recognize that packaged food products contain labels; identify the basic parts of the Nutrition Facts label</li> <li>• <b>2.D.HPE, 2:</b> Describe proper food guidelines and storage</li> </ul>
Materials	❖ Examples of various nutrition labels ❖ Ziploc bags
Preparation	○ Check on available produce ○ Obtain and set out materials
Procedure	<ol style="list-style-type: none"> <li>1. Pass out or show nutrition label on smart board</li> <li>2. Explain how to read highlighting important parts and their meaning</li> <li>3. Discuss what types of foods contain labels: processed vs. fresh</li> <li>4. Once processed, what are some ways foods are preserved? Why is this done? <ul style="list-style-type: none"> <li>• Freezing</li> <li>• Canning</li> <li>• Pickle</li> <li>• Dry, or dehydrate</li> </ul> </li> <li>5. Harvest and process garden produce—freezing. Place produce in Ziploc bags, squeeze all the air out, and shut completely tight. Store in freezer until ready to use!</li> </ol>
Extension, Digging Deeper!	❖ Investigate ways ancient civilizations processed and preserved food without modern day technology. Make a Venn Diagram to compare past and present



## It's YOUR Choice!

Time & Description	45 min.- 1 hour Sometimes nutrition labels can be misleading—students have the opportunity to find these ‘imposters’ in a variety of food products that claim to contain fruit.
Objective	Students will be able to decipher the difference between fake and real ingredients and evaluate how their food choices have progressed and will continue to in the future.
Teaching Standards	<b>Common Core</b> <ul style="list-style-type: none"><li>• <b>ELA-Literacy.RI.3.1.,4.1:</b> Ask and answer questions to demonstrate understanding of a text referring explicitly to the text as the basis for the answers</li><li>• <b>ELA-Literacy.RI.5.1:</b> Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.</li></ul> <b>MO State Grade Level Expectations</b> <ul style="list-style-type: none"><li>• <b>2.B.HPE, 2:</b> Make decisions regarding food choices based on balance</li><li>• <b>2.C.HPE, 2:</b> Explain the importance of nutrition facts on food labels in making healthy selections</li><li>• <b>3.A.HPE, 6:</b> Collect and display examples of how the media can influence a consumer decision regarding health practices and products</li></ul>
Materials	<ul style="list-style-type: none"><li>❖ Chart paper or white board</li><li>❖ Markers and writing utensils</li><li>❖ Science journals</li><li>❖ Nutrition labels for fruit punch, fruit snacks, and pineapple chunks</li></ul>
Preparation	<ul style="list-style-type: none"><li>○ Obtain and set out materials</li></ul>
Procedure	<ol style="list-style-type: none"><li>1. We talked about not getting <i>enough</i> nutrients, but you can also eat too much—calories, sugar, fat, sodium, etc.</li><li>2. Share favorite fruits or foods made up of fruits. Create class list.</li><li>3. If fruit snacks or something other than the whole fruit itself is listed circle it stating there are ingredients included to make it taste fruity—to make you think you’re eating fruit. In reality, it contains a lot more sugar than our bodies need.</li><li>4. Provide nutrition labels for fruit punch, fruit snacks, and pineapple chunks. Students decide whether it’s a real fruit or not based on the ingredients listed. Talk about the importance of making smart food choices using nutrition labels to help you stay informed.</li><li>5. If students were tracking the things they ate throughout the unit, take time to share any interesting findings—notice any differences, patterns, how certain foods made you feel, how you’re going to continue to eat, etc.</li></ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"><li>❖ Create Garden Ads/posters to hang around school either sharing what they did, why the garden is important, or why garden produce is important for health</li><li>❖ Make a melon fruit salsa to enjoy for a treat at the end of the unit!</li></ul>



# Cooking Activities





## Making a "Cool Season" Salad

Time & Description	45min.-1 hour Complete the <u>Harvesting Leaf and Root Parts</u> lesson first, so students can be involved with the harvest! In this lesson, students prepare and eat salad in the classroom.
Grade Level	Prek-2 <sup>nd</sup> (nutritional information can be altered for older grades)
Objective	To participate in multiple parts of the food cycle process: learning where it comes from, preparing it to eat, and understanding why it's healthy.
Teaching Standards	<b>Next Generation Science</b> <ul style="list-style-type: none"> <li>• <b>ESS3.C:</b> Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</li> <li>• <b>2-LS2-2:</b> The shape and stability of structures of natural and designed objects are related to their function(s).</li> <li>• <b>K-2-ETS1-1:</b> Ask questions based on observations to find more information about the natural and/or designed world(s).</li> </ul>
Materials	<ul style="list-style-type: none"> <li>❖ Salad dressing (balsamic vinegar, olive oil, oranges, black pepper)</li> <li>❖ Produce (dark greens &amp; root vegetables)</li> <li>❖ Food chopper</li> <li>❖ Plates &amp; utensils</li> <li>❖ Cutting boards &amp; knives</li> <li>❖ Bowls</li> </ul>
Preparation	<ul style="list-style-type: none"> <li>○ Harvest and rinse vegetables (with or without class)</li> <li>○ Cut root vegetables into more manageable pieces</li> <li>○ Purchase dressing supplies</li> <li>○ Set out the different station materials at each table</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Journal: ask students to write a list of everything they ate so far today.</li> <li>2. Select students to share one example and create a class list.</li> <li>3. Discuss: where did this food come from? How did it get onto your plate?</li> <li>4. Introduce: we're going to make a salad with ingredients that came from the garden.</li> <li>5. Briefly demonstrate what to do at each station before splitting up. <ul style="list-style-type: none"> <li>• Carrot choppers: place pieces under chopper &amp; press down, pass around taking turns</li> <li>• Turnip, radish, &amp; beet slicers: adult supervision necessary!</li> <li>• Chard, kale, &amp; spinach tearing: rip with hands into bite size pieces</li> <li>• Salad dressing</li> </ul> </li> <li>6. Combine ingredients from all stations and show class. Talk about why eating a 'rainbow' of foods is healthy. Highlight each color present and its nutritional value, if time.</li> <li>7. Pass out eating utensils, serve salad, and enjoy! <ul style="list-style-type: none"> <li>• Describe the texture, taste, and smell of salad while eating</li> </ul> </li> </ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"> <li>❖ Write a new salad recipe using warm season crops in a menu format</li> <li>❖ Make a Venn Diagram chart comparing the different ingredients included in store bought dressings vs. homemade</li> <li>❖ An emulsion is a mixture of two or more liquids that are non-mixable. Discuss why vinegar and oil would not mix. Explore polarity, emulsifiers like mustard, and/or other emulsions like foam in expression drinks</li> </ul>



## Garden Veggie Wraps

Time & Description	1-1.5 hours Students will harvest chard and carrots from raised beds and prepare them to make vegetable wraps.
Grade Level	PreK-2nd
Objective	To explore how vegetables are harvested and understand different parts of a plant that we can eat.
Teaching Standards	<b>Common Core:</b> <ul style="list-style-type: none"><li>• <b>K.L.5.c, 1.L.5.c, 2.L.5.a:</b> Language Arts, Identify real-life connections between words and their use.</li></ul> <b>Next Generation Science</b> <ul style="list-style-type: none"><li>• <b>K-LS1-1, 1-LS3-1, 2-PS1-3:</b> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</li><li>• <b>1-LS1-1:</b> Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.</li></ul>
Materials	<ul style="list-style-type: none"><li>❖ Harvest crates</li><li>❖ Hand tools</li><li>❖ Rinsing water</li><li>❖ Plates, cups, utensils, and napkins</li><li>❖ Vegetable graters</li><li>❖ Additional food for wraps: cabbage, peanut and/or soy sauces, cilantro, rice noodles</li><li>❖ Bowls for washed and prepared food items</li><li>❖ Recipe cards to send home with students</li></ul>
Preparation	<ul style="list-style-type: none"><li>○ Gather harvest materials</li><li>○ Print recipe cards for each student</li><li>○ Assemble sauce ingredients and pre-cook noodles</li></ul>
Procedure	<ol style="list-style-type: none"><li>1. Introduction to crops: introduce students to carrots and chard by discussing how they grow and what parts of a plant they are.</li><li>2. Harvest: instructors demonstrate harvest techniques and then assist students with their own harvest.</li><li>3. Recess: for younger students, take a 15-20 minute recess while an instructor washes the harvest. Older students may wash their own produce at this time.</li><li>4. Prepare harvest: students will divide into four groups to: remove stems and veins from chard, grate carrots and cabbage, prepare sauces, and chop up herbs.</li><li>5. Make the wraps: using the chard leaves as a base, have the students select the ingredients they want to use in their wrap and assist in rolling them.</li><li>6. Enjoy: Encourage the students to share what flavors they did and didn't like in their wraps. Don't forget to send home recipe cards so students can share and replicate what they made with their families.</li></ol>
Extension, Digging Deeper!	<ul style="list-style-type: none"><li>❖ Discuss nutritious food choices and specific nutrients found in each of the ingredients.</li><li>❖ Prepare the soil and plant new seeds in the empty raised beds. Use the <u>Planting in a Raised Bed</u> lesson to guide you</li></ul>