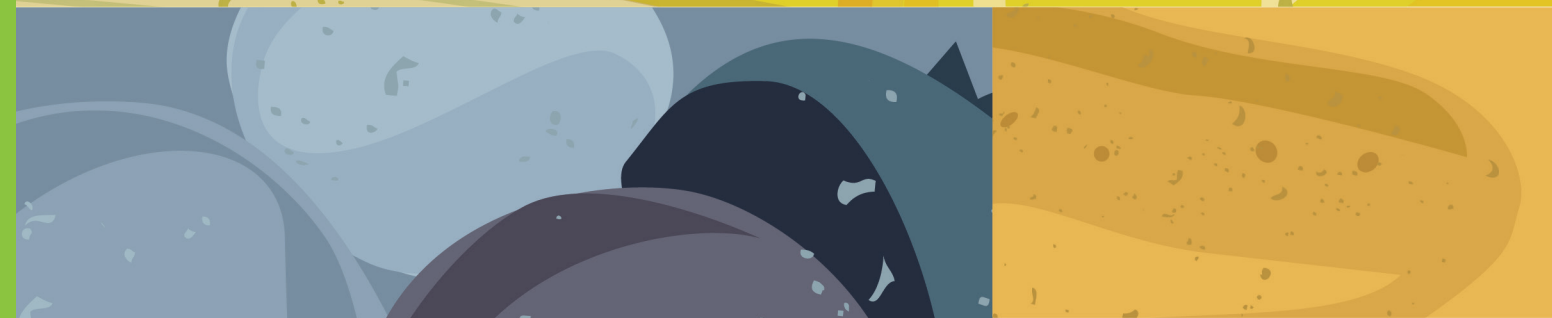




Healthy Children, Healthy Farms, Healthy Communities

A PROGRAM HANDBOOK



IL Farm to School Network
PO Box 3125, Oak Park, IL 60303
Office: 708.660.9909
<http://illinoisfarmtoschool.org>



WELCOME TO YOUR GUIDE TO ILLINOIS HARVEST OF THE MONTH!

What is the Illinois Harvest of the Month?

It's a free program that helps child feeding, garden and education sites buy and serve more local food, and also provides resources to help teach kids about healthy eating, nutrition, and food.

Each month, participating sites can feature a different local, or garden item on cafeteria menus, in tastings, and at home. This brings more money to local farmers and puts more nutritious food on kids' plates.

Please contact the Illinois Farm to School Network at farmtoschool@sevengenerationsahead.org with any questions or if you need any help with this program.

WHAT IS FARM TO SCHOOL?

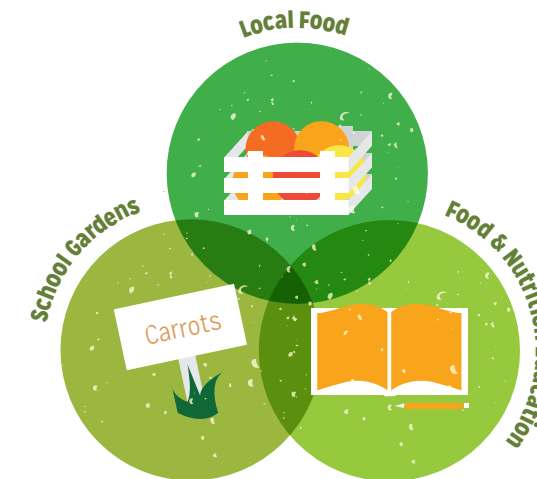
Farm to School is more than a program—it is a people-powered movement that seeks to teach kids where food comes from and how delicious it can taste when eaten in season.

There are three basic elements to farm to school:

1. Local food procurement
2. School gardens
3. Food and nutrition education (including farm field trips)

Farm to School is a high-impact wellness initiative that improves access to healthy foods while also positively influencing children's attitudes about healthy eating.

A farm to school program can consist of one, some, or all of these types of projects. Starting a school garden, for example, can lead a school or boarding facility to thinking about where the food being served in the cafeteria is coming from. This can lead to local food procurement and incorporating food education into curricula. Participating in the Illinois Harvest of the Month program is a easy way to get started.



Illinois Harvest of the Month is run by the Illinois Farm to School Network, a program of Seven Generations Ahead. The Illinois Farm to School Network is a coalition of organizations, schools and individuals who support food education, local food purchasing and building up our local food economy.

HOW TO USE THIS BOOK

This book, in addition to our website www.harvestillinois.org, is the main portal for information about the program. Each month, or week, sites can feature a seasonal locally sourced, or garden food and utilize all of the tools and ready-made resources to provide promotion, tastings, and fun food education. Over forty food item pages are shared on our website providing participating sites with drag and drop language for newsletters, curriculum connections and activities for the classroom and garden, recipes for the cafeteria and for sending home to families, fun taste test ideas, and images you can use for menus, communications and more. All the information in this book is available online for easy download!

Organizations and agencies can register to gain access to programming. We encourage our program partners to share and utilize Illinois Harvest of the Month with garden and feeding sites.

Want to participate in Illinois Harvest of the Month?

Request a password at: farmtoschool@sevengenerationsahead.org to gain full access to the Illinois Harvest of the Month program materials. We encourage K-12 schools, early childcare sites and centers, child boarding facilities, juvenile justice centers, after-school and community garden programs, and learning farms to request access to Illinois Harvest of the Month. This program is free to all child feeding and garden sites across Illinois.

PARTNERS:

Use this book when talking to schools that you work with about new programs that you think they'd be interested in. This how-to guide gives you everything you need to tell schools how to put together the program. As they work through implementation, you can refer to this book to check in on their progress and help them work through any hiccups that happen along the way.

SCHOOLS:

This book, along with the website and direct correspondence with the Illinois Farm to School program team, includes all the information you will need in order to implement a great Harvest of the Month program! Ordering local food is easy with our How To guide, and the curriculum pages go over simple activities that teachers can use to bring the program to life.

ILLINOIS HARVEST OF THE MONTH

Feature a new fruit or vegetable every month.
Savor the flavor of fresh and local food grown by farmers near you!

HarvestIllinois.org

AUTUMN



Apples
Pumpkins
Potatoes
Brussels Sprouts

Kale
Cabbage
Plums
Hard Squash



WINTER

Beets
Dairy
Honey
Grains
Carrots



SPRING



Spinach
Peas
Radishes
Rhubarb
Asparagus

SUMMER



Cucumbers
Melons
Sweet Corn
Tomatoes

Berries
Summer Squash
Lettuce
Peppers



If these items aren't a good fit,
check out our website for more alternatives!

IL Farm to School Network
PO Box 3125, Oak Park IL 60303
Office: 708.660.9909
<http://illinoisfarmtoschool.org>



DEFINING LOCAL AND REGIONAL FOODS

Illinois Harvest of the Month features fresh items which can be sourced either locally, or regionally. We promote Illinois products and our state's specialty growers, first. However, we understand the difficulties schools face when local options are limited, or unavailable. We encourage Illinois schools to find the best fit for their

location. Local and regional can be defined either by a radius of miles surrounding your district, or by relating to a particular region, district or area. Each school district should decide what local and regional means to them. Once you determine what represents local and regional you can then look for sources within that definition.

SOURCING LOCAL FOODS FOR ILLINOIS HARVEST OF THE MONTH

Illinois Harvest of the Month spotlight fruit and vegetable items are available to procure through a variety of methods. Schools decide the most efficient way to procure local and regional items in their area for Harvest of the Month.

OPTIONS INCLUDE:

- direct relationships with local/regional farms
- purchasing local or regional items from area produce distributors and aggregators
- utilizing DOD "local" selections when available
- purchasing "identified" regional produce from primary distributors
- purchasing direct from farmer's markets and auctions

PROMOTING YOUR PROGRAM

Promoting and marketing your program begins with two very important steps: deciding the message you wish to convey, and who your target audience will be.

ENCOURAGING PARTICIPATION FROM TEACHERS AND STAFF:

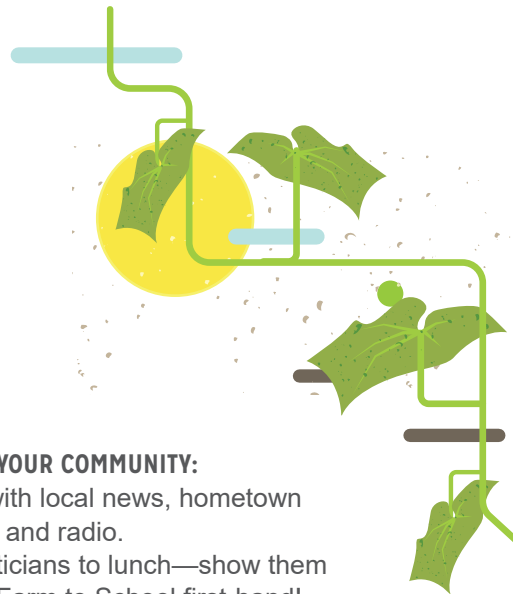
- Send monthly email blasts about program happenings and program descriptions.
- Share program highlights at staff meetings and on professional development days with an open invitation to join in. Include a taste of featured items when sharing information.

SHARING WITH PARENTS AND FAMILIES AT HOME:

Advertise your activities before they take place!

- Utilize Harvest of the Month icons and celebration descriptions on menu grids.
- Post on social media accounts, blog feeds and in monthly take home newsletters. Use your PTA or PTO to share information at parent meetings and take advantage of tabling opportunities at school family events.

Partnerships are an efficient way to bring local and regional produce to sites. Developing relationships, or utilizing existing connections such as produce houses and aggregators within the food chain, will give you added options for procurement. Look for connections between your vendors and distributors. Investigate by asking questions concerning local and regional item availability and start the local sourcing ball rolling!



REACHING OUT TO YOUR COMMUNITY:

- Share events with local news, hometown cable channels and radio.
- Invite local politicians to lunch—show them the benefits of Farm to School first-hand!
- Invite local producers, your county Farmer's Bureau and FFA representatives to lunch.

PROMOTING DIRECTLY TO YOUR STUDENTS:

- Morning Announcements! Create clever ways to share using themes and fun language.
- Your walls can tell stories! Brightly colored student art works and vegetable posters will attract attention. Paper your walls with healthy food!
- Make School Paper Headlines! Ask to be interviewed by your school paper. Share tastes and samples with the newspaper staff. Why? You know why. Because food sells!

WHAT DOES PARTICIPATION LOOK LIKE?

Harvest of the Month participation is determined by you —food service, garden, and education professionals. Here is a list of ways to participate, each supported by tools on our website.

- Cafeteria celebrations, classroom, or cafeteria tastings
- Harvest of the Month items incorporated into meals, on salad bars, or in snack menus.
- Classroom lessons, craft or garden activities
- Connections to local producers, farmers markets, community health programs, and other like-minded agencies and organizations.
- Promoting Harvest of the Month across your community to deepen program impact. Farm and farmers market field trips, invite local farmers to share their knowledge the classroom or cafeteria.

HERE IS ONE EXAMPLE OF PARTICIPATION:

"Mooseheart Child City and School Community Garden Collaborative"

THE PROCESS:

A community garden program is established with a \$300 Seed Money Grant by the on-site nurse and supporting administrators. Five community partners are brought on-board to share expertise and support, including volunteers for garden maintenance. Over three years, the garden grows to the length of a football field as multiple grants are awarded.

THE ACTIVITY:

Mooseheart conducts harvest of the month taste adventures in the cafeteria following a seasonal approach. Celebrations are themed including Cinco DE Mayo, Bonjour French Onion Soup Day, and many others.

Hands-on garden lessons are conducted outside during the growing months, and inside the greenhouse during off-season. As COVID-19 takes hold raised garden boxes are created outside each group house.

Cooking instruction is shared during the growing season in demos like the Garden Herb Demo, Homemade Veggie Soup, and other seasonal harvest recipes. A Nutrition Fair is added to the annual schedule.

HOW TO MEASURE THE BENEFITS OF HOTM

Measuring the results of a Harvest of the Month program can be as easy as counting your success in pounds, dollars spent and meals served.

MEASURE YOUR SUCCESS IN POUNDS AND DOLLARS.

To measure amounts of featured fruits and vegetables consumed, managers must keep track of Harvest of the Month purchases each month. Be sure to include all local suppliers and DOD local purchases when tracking these purchases. Next, take note of waste logs at the end of service on celebration days to be sure your final tallies of Harvest of the Month produce chosen by your students is accurate. Post your Harvest of the Month journey in pounds sharing the results in a visual graph, poster or chart, adding monthly totals through the year.

Recording the pounds of local and regional produce purchased and using that figure to highlight the money invested in

your local economy throughout the year is a benefit for your community. Sharing your purchasing success in dollars and in pounds of produce is a great way to gage the success of your efforts.

PARTICIPATION NUMBERS CAN ALSO BE A BENEFIT.

Note your meal participation numbers each month when Harvest of the Month takes place. If you advertise and promote Harvest of the Month, your participation numbers should increase on those days, much like other celebration days on the lunch lines. Track your increases each month. More students on the line equals more program income. By registering your participation, Illinois Farm to School Network will collect this data.

MONTHLY SPOTLIGHT SELECTIONS: FLEXIBILITY AND PREFERENCE

The Illinois Harvest of the Month calendar features seasonal fruits and vegetables each month throughout the year. These selections are based on seasonal and regional availability lists from growers and fresh produce distributors in the state. By promoting one featured selection each month, we help to build up the market for local and regional produce. Encouraging produce distributors and aggregators to focus on one item each month will help to grow demand for local and regional produce. We also help farmers by providing a market for specific items. This allows our regional and local farmers to focus on growing items that Illinois sites will order and can utilize easily.

If the fresh items are unavailable or out-of-season in your area, we encourage sites to choose shelf-stable or frozen items. Our website contains tools and information for many local foods. Adding local, or indoor garden foods are a breeze even during winter!

There is a variety of choices available when ordering regional and local produce. Whether you choose fresh, minimally processed fresh, frozen or dried produce deciding which form to use is determined by availability and by the constraints of your kitchen facilities and staff. With the increase of fresh local ordering programs and local processing programs, there are a growing number of options for minimally processed fresh, frozen and dried vegetables and fruits in Illinois.

Searching for that perfect fit will require conversations between the food service manager and the distributors, produce houses and aggregators in your region. By running a simple online search of produce distributors, local food aggregators and regional processors or food hubs you can begin to assess the availability of local and regional options in your area of the state.

POINTS TO REMEMBER



- When considering integrating items into your program be sure to determine pricing, delivery, food safety, seasonal availability and quantities available
- Request confirmation on trace back, or origin of the primary fruits and vegetables in the product. Secondary items, such as vegetables or minor ingredients, which make up less than fifteen percent of the total product volume, may not be local or regional items. Understanding those volumes will help you to determine if the product fits your definition of local or regional.
- Assume nothing! Local and regional foods are not like the commercial products you purchase through your primary distributor. These products are fresher, and are most likely processed clean without the use of sodium or additives.
- Shelf life and performance under hot and cold holding conditions may differ. These products may have different yields than commercial products. Obtaining a sample of the product prior to menuing is always a sound start. Running a product performance review on the lunch line will help you to discover any differences before they become issues.

HARVEST OF THE MONTH PARTICIPATION LEVELS

Harvest of the Month allows sites to create a program that fits their needs and capabilities. This makes participation a snap, and allows programs to grow their at a comfortable pace.

Illinois Farm to School wishes to recognize every site participating in our Harvest of the Month program. We encourage all sites to deepen their program experience as they become comfortable and accustomed with the process. When sites work to expand program participation, their kids learn to enjoy fruits and vegetables, and develop an understanding of where their food comes from! It's easy—just utilize more tools, provide more education. Connect to your community and families at home increase exposures to fresh fruits and veggies.

BECOME A HARVEST OF THE MONTH SUPERSTAR:

Illinois Farm to School wishes to recognize every site participating in our Harvest of the Month program. Check out the participation levels below and learn more about participation on our website!

Registered sites can share monthly, or end of year updates, via email at: farmschool@sevengenerationsahead.org.

Sites can register for Harvest of the Month at: harvestillinois.org

SEED LEVEL PARTICIPATION

A powerful beginning in a small package!

SITE ACHIEVEMENTS INCLUDE:

- Site is currently registered for the Harvest of the Month Program
- Site is sourcing produce locally or regionally and/or growing produce for a minimum of four months while in session
- Site hosts a minimum of four monthly program promotions utilizing two of the following:
 1. Harvest of the Month featured item identification on four monthly menu grids or through four taste test promotions.
 2. Four monthly cafeteria, garden, or classroom celebrations
 3. Displaying nutrition or fun facts on the meal lines or wall space during four separate months
 4. Actively promoting Harvest of the Month on the site page or website. If there is no website, through four monthly newsletters.

REQUIRED FOR SUBMISSION:

- Copies of four monthly invoices with local/regional featured produce highlighted (PDF copies via email or printed copies via USPS) For garden programs a four month list with volumes or pounds noted of each garden harvest item utilized from the site garden and invoices/receipts from any local post-season food purchases.
 1. Printed copies of, or links to, four menu grids with Harvest of the Month identification each of the four months or four Harvest taste tests.
 2. Link(s) to four celebrations or promotions on your site, or food service web-page, or photos of four celebrations or promotions utilizing posters, signage, etc. * Note: A photo of the HOTM calendar poster will not be sufficient as proof of celebrations or activities.
 3. Photos of signage on the meal line(s), or cafeteria, common areas, or classrooms.
 4. A link to Harvest of the Month website on your site page or website. If there is no website, a newsletter with the Harvest of the Month link.

GERMINATION LEVEL PARTICIPATION

From small things, greatness grows!

SITE ACHIEVEMENTS INCLUDE:

- Site is currently registered for the Harvest of the Month Program
- Site is sourcing produce locally or regionally and/or growing produce for a minimum of **six months** while in session
- Site hosts a minimum of six monthly program promotions utilizing two of the following:
 - Harvest of the Month featured item identification on six monthly menu grids or in six taste test promotions.
 - Six monthly cafeteria, garden, or classroom celebrations
 - Displaying food item nutrition or fun facts on the meal lines or wall space during six separate months
 - Actively promoting Harvest of the Month on the site page or website. If there is no website, through six monthly newsletters.

REQUIRED FOR SUBMISSION:

- The site(s) is registered for Harvest of the Month programming.
- Copies of six monthly invoices with local/regional featured produce highlighted (PDF copies via email or printed copies via USPS) For garden programs a six month list with volumes or pounds noted of each garden harvest item utilized from the site garden and invoices/receipts from any local, post-season food purchases.
 - Printed copies of, or links to, six menu grids with Harvest of the Month identification each of the six months or four Harvest taste tests.
 - Link(s) to celebration or promotion on your site, or food service web-page, or photos of celebrations, promotions, posters, signage, etc.
 - Photos of signage on the meal line(s), or cafeteria, common areas or classrooms.
 - A link to Harvest of the Month website on your site page or website. If there is no website, a newsletter with the Harvest of the Month link.

BLOSSOM LEVEL PARTICIPATION

A flower is the sweetest step towards the harvest!

SITE ACHIEVEMENTS INCLUDE:

- Site is currently registered for the Harvest of the Month Program
- Site is sourcing produce locally or regionally and/or growing produce for a minimum of **nine months** while in session
- Site hosts a minimum of nine monthly program promotions utilizing three of the following:
 - Harvest of the Month featured item identification on nine monthly menu grids or through nine taste test promotions.
 - Nine monthly cafeteria, garden, or classroom celebrations
 - Displaying nutrition or fun facts on the meal lines or wall space during nine separate months
 - Actively promoting Harvest of the Month on the site page or website. If there is no website, through nine monthly newsletters.

REQUIRED FOR SUBMISSION:

- The site(s) is registered for Harvest of the Month programming.
- Copies of nine monthly invoices with local/regional featured produce highlighted (PDF copies via email or printed copies via USPS) For garden programs a nine month list with volumes or pounds noted of each garden harvest item utilized from the site garden and invoices/receipts from any local, post-season food purchases.
 - Printed copies of, or links to, menu grids with Harvest of the Month identification each of the nine months or four Harvest taste tests.
 - Link(s) to celebration or promotion on your site, or food service web page, or photos of celebrations, promotions, posters, signage, etc. * Note: A photo of the HOTM calendar poster will not be sufficient as proof of celebrations or activities.
 - Photos of signage on the meal line(s), or cafeteria, common areas or classrooms.
 - A link to Harvest of the Month website on your site page or website. If there is no website, a newsletter with the Harvest of the Month link.

SOW THE SEEDS LEVEL PARTICIPATION

With the harvest comes change!

SITE ACHIEVEMENTS INCLUDE:

- Site(s) is currently registered for the Harvest of the Month Program
- Site is sourcing produce locally or regionally and/or growing produce for the entirety of the site's yearly session. For K-12 schools and boarding facilities this includes summer feeding and/or summer class time, if applicable.
 - Site hosts a monthly program promotion utilizing all of the following:
 - Harvest of the Month featured item identification on monthly menu grids or through monthly taste test promotions.
 - Monthly cafeteria, garden, or classroom celebrations
 - Displaying nutrition or fun facts on the meal lines or wall space every month
 - Actively promoting Harvest of the Month on the site page or website. If there is no website, in monthly newsletters or communications.

REQUIRED FOR SUBMISSION:

- The site(s) is registered for Harvest of the Month programming.
- Copies of monthly invoices with local/regional featured produce highlighted (PDF copies via email or printed copies via USPS) For garden programs a monthly list with volumes or pounds noted of each garden harvest item utilized from the site garden and invoices/receipts from any local, post-season food purchases.
 - Printed copies of, or links to, monthly menu grids with Harvest of the Month identification each month or monthly Harvest taste tests.
 - Link(s) to celebration or promotion on your site, or food service web page, or photos of monthly celebrations, promotions, posters, signage, etc.

*Note: A photo of the HOTM calendar poster will not be sufficient as proof of celebrations or activities.

 - Photos of signage on the meal line(s), or cafeteria, common areas or classrooms.
 - A link to Harvest of the Month website on your site page or website. If there is no website, a monthly newsletter with the Harvest of the Month link.



WELCOME TO THE HARVEST OF THE MONTH WEBSITE!

Our website is loaded with tools, information, recipes and more! Registered sites and partners have access to the full, password protected website. Check it out!

REGISTER FOR THE PROGRAM FIRST

Child feeding, garden and education sites, including early childcare, may request a website password by emailing us at: farmtoschool@sevengenerationsahead.org.

TOOLS FOR FEATURED ITEMS:

- Fun and Nutrition Facts about 38 featured veggies and fruits.
- Program resources and best practices for schools, early childcare, residential and garden sites.
- Drag and Drop language for newsletters, menus and more!
- Curricular Connections and Activities for teachers.
- Our full Extension Kit with Harvest at Home resources
- Recipes to easily incorporate featured local, or garden foods into menus, complete with nutritional breakdowns and USDA components.

A GUIDE FOR FARMERS

Do you know a farmer interested in selling to schools? On our "For Farmers" page, we share links to information pertinent to managing institutional sales. Selling to supply Harvest of the Month is an easy way for local, small farmers to dip their toes into the market.

DO YOU NEED HARVEST OF THE MONTH LOGOS?

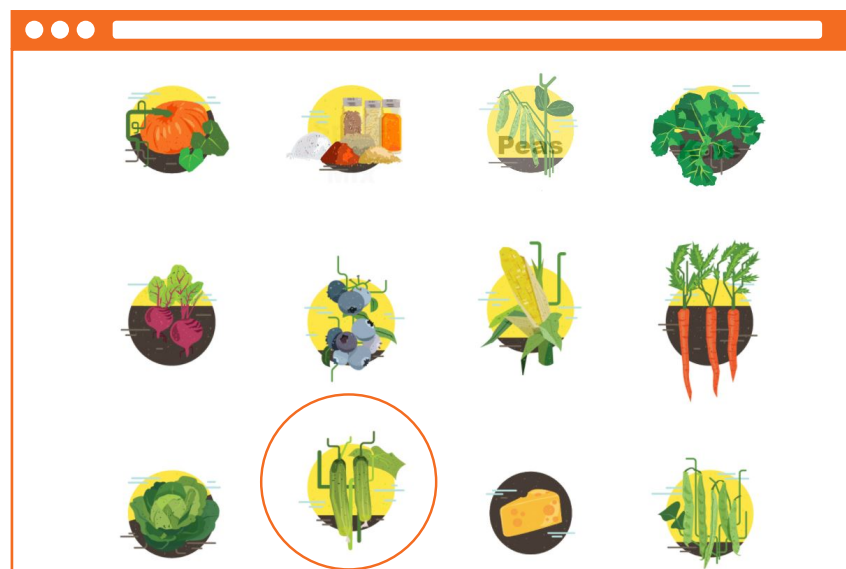
Check out all of our Harvest of the Month logos and food icons. You can use these logos to advertise your participation in Illinois Harvest of the Month. And, the small logo is perfect for your menu grid!

DO YOU NEED A COPY OF THE CURRENT HARVEST OF THE MONTH CALENDAR?

Just click on the calendar tab and download the seasonal Harvest of the Month calendar.

WE HAVE A TRAINING VIDEO!

Our Mighty Mini video, Harvest of the Month 101, gives you concise information and provides the basic process for this program. It's quick, less than fourteen minutes long! Don't forget to download the companion "How To" guide for quick reference anytime.



If you click on the icon featuring local cucumbers, you will discover all the tools for utilizing local cucumbers in your program.

EXTENSION KITS BRING HARVEST OF THE MONTH TO YOUR COMMUNITY!

Our extension kits allow you to move Harvest of the Month activities into student's homes and into your community. By extending your program into the school community, you create a broader interest in your program.

Share food fun facts, gardening tips, and mealtime activities with your kids and their families. Use the Extension Kit to discover outreach tools allowing you to share recipes, simple gardening tips, and food information to encourage gardening, cooking and preserving foods at home. These items are perfect for garden programs and feeding programs, both curbside and in the cafeteria.

For added impact send featured foods home in the form of seed packets. Partnering with local seed, garden or home companies, your county AG office or IL Extension offices can help you with the cost and outreach.

HOW IT WORKS:

Harvest at Home can help you to connect to your community through multiple avenues. We have downloadable resources allowing your program to connect to food pantries, community gardens and local farms, local produce markets, farmer markets and grocers, and community health agencies and organizations. The more connections you create, the more impact for your program.

A simple on-line search will provide you with possible "Connects" in your community. Tools and resources will assist you to build bridges across your community!

GROCERY STORE KITS: CONNECT TO LOCAL GROCERY STORES, PRODUCE RETAILERS AND BODEGAS

One of the ways to take the Harvest of the Month program a step further into your community is through the Grocery Store Kit. Downloadable resources share your featured harvest foods with local produce stores, grocery chains and other area retail stores that sell fresh produce to your student's families. Connecting program food activities to your local store allows your student families to easily locate the Harvest of the Month item and cook a featured recipe right at home.

Providing an opportunity for increased sales of fresh produce is a win/win for store managers. What could be simpler?

BE SURE TO BE POSITIVE ABOUT PARTICIPATION!

When approaching these retailers explain the benefits of promoting Harvest of the Month. When displaying the featured fruit or vegetable in their store, they build more sales and form a deeper connection to their customers through this fantastic program. Happy shoppers are loyal shoppers!

Once your targeted retailer agrees to host the featured veggie or fruit, be sure he/she has the home recipe cards for that item, an appropriately sized grocery store sign and your contact information. Keep in touch with store managers. Occasionally visit the stores to be sure the display is up, and to answer any questions they may have. Don't forget to take a photo of the display for your website!

AUTUMN

Bell Peppers



FUN FACTS ABOUT BELL PEPPERS!

Bell peppers, also known as sweet peppers, are native to Mexico, Central and South American region from where they spread to the rest of the world by Spanish and Portuguese explorers during 16th and 17th centuries. Now, bell peppers are grown widely in many parts of the world as an important commercial crop. Bell peppers belong to the nightshade family of plants. They come in a variety of colors including yellow, green, orange, red, purple, white, black etc. Interesting enough, there are peppers of the colors brown, white and black! The green ones are the most common in groceries and supermarkets.

Peppers are actually fruits. Why? Simply because they are produced from a flowering plant and contain seeds, though most people think of them as vegetables. Peppers have different names. In many Commonwealth of Nations countries, such as India, Canada and Malaysia, as well as in the United States, they are called "bell peppers". Australian and New Zealand natives call the fruit "Capsicum". The British simply call it "Pepper" while the Japanese call it 'パプリカ' (papurika).



QUICK NUTRITION FACTS

- Red bell peppers are simply green bell peppers that have been left on the vine to continue to ripen. Red bell peppers are sweeter than green ones because bell peppers sweeten as they ripen. And, red bell peppers have more than twice the vitamin C of a green pepper, which has twice the amount of vitamin C as an orange! Wow!
- Bell peppers are a good source of vitamin A.
- Other nutritional benefits of bell peppers include thiamin, niacin, folate, magnesium and copper.

FOOD SERVICE RECIPE

CENTRAL VALLEY HARVEST BAKE

Serves: 100 servings

Serving Size: ½ cup

INGREDIENTS

- | | |
|---|---|
| <p>21 lbs Butternut Squash peeled, cubed ½ inch pieces *</p> <p>½ cup 2 tbsps Extra Virgin Olive Oil</p> <p>3 cups Red Onions, diced *</p> <p>¾ cup Jalapeno Peppers, finely diced *</p> <p>3 cups Red Bell Peppers, diced *</p> <p>½ cup Red Quinoa, dry</p> <p>1 ½ cup Water</p> | <p>1 qt Canned Low-sodium Black Beans, drained, rinsed OR Dry Black Beans, cooked ~</p> <p>1 ¼ cups Fresh Oregano, chopped</p> <p>1 qt 1 ½ cups Sweetened Applesauce</p> <p>1 tbsp 1 tsp Kosher Salt</p> <p>½ cup Fresh Lime Juice</p> <p>2 qts 1 cup Low-fat Granola, no fruit</p> |
|---|---|

INSTRUCTIONS

1. Toss squash in half of oil. Place on sheet pans. For 50 servings, use 2 pans. For 100 servings, use 4 pans.
2. Roast uncovered until lightly brown around the edges: Conventional oven: 350°F for 30 minutes
Convection oven: 350°F for 22 minutes CCP: Hold at 135°F or higher.
3. Toss onions, jalapeno peppers, and red peppers with remaining oil.
4. Line a sheet pan (18"x 26"x 1") with aluminum foil or a nonstick pan liner. Spread vegetable mixture on sheet pan.
5. Roast: Conventional oven: 350°F for 15 minutes Convection oven: 350°F for 10 minutes Check mixture after 10 minutes. Cook vegetables until they soften and turn brown around the edges. DO NOT OVERCOOK. Remove from oven. CCP: Hold at 135°F or higher.
6. Rinse quinoa in a fine mesh strainer until water runs clear, not cloudy. Combine quinoa and water in a covered saucepan and bring to a boil. Reduce heat to low and simmer until water is completely absorbed, about 15 minutes. When done, quinoa will be soft and a white ring will pop out of the kernel. The white ring will appear only when it is fully cooked.
7. Combine squash, black beans, quinoa, and oregano. Mix in applesauce, salt, and optional lime juice. Fold in onion and pepper mixture.
8. Lightly coat steam table pan (12"x 20"x 2 ½") with pan release spray. Pour mixture into pan, pressing to gently to pack. For 50 servings, use 2 pans. For 100 servings, use 4 pans. Sprinkle granola evenly over the top.
9. Bake until heated through and granola is lightly browned. Conventional oven: 350°F for 30 minutes; Convection oven: 350°F for 22 minutes.

CCP: Heat for 135°F or higher for at least 15 seconds. Hold for hot service at minimum 135°F.

NUTRIENTS PER SERVING

Calories 65 | Sodium 232.5 mg | Vitamin A 894 IU
| Total Fat 2 g | Carbohydrates 10.5 g
Vitamin C 9.5 mg | Saturated Fat 0.5 g | Dietary
Fiber 3.5 g | Calcium 84.5 mg
Cholesterol 0 mg | Protein 2 g | Iron 2.5 mg

* USDA DOD Item ~ USDA commodity item

MEAL PATTERN

Provides 1 oz. grains, 1/2 oz. meat/meat alternate, or 1/8 c legume vegetable

NOTES

This recipe was adapted from the USDA Mixing Bowl at: <https://whatscooking.fns.usda.gov/>
Recipe credit: Joshua Cowell Elementary School, Manteca, CA.

AUTUMN

Bell Peppers



BOOK LIST

GREEN BEANS, POTATOES, AND EVEN TOMATOES: WHAT IS IN THE VEGETABLES GROUP?

BY: BRIAN P. CLEARY | ILLUSTRATOR: MARTIN GONEAU

A fun rhyming book about which foods are considered vegetables, and why they are tasty and nutritious to eat.

CLASSROOM ACTIVITY

PEPPER PLANET

TIME

40 Mins

OBJECTIVES:

- Students investigate pepper plants
- Students learn about environmental impacts on plant growth
- Students practice applied multiplication

GRADE LEVEL

2nd Grade to 5th Grade

STANDARDS:

NGSS 2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

NGSS 3-LS4-3: 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.

NGSS 3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

MATERIALS NEEDED

Bell Peppers: one per table or pair of students and one for the teacher

Paper plates, one per student

Plastic knives

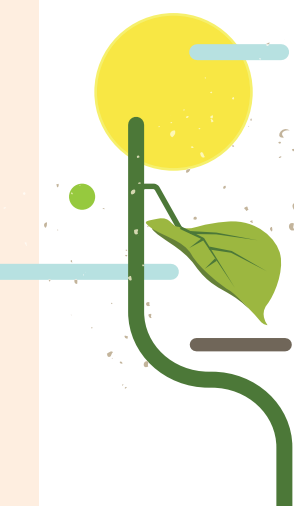
INSTRUCTOR STEPS

Note: this lesson can be shorter or longer in time depending on the number of peppers used or the number of activities from the lesson used. This activity can be as simple as having students count pepper seeds and compare counts, or as complex as the teacher would like! Extra activities could include calculating germination rates of the seeds or planting peppers in the classroom.

1. Have students wash their hands and get ready to prepare food
2. Pass out bell peppers to each group of students who will be working together
3. Ask students to guess how many seeds are in their pepper plant.
4. Demonstrate first, then have the students use their plastic knives to cut their peppers in half on their plates. Have the students use grouping to count up the seeds in their peppers and compare them to their estimates. Review and record class totals.
5. For this section, the instructor will need to write out the different numbers and variables on the board before presenting the students with a few math problems. Have the students calculate the total number of seeds per plant (average or total in the room). Then tell the students that generally, one pepper plant (one seed) can produce at least 50 peppers on a farm. Have the students calculate how many peppers could be produced with the seeds from one plant. Then have them calculate how many potential peppers could be produced with the peppers (total seeds) in the room. Ask the students to hypothesize: at this rate, why haven't peppers taken over the planet? Lead a discussion about growing conditions that lead to plant survival.
6. Demonstrate first, then have the students cut their peppers into slices and taste them!

NOTES

Adapted from TOMATO PLANET from Shelburne Farms Food Education Project



AUTUMN

Potatoes



FUN FACTS ABOUT POTATOES!

Potatoes are vegetables but they contain a lot of starch (carbohydrates) that make them more like rice, pasta and bread in terms of nutrition. Much like rice, wheat and maize (corn), potato crops are an important part the world's diet. Today potatoes are grown in all 50 states of the USA and in about 125 countries throughout the world. The top potato producers are Idaho, Washington and Wisconsin.

The word "potato" comes from the Spanish word "patata". Potatoes are sometimes called "spuds". In October 1995, the potato became the first vegetable to be grown in space! NASA and the University of Wisconsin, Madison, created the technology with the goal of feeding astronauts on long space voyages, and eventually, feeding future space colonies.

Potato plants are usually pollinated by insects such as bumblebees. There are thousands of different potato varieties! However, not all are available at the store. Seven varieties of potatoes are grown in the United States. Popular varieties include Russet, Yukon Gold, Kennebec, Desiree and Fingerling.

In October 1995, the potato became the first vegetable to be grown in space

QUICK NUTRITION FACTS

- About 20% of potato nutrition is found in the skin; the majority is in the flesh. But keeping the skin on for potato salad means you'll get all the great nutrients!
- Potatoes are one of the finest sources of starch, vitamins, minerals and dietary fiber. 100g provides 70 calories, however, they contain very little fat (just 0.1g per 100g) and no cholesterol.
- These tubers are one of the richest sources of B-complex group of vitamins such as pyridoxine (vitamin B6), thiamin, niacin, pantothenic acid and folates!

FOOD SERVICE RECIPE

ROASTED GARLIC POTATO WEDGES

Serves: 100 servings

Serving Size: ½ cup, or 4 wedges

INGREDIENTS

- 29 lbs** Russet Potatoes, well-scrubbed *
- 2 tbsps ½ tsp** Paprika
- ¼ cup 2 tps** Onion Powder
- ¼ cup 2 tps** Garlic Powder
- 2 ½ tps** Adobo Seasoning
- 2 tps** Salt, kosher or coarse
- 1 tsp** Black Pepper

INSTRUCTIONS

1. Stab potatoes w/ fork and bake whole: Conventional oven, 425°F about 50 minutes; Convection oven, 375°F about 40 minutes.
2. Cool from 140°F to 70°F within 2 hours and from 70°F to 41°F within 4 hours.
3. Halve potatoes lengthwise then cut each half into 4-5 wedges.
4. Divide potatoes equally between parchment covered sheet pans. In a single layer, skin-side down.
5. Mix spices and salt together in small bowl. Sprinkle over wedges.
6. Bake just before service. Convection oven: 400°F about 20 minutes; Conventional oven: 425°F about 25 minutes.

NUTRIENTS PER SERVING

Calories 125 | Sodium 96 mg | Vitamin A 102 IU | Total Fat 0.2 g | Carbohydrates 28.48 g
 Vitamin C 12.87 mg | Saturated Fat 0.04 g | Dietary Fiber 3.02 g | Calcium 21.68 mg | Trans Fat 0 g
 Cholesterol 0 mg | Protein 3.42 g | Iron 1.49 mg

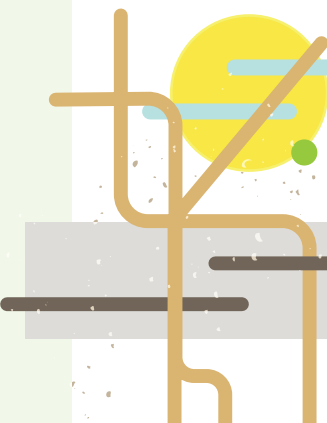
MEAL PATTERN

Provides ½ cup starchy vegetable

NOTES

This recipe was adapted from Massachusetts Farm to School Cookbook: Donna Miner, Chicopee High School.

* USDA DOD Item



AUTUMN

Potatoes



BOOK LIST

FEAST FOR 10

BY: CATHRYN FALWELL

Count from one to ten and then count again. What does it take to make a feast for ten hungry people? First, there's shopping, then there's cooking, and setting the table. Everyone in the family helps, and as fast as you can count to ten, the feasting begins.

This book is best for grades K–2.

CLASSROOM ACTIVITY

SPROUTING POTATOES**TIME**

30-45 minutes, plus 5 minutes/day for 1-2 weeks

OBJECTIVES:

- Students will learn about the parts of the potato plant
- Students will create potato growing boxes and track growth over time

GRADE LEVEL

Grade 1-3

STANDARDS:

2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

MATERIALS NEEDED

Old potatoes with 'eyes' (leave a bag of potatoes in your classroom for a week or so!)

Prepared potatoes for tasting, with a recipe

Shoebboxes and scissors

Access to windows or a light source

Potting soil (optional—if doing this, you will need to pre-cut your potatoes so that they are in chunks with an eye on each chunk)

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the potatoes with your students however you'd like and have them look at the nutrition facts! If the potatoes were prepared with a recipe, please distribute to students.
2. Pass around the raw, old potatoes (one per group or one per student).
3. After the tasting, explain to the students that potatoes can be eaten or they can be used as seeds—meaning that if farmers let potatoes sit out for some time, they will sprout! The 'eyes' on the sides of old potatoes will sprout and grow stems and eventually more potatoes, if planted correctly.
4. Have the students grow potato stems. The full class can 'race' their potatoes using empty boxes, or the class can split and have half the class use empty boxes and the other half use soil. Tell the students that they are going to race their potatoes to see which sprouts the fastest and which grows the biggest.
5. For the empty shoeboxes, have students cut a medium sized hole in one of the end sides. Have them put the potato in the box on the other side. Close the boxes and put them on windowsills.
6. For the potatoes planted in soil, use the shoeboxes and have the students determine the amount of soil, water, and the depth of the potato seed chunk. Make sure they all label their box!
7. Over the next few days and weeks, the potatoes will sprout. Have the students keep track of their progress and at the end of two weeks, determine the winning potato!

AUTUMN

Cabbage



FUN FACTS ABOUT CABBAGE!

The word "cabbage" comes from the French word "caboche," an everyday word for "head." Because it is one of the oldest vegetables eaten in the world, it is a dietary staple throughout the world.

Cabbage is available in many varieties: red or purple, green and Napa cabbage, usually found in Chinese cooking, bok choy and Brussel Sprouts. Domestic varieties originate from wild cabbage that naturally grows in England and Mediterranean areas. China is the greatest manufacturer of cabbage, while Russia consumes the greatest amount of cabbage in the world: 44 pounds per person per year.

The world's largest cabbage is credited to William Collingwood of County Durham, England, whose prized cabbage in 1865 weighed in at 123 pounds. Cabbage is considered Russia's national food. Russians eat about seven times as much cabbage as the average North American. Napa cabbage is the main ingredient in Korean Kimchi!

Because it is one of the oldest vegetables eaten in the world, it is a dietary staple

QUICK NUTRITION FACTS

- Cabbage is a nutritional powerhouse that is an excellent source of manganese, vitamin B6, and folate; and a good source of thiamin, riboflavin, calcium, potassium, vitamin A, tryptophan, protein and magnesium.
- Cabbage is high in fiber, vitamin C & K, and naturally fat free and cholesterol free.
- Cabbage has virtually no fat. One cup of shredded raw cabbage contains 50 calories and 5 grams of dietary fiber.

FOOD SERVICE RECIPE

CREAMY FRESH COLE SLAW

Serves: 100 servings

Serving Size: Portion with #12 scoop (1/4 cup)

INGREDIENTS

- 7 lbs 6 oz** Green cabbage, shredded and chilled *
- 1 cup** Green Bell Peppers, diced *
- 3 1/2 cups** Carrots, shredded *
- 3 1/2 cups** Reduced Cal Salad Dressing OR Low Fat Mayo
- 1/4 cup** White Wine Vinegar
- 1/4 cup** Sugar, white
- 1 tbsp 1 tsp** Celery Seed, ground
- 2 tsp** Dry Mustard

INSTRUCTIONS

1. Place cabbage, peppers and carrots in a large bowl; toss together.
2. Combine salad dressing or mayo, sugar, celery seed, dry mustard and vinegar in a separate bowl.
3. Pour mayo mixture over vegetables Mix thoroughly.
4. Spread 5 lbs, 3 oz (approx. 3 qt, 1/2 c) into a shallow (12x20x2 1/2 inch) pan to a product depth of 2" or less. For 50 servings, use 1 pan. For 100 servings, use 2 pans.

CCP: Cool to 41°F or lower within 4 hours. Cover and refrigerate until service. Mix lightly before serving.

NUTRIENTS PER SERVING

Calories 33 | Sodium 77 mg | Total Fat 1.63 g | Carbohydrates 4.52 g | Saturated Fat .26 g
Dietary Fiber 1 g | Cholesterol 0 mg | Protein .6 g

MEAL PATTERN

Provides 1/2 cup other vegetable

NOTES

For best results, shred cabbage, store overnight, drain, and add dressing just prior to service. If recipe is prepared in advance, the yield will be reduced.

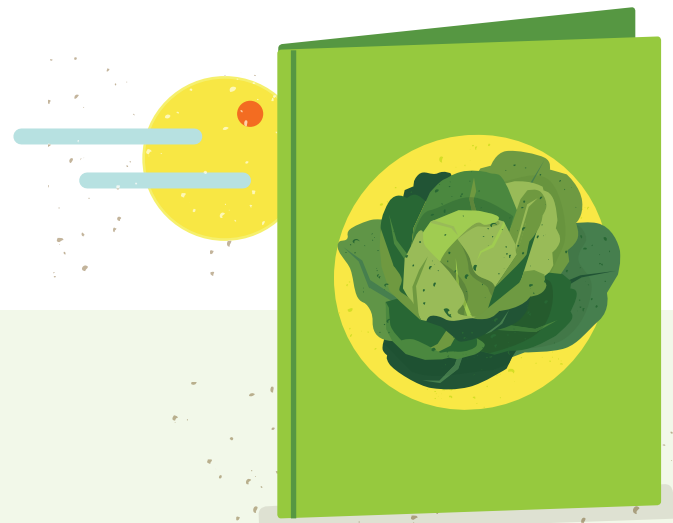
This recipe was adapted from The USDA What's Cooking Mixing Bowl at: <https://whatscooking.fns.usda.gov/>

* USDA DOD Item



AUTUMN

Cabbage



BOOK LIST

THE GIANT CABBAGE: AN ALASKA FOLKTALE

BY: CHERIE B. STIHLER | ILLUSTRATOR: JEREMIAH TRAMMELL

A playful story about a hard-working moose who is determined to enter the biggest and best cabbage he can grow into the Giant Cabbage contest. But the cabbage he grows is so big it can hardly be moved—what is everyone to do? The Giant Cabbage is an upbeat, whimsical and enthusiastically recommended picture book tale which will have special appeal for children ages 3 to 8.

CLASSROOM ACTIVITY

ACIDS AND BASES EXPLORATION

TIME

1 hour

GRADE LEVEL

Upper elementary

OBJECTIVES:

- Students use cabbage juice to test the Ph level of different household liquids
- Students taste raw red cabbage and learn nutrition
- Students learn about acids and bases

STANDARDS:

PSI.B: Chemical Reactions.

PSIA: Structure and Properties of Matter.

MATERIALS NEEDED

Red cabbage (chopped or whole), bring in red cabbage for tasting and use canned cabbage (not sauerkraut) for the experiment

Knives (if using whole cabbage)

Blender

Strainer

1000ml (or larger) **container** and **200ml** (at least) **containers for each tested liquid**

Testing liquids: Vinegar, Apple Juice, Shampoo and Conditioner, Hand Sanitizer, Baking Soda

Lab book

Scale with grams

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to prepare food. Run a taste test of the cabbage with your students however you'd like and have them look at the nutrition facts!
2. Ask the students to look up the amount of calcium that they ate in their taste test (might need to taste again and measure the amount of their taste in grams!)
3. To start the experiment, have students go through the testable liquids and hypothesize which are ACIDS, BASES, OR NEUTRAL.
4. Prepare the cabbage juice. Run cabbage through a blender and strainer or collect 600-800ml of liquid from the canned cabbage.
5. Have students measure 100ml of each liquid (and 3 tbsp of baking soda into 100ml of water) into small cups.
6. Pour 50ml of cabbage juice into each small cup. Have students determine the color change. Using a pH strip, have students mark in their lab book the pH of each based on color. Then, have students look up actual pH to check the accuracy of cabbage juice!

NOTES

Adapted from <http://web.stanford.edu/~ajspakow/downloads/outreach/ph-student-9-30-09.pdf>.
More optional questions found in this resource!

WINTER

Carrots



FUN FACTS ABOUT CARROTS!

The carrot is a root vegetable with the most commonly eaten part being the taproot. The carrot is usually orange in color although purple, red, white, and yellow varieties also exist. The domesticated carrot that we know today originated from the wild carrot called "Daucus carota" which was native to Europe and south western Asia. The Ancient Greeks called carrots "Karoto". The Japanese word for carrot is "ninjin". Carrot flowers in the U.K. are also called "Bird's nest", "Bee's nest" and "the Devil's Plague". Americans know the wild carrot as "Queen Anne's Lace", "wild carrot", "rattlesnake weed" & "American carrot". The carrot is a member of the parsley family including species such as celery, parsnip, fennel, dill and coriander.

The world's Longest Carrot recorded in 2007 was 5.839 metres (19 feet 1 7/8 inches). The world's Heaviest Carrot recorded in 1998 was 20 lbs (9.07 kg). The classic Bugs Bunny carrot is the "Danvers" type.

The carrot is a member of the parsley family

QUICK NUTRITION FACTS

- This veggie is an excellent source of vitamin A, providing more than 200% of your daily requirement in just one carrot!
- Carrots are loaded with beta-carotene, a natural chemical that the body changes into vitamin A. The deeper orange the carrot, the more beta-carotene you're getting.
- A medium-size carrot has 25 calories, 6 grams of carbs, and 2 grams of fiber. Quite a "health punch" for such a small package!

FOOD SERVICE RECIPE

MOROCCAN CARROT SALAD

Serves: 100 servings

Serving Size: 1 cup

INGREDIENTS

- 2 lbs Walnuts, chopped ~
- 10 lbs 2 oz Shredded Carrots *
- 2 lbs Dried Currants, Cranberries or Raisins ~
- 1 ½ cup Orange Juice
- 1 cup Lemon Juice
- 4 tbsps Orange Zest (optional)
- ½ cup Brown Sugar
- 2 tsp Salt
- 1 tbsp 1 tsp Cinnamon
- 2 cups Vegetable Oil

INSTRUCTIONS

1. If toasting walnuts, place on a baking pan and bake at 300°F for 6-10 minutes until lightly browned. Set aside to cool completely. In a large mixing bowl combine grated carrots, walnuts, and dried fruit. Set aside.
 2. In another bowl, combine orange juice, lemon juice, zest, brown sugar, salt and cinnamon. Whisk until blended.
 3. Slowly whisk oil into juice mixture until well combined.
 4. Pour dressing over carrot mixture. Toss to coat.
- CCP: Hold at 41°F or below before and during service.

NUTRIENTS PER SERVING

Calories 91 | Sodium 80 mg | Vitamin A 15268 IU | Total Fat 4.5 g | Carbohydrates 8.78 g
 Vitamin C 5.42 mg | Saturated Fat 0.7 g | Dietary Fiber 1.70 g | Calcium 31.23 mg | Trans Fat 0 g
 Cholesterol 0 mg | Protein .87 g | Iron .31 mg

MEAL PATTERN

Provides ½ cup red/orange vegetable and ⅓ cup fruit

NOTES

Recipe Credit: Chef Cyndie Story

* USDA DOD Item ~ USDA commodity item



WINTER

Carrots



BOOK LIST

THE GIANT CARROT

BY: JAN PECK

Based on an old Russian folktale, and complete with a scrumptious recipe for carrot puddin', this wonderfully humorous story shows the strength of teamwork and the power of a touch of imagination.

This book is best for grades K–2.

CLASSROOM ACTIVITY

HOW FAST CAN A CARROT ROT?**TIME**

60 minutes,
then 10 minutes/day for 2-3 weeks

GRADE LEVEL

Grade 4-8

OBJECTIVES:

- Students will design an experiment with independent and dependent variables and measure their experiment over 2-3 weeks
- Students will learn about storage crops and local food in the winter

STANDARDS:

5-PS1-3: Make observations and measurements to identify materials based on their properties.

4-ESS2-1: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

MATERIALS NEEDED

Carrots (whole, not baby), enough for samples and for each student or group to use one

Potting soil

Access to a fridge

Boxes and space in your classroom, including space near desk lights

Plastic bags

A variety of liquid solvents and other potential experimental variables (household items!)

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the carrots with your students however you'd like and have them look at the nutrition facts! If the carrots were prepared with a recipe, please distribute to students.
2. Pass around the raw carrots.
3. After the tasting, explain to the students that carrots are storage crops—meaning that if stored correctly, they will last a really long time so that we can eat locally grown foods even in the winter. Have your students brainstorm other winter storage crops - foods that are harvested in the fall and then kept fresh (could include beets, carrots, potatoes, winter squash, parsnips, turnips, etc).
4. Instead of telling the students how farmers keep vegetables fresh for months, have groups of students design experiments to see how fast (or slowly) a carrot can rot!
5. Please refer to the full lesson plan from Teach Engineering (linked on the Harvest of the Month website) for the rest of the lesson.
6. After the experiment has been concluded, have your students research and share with the class the ideal winter storage conditions for different storage crops! Here's a great place to start:
<http://www.johnnyseeds.com/growers-library/vegetables/storage-crops.html>

NOTES

Adapted from Teach Engineering. Please refer to this lesson plan for more details!

https://www.teachengineering.org/activities/view/duk_decomposers_mary_act

https://www.teachengineering.org/lessons/view/duk_decomposers_mary_less

WINTER

Grains



FUN FACTS ABOUT GRAINS!

Grains are types of grass that produce seeds that can be eaten. Grains are also called cereals. Wheat, rice, and corn are the most commonly grown grains. Other important grains include barley, oats, rye, millet, and sorghum.

People eat grains in a number of ways. They eat some grains, such as rice and corn, on their own. They also eat grains as ingredients of other foods, such as breakfast cereals and soups. Grains are also commonly eaten in the form of flour. Flour is made by crushing grains into tiny pieces. The grain most commonly used to make flour is wheat. People use flour to make bread, cookies, crackers, cakes, and pastas.

QUICK NUTRITION FACTS

- Grains are high in the nutrients called carbohydrates, which give the body energy.
- Whole grains are particularly high in B vitamins, including niacin, thiamine, and folate.
- A diet rich in whole grains has been shown to reduce the risk of heart disease, type 2 diabetes, obesity, and some forms of cancer!

Grains are grown all over the world!

FOOD SERVICE RECIPE

AZTEC GRAIN SALAD

Serves: 100 servings

Serving Size: 8 oz spoodle (1 cup)

INGREDIENTS

- | | |
|--|--|
| 8 lbs 12 oz Quinoa | ½ cup Honey |
| 2 gal 3 qts Water | 2 tbsps Dijon Mustard |
| 7 lbs 4 oz Apples, tart apples cored, peeled and cubed ¾ inch * | 2 cups Red Wine Vinegar |
| 8 lbs Butternut Squash, peeled cubed ½ inch * | 2 tsps Salt |
| 1 cup Canola Oil | 1 ½ tsps Black Pepper, ground |
| 1 tbsps 1 tsp Ground Ginger | 1 tsp White Pepper, ground |
| 3 tbsps 1 tsp Ground Cinnamon | ¼ cup Cilantro, finely chopped |
| 3 cups Frozen Orange Juice Concentrate | 2 lbs 8 oz Golden Raisins, finely chopped |
| 1 ½ cups Olive Oil | 2 lbs 8 oz Cranberries, finely chopped * |

INSTRUCTIONS

1. Rinse quinoa in a fine mesh strainer until water runs clear, not cloudy.
2. Combine quinoa and water in a covered stockpot and bring to a boil. Reduce heat, simmer until water is absorbed, about 10-15 mins.
3. Combine apples, squash and canola oil. Add half the ginger and half the cinnamon. Reserve remaining spice. Toss well to coat.
4. Transfer apple mixture to a sheet pan. For 50 servings; 2 pans, for 100 servings; 4 pans.
5. Roast until squash is soft and slightly brown on edges. DO NOT OVERCOOK. Conventional oven: 400°F 15-20 mins; Convection oven: 400°F 12-15 mins.
6. Combine orange juice, olive oil, honey, Dijon, vinegar, salt, peppers, cilantro and remaining cinnamon and ginger. Whisk until combined.
7. In steam table pan (12x20x4) combine cooked quinoa, apple/squash mixture, cranberries, raisins and dressing. Mix well.
8. For 50 servings, use 2 pans. For 100 servings, use 4 pans. Cover and refrigerate at 40°F to allow flavors to meld.

CCP: Cool to 41°F or lower within 4 hours. Refrigerate until service.

NUTRIENTS PER SERVING

Calories 297.8 | Sodium 58.43 mg | Total Fat 7.83 g | Carbohydrates 53.56 g | Saturated Fat .91 g
Dietary Fiber 5.56 g | Calcium 22.48 mg | Cholesterol 0 mg | Protein 6.41 g

MEAL PATTERN

Provides ½ cup red/orange vegetable, ¾ cup fruit and 1 oz grains.

NOTES

This recipe was adapted from the USDA Mixing Bowl Recipes at: <https://whatscooking.fns.usda.gov/>

* USDA DOD Item

AUTUMN

Apples



BOOK LIST

JOHNNY APPLESEED

BY: STEVEN KELLOGG

From Scholastic: "It is hard to imagine a reader who won't be captivated by Johnny Appleseed, the lover of animals, people, and especially, apple trees. The story is handily divided into nine short chapters, beginning with Johnny as a young boy who likes to play alone in the woods. He reads aloud to the wild animals, and talks to the beautiful stars shining in the sky. His friend, Mr. Crawford the orchard man, teaches him all about apples. When Johnny is a young man of 18, he leaves home to plant his own orchard. As the pioneers pass through on their way west, Johnny gives them food and shelter, and of course, a small bag of apple seeds."

CLASSROOM ACTIVITY

NOTES

ECE Instructors, here's a special lesson for you!

This art-based food exploration could be used for any Harvest of the Month food item.

SPONGE PAINT APPLE STAMP

TIME

20 minutes

GRADE LEVEL

Pre-K/Early Care

OBJECTIVES:

- Students explore apples of different sizes, shapes and colors
- Students count apple seeds
- Students create art with apples

STANDARDS:

25.A.ECd: Visual Arts: Investigate and participate in activities using visual arts materials.

6.A.ECa: Count with understanding and recognize "how many" in small sets up to 5.

23.B.ECb: Identify healthy and nonhealthy foods and explain the effect of these foods on the body.

MATERIALS NEEDED

Apples of different shapes, sizes and colors (one per student)

Paper plates (one per student)

Knives for teacher use

Fingerpaint and paper

INSTRUCTOR STEPS

1. Have students wash their hands.
2. Teacher holds up an apple and asks students to guess how many seeds are inside.
3. Teacher cuts the apple in half and counts the seeds with the class.
4. Hand out the apples to each student.
5. Have the students describe their apple characteristics: size, color, shape, etc.
6. Go around the class and cut the student's apples in half. Have the count the seeds in their apple.
7. Demonstrate first, then hand out fingerpaint in shallow trays and paper and have the students use the apples as stamps to make decorative gift wrap paper!

LOOKING FOR ACTIVITIES FOR

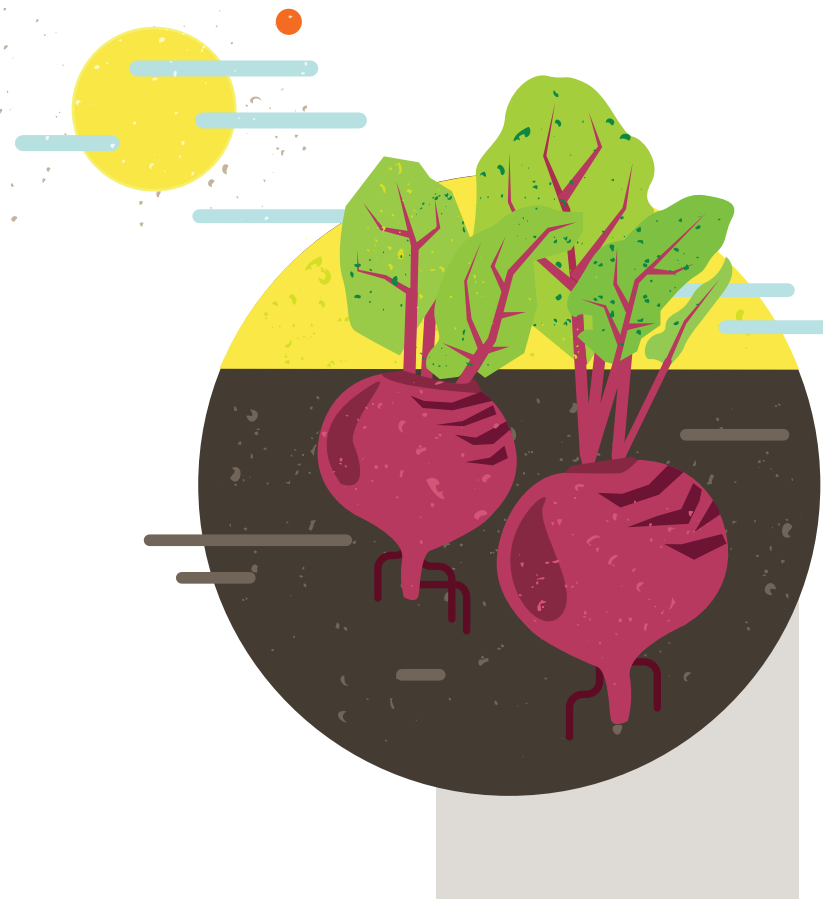
ELEMENTARY OR MIDDLE SCHOOL STUDENTS?

Make sure to check out the resources available from the Illinois Great Apple Crunch! All schools participating in the Crunch can get an Apple Ag Mag full of activities from Illinois Agriculture in the Classroom. Contact your county Ag Literacy Coordinator to get materials and get involved.



WINTER

Beets



FUN FACTS ABOUT BEETS!

Beets have been reported as being seen in the Hanging Gardens of Babylon, one of the seven ancient wonders of the world. The most common beet in the United States is the Red Ace beet.

Since the 16th century, beet juice has been used as a natural red dye. It was even used as a hair dye. A famous stew or soup made from beets is borscht, a soup found primarily in Eastern Europe. In 1975, during the Apollo-Soyuz Test Project, cosmonauts from the USSR's Soyuz 19 welcomed the Apollo 18 astronauts by preparing a banquet of borscht (beetroot soup) in zero gravity. Beet juice has been used as both a dye and a drink full of antioxidants.

QUICK NUTRITION FACTS

- Beets are highly nutritious and “cardiovascular health” friendly root vegetables. Certain unique pigment antioxidants in this root and its top greens have been found to offer protection against coronary artery disease and stroke, lower cholesterol levels within the body, and have anti-aging effects.
- Beet roots contain a lot of vitamin C, and the leaves are an excellent source of vitamin A. They are also high in folate, dietary fiber and antioxidants.
- Beet roots are one of the sweetest of vegetables, containing more sugar even than carrots or sweet corn. The regular garden beet has up to 10 percent sugar content; the special beets grown for sugar production may have twice that much.

Beet juice has even been used as a hair dye

FOOD SERVICE RECIPE

QUICK PICKLED BEETS

Serves: 100 servings

Serving Size: ¼ cup

INGREDIENTS

- 12 lbs** Beets, steamed, peeled, halved and sliced *
- 8 small** Onion, red sliced *
- 4 cups** Red Wine Vinegar
- 2 cups** White Sugar
- 6 pieces** Cinnamon Sticks
- 25 whole** Black Peppercorns
- 10 whole** Cloves, whole

INSTRUCTIONS

1. Combine onion, vinegar, sugar, and spices in a pan. Bring to a boil, stirring well, over med-high heat. Cover, reduce heat to med-low and simmer for 4-6 minutes until onion is tender-crisp.
2. Add beets to pan. Stir.
3. Place beet mixture in a bowl and let stand, stirring occasionally, for 30 minutes.
4. Cool beets to 41°F. Serve beets strained, cold.

NUTRIENTS PER SERVING

Calories 17 | Sodium 9 mg | Vitamin A 4.7 IU | Total Fat 0 g | Carbohydrates 4 g
 Vitamin C .9 mg | Saturated Fat 0 g | Dietary Fiber .4 g | Calcium 5.8 mg | Trans Fat 0 g
 Cholesterol 0 mg | Protein 0 g | Iron .2 mg

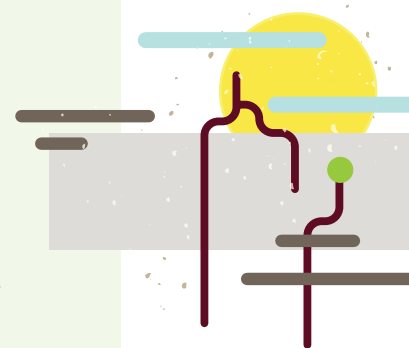
MEAL PATTERN

Provides ¼ cup other vegetable

NOTES

Recipe Credit: Gunnison Community and Lake Schools, Colorado. Colorado Schools Harvest of the Month menus provided by Mountain Roots Food Project.

* USDA DOD Item



WINTER

Beets



BOOK LIST

TOPS & BOTTOMS

BY: JANET STEVENS

*Hare solves his family's problems by tricking rich and lazy Bear in this funny, energetic version of an old slave story. With roots in American slave tales, **Tops & Bottoms** celebrates the trickster tradition of using one's wits to overcome hardship.*

CLASSROOM ACTIVITY

VEGGIES ALIVE**TIME**

30 minutes

GRADE LEVEL

Grade 1-5

OBJECTIVES:

- Students learn that vegetable plants, even from the store, can still keep growing
- Students learn about edible plant parts
- Students taste beets

STANDARDS:

NGSS Topic Area: Interdependent Relationships in Ecosystems.

MATERIALS NEEDED

Beets, raw with tops still on (one beet per group of students)

Beets, raw or cooked, prepared for students to taste (with recipe if available). Shredded raw beets with a vinaigrette is an easy preparation (could have students shred the beets with help)

Plant parts diagram (look for a version you like online or just use a picture of a plant)

Small bowl or plate (one for each group)

Knife and scissors (for each group)

Potting soil

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the beets with your students however you'd like and have them look at the nutrition facts! If the beets were prepared with a recipe, please distribute to students.
2. Pass around the raw beets with the tops (leaves) still on. Have students wash them if still dirty.
3. Using the plant parts diagram, have the students determine all the parts of the beet plant (root, stem, leaves, and flower and fruit—neither of which are visible on the plant).
4. Tell the students that the main part of the beet that we eat is the root, but the leaves are also edible and very tasty. Tell the students that once the beet plant makes a flower, the energy of the plant goes to making flowers and seeds instead of tasty roots.
5. As tables, have the students force the beets to make flowers! The beet plant is still alive and could grow in the right conditions - though it won't grow another beet.
6. Have students (with help) slice the beets in half and slice off all but an inch of the leaves. Place each beet/leaf section in a small bowl with a bit of damp soil (don't cover the whole beet in soil). Place in a sunny window and watch the leaves grow beautifully in your classroom.
7. As a follow up activity, have the students go through common vegetables and determine what parts of the plants they eat (ex. Tomato: we eat the fruit but not the root, flower, stem, or leaves).

AUTUMN

Apples



FUN FACTS ABOUT APPLES!

Apples ripen up to 10 times faster when you leave them out then when you refrigerate them. Ever wondered why apples float? It's because 25 percent of their volume is made up by air. On average, apples contain 4.5 grams of fiber. Apples are grown in all 50 states. Pomology is the science of apple-growing. Apples contain high levels of boron, which increases mental alertness.

QUICK NUTRITION FACTS

- Apples are high in fiber, vitamin C and various antioxidants. They are also very filling, considering their low calorie content.
- Studies show that eating apples can have multiple benefits for health. Apples are very rich in fiber. A single medium-sized apple contains about 4 grams of fiber, about 17% of the recommended daily intake.

People have cultivated and eaten green beans at least 7000 years

FOOD SERVICE RECIPE

FRESH WALDORF SALAD

Serves: 100 servings

Serving Size: Portion with #12 scoop (1/3 cup)

INGREDIENTS

- 4 lbs 4 oz** Apples, cored, unpeeled, diced *
- 1/2 cup** Lemon juice
- 4 lbs** Grapes, fresh, off the stem cut in half *
- 2 lbs 8 oz** Peach slices, canned drained roughly chopped OR Peaches diced, canned, drained ~
- 3 3/4 cups** Celery, chopped *
- 1 lb 4 oz** Raisins ~
- 1 1/2 cups** Reduced Cal Salad Dressing OR Low Fat Mayo
- 1 lb 1 oz** Chopped Walnuts

INSTRUCTIONS

1. Toss apples with lemon juice to prevent discoloring.
2. Combine apples, celery, peaches, grapes and raisins in a large bowl. Toss the combine.
CCP: Refrigerate at 41°F or below.
3. Mix Mayo or salad dressing with nutmeg.
CCP: Refrigerate at 41°F or below.
4. One hour prior to service fold fruits and walnuts lightly into dressing until combined.
CCP: Hold at a minimum of 41°F throughout service.

NUTRIENTS PER SERVING

Calories 73 | Sodium 32 mg | Vitamin A 89.3 IU | Total Fat 3.9 g | Carbohydrates 11 g
 Vitamin C 9.3 mg | Saturated Fat .42 g | Dietary Fiber 2 g | Calcium 23.2 mg | Trans Fat 0 g
 Cholesterol 1 mg | Protein .94 g | Iron .7 mg

MEAL PATTERN

Provides 1/3 cup fruit

NOTES

This recipe was adapted from the USDA Mixing Bowl Recipes at: <https://whatscooking.fns.usda.gov/>

* USDA DOD Item ~ USDA commodity item

AUTUMN

Apples



BOOK LIST

THE APPLE PIE TREE

BY: ZOE HALL

From bud to fruit, two children follow the cycle of an apple tree as it is nurtured through the seasons. The book incorporates the role of bees and the weather in the production of the fruit. Another use of the tree is shown, as a pair of robins build their nest and begin a family. The story ends with a nice, warm apple pie being taken from the oven. The large pictures and text are suitable for young children. The colorful, clear-cut illustrations use a paint and paper collage technique. An end note shows how bees pollinate the tree's flowers and offers a recipe for apple pie.

CLASSROOM ACTIVITY

BROWNING FRUIT

TIME

60 minutes

GRADE LEVEL

Grade 2-5

OBJECTIVES:

- Students conduct an experiment on preventing fruit browning
- Students taste apples
- Students measure observed changes over time

STANDARDS:

4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

MATERIALS NEEDED

Apples of different varieties; two apples per table. Mix of local and conventional apples if possible (give each table one of each if possible).

Prepared apple tasting: either a plain piece of local apple or a dish (give out the recipe!)

Disposable cups, 5 per apple

Disposable plate

Knives (for teacher/volunteer use)

Different household liquids: Lemon juice (either bottled or raw lemons) is necessary. Be sure to have other liquids on hand or ready to make in the classroom, such as milk, liquid soap, sugar-water mixture, salt-water mixture, oil, etc.

INSTRUCTOR STEPS

1. Have students wash their hands and prepare to taste food.
2. Run an apple taste test with your students, then prepare them for the experiment.
3. Hand out the apples to each student group. Ask the students: have you ever eaten or seen a brown apple? Why do you think it gets that way? Tell the students that apples turn brown when an enzyme on the fruit meets oxygen (air). Tell them that today, they are going to experiment to see if anything can prevent an apple from browning.
4. Have a teacher and/or volunteer come to each table and help the students cut their apples into 5 pieces each. When they are not cutting apples, students can choose 4 liquids to use for their experiment and put the liquids in the small cups. Make sure cups are labeled with exactly what and how much of the type of liquid is in the cup. Students will submerge the apple pieces in the liquids for 30 seconds each (keeping 1 clean as a control) and then move them to a labeled area on a plate. Make sure students also track and label if the apples are local or conventional.
5. Have students record observations of each apple piece after 10 and 20 minutes. What happened? What liquid kept the apples from browning? Did the local apple perform differently?
6. Tell your students that high-acid liquids such as lemon juice inactivates the enzyme and prevents the apples from browning. This keeps the apple fresh and crunchy longer.
7. Have the students use their findings to make a hypothesis about why apples turn brown.

SPRING

Lettuces



FUN FACTS ABOUT LETTUCES!

Did you know that lettuce is leafy vegetable that belongs to the sunflower family? This vegetable produces a mass of leaves that grow around a short stem. Some varieties of lettuce produce yellow, golden, reddish, bluish or variegated (multicolored) leaves. Lettuce develops a 3-foot-tall flowering stalk with flowers on top of it. Lettuce can be grown in the ground or in water! This method of cultivation is called hydroponics, where plants grow indoors in a nutritious, water solution. Hydroponics are more popular today because this way of cultivation doesn't depend on the weather conditions, and it can be grown all year round!

QUICK NUTRITION FACTS

- Lettuce, except iceberg, is a moderately good source of vitamin C, calcium, iron and copper. Unfortunately, iceberg lettuce has little nutritional value.
- The nutritional value of lettuce varies with the variety. The spine and ribs of lettuce provide dietary fiber, while vitamins and minerals are concentrated in the delicate leaf portion.
- The most important nutrients in lettuce are vitamin A and potassium. The vitamin A comes from beta carotene (beta-carotene is converted to vitamin A in the body), whose yellow-orange is hidden by green chlorophyll pigments.

Lettuce can be grown in the ground or in water

FOOD SERVICE RECIPE

BBQ RANCH CHICKEN CHOPPED SALAD

Serves: 100 servings

 Serving Size: $\frac{3}{4}$ c greens mix, 1 $\frac{1}{2}$ oz. chicken

INGREDIENTS

- 9 lbs 6 oz** Romaine Lettuce, chopped *
- 4 lbs 9 oz** Iceberg Lettuce, chopped *
- 9 lbs 8 oz** USDA Chicken diced, thawed, drained ~
- 9 lbs 1 oz** Black Beans, canned, drained ~
- $\frac{1}{2}$ cup** Olive Oil
- 4 tbsps** BBQ Spice, dry
- 1 $\frac{1}{2}$ cups** Ranch Seasoning Mix, dry
- 9 lbs 1 oz** Corn frozen thawed, drained, unheated
- 9 lbs 8 oz** Cherry Tomatoes, halved *

DRESSING:

- 20 oz** Greek Yogurt, plain non-fat
- 26 oz** Low-fat Mayo
- 8 oz** Lite Sour Cream
- $\frac{1}{2}$ cup** Fresh Lime Juice
- 2 qts 1 cup** Low-fat Granola, no fruit
- 4 cups** Cattleman's BBQ Sauce +

FIND THE **RANCH SEASONING MIX & DRY BBQ SPICE** RECIPE ON OUR WEBSITE!

INSTRUCTIONS

1. To make bbq spice, mix all ingredients in a bowl, combining thoroughly. Store in an airtight container or keep in the freezer in a sealable plastic bag. Be sure to label and date!
2. Place chicken in a tote or large bowl. Add oil and toss. Add BBQ spice and toss to distribute well. Place chicken on lined sheet pans and bake at 375°F for approx. 20 minutes, until chicken just begins to brown and internal temperature is 145°F or more for 20 seconds. Remove and cool to 41°F within 4 hours.
3. Combine ranch seasoning mix ingredients in a small bowl. In a separate deep bowl, combine dressing ingredients. Whisk ranch seasoning into the dressing to incorporate. Thin if needed with non-fat milk. Hold at a minimum of 41°F. Dressing is best if used one day after mixing.
4. Toss chopped romaine and iceberg together, put in 12x20x2.5 pans (2 pans for 50 serv., 4 for 100 serv.). Sprinkle black beans, cherry tomatoes and corn over lettuces. Be sure to distribute ingredients evenly!
5. Lay out large boats on sheet pans (50 boats for 50 serv. or 100 boats/serv.). Add 1 cup (approx. 1.7 oz.) of salad mixture to each boat. Be sure to include all toppings. Top with 1 $\frac{1}{2}$ oz cold chicken.
6. Ladle 1 oz dressing over each salad or serve dressing in a 1.5 oz soufflé cup. Hold salads at a minimum of 41°F through service.

NUTRIENTS PER SERVING

Calories 210 | Sodium 401 mg | Vitamin A 4,266 IU | Total Fat 6.1 g | Carbohydrates 25 g | Vitamin C 19.9 mg | Saturated Fat 0.9 g | Dietary Fiber 5.2 g | Calcium 47.3 mg | Trans Fat 0 g | Cholesterol 37 mg | Protein 15.3 g | Iron 1.6 mg

MEAL PATTERN

Provides 1 $\frac{1}{2}$ oz protein, $\frac{1}{4}$ cup alternate protein (or other vegetable), $\frac{1}{2}$ cup (credits as $\frac{1}{4}$ cup) dark green vegetable, $\frac{1}{2}$ cup (credits as $\frac{1}{4}$ cup) red/orange vegetable, $\frac{1}{4}$ cup (credits as $\frac{1}{8}$ cup) other vegetable, and $\frac{1}{4}$ cup starchy vegetable

NOTES

Salad adapted from Peanut Butter & Peppers: <http://www.peanutbutterandpeppers.com/>. Ranch mix adapted from <http://damndelicious.net/>.

+ Cattleman's Memphis BBQ Sauce is a foodservice item available through distributors.
+ Dried buttermilk powder is available at grocery chains, online and at foodservice distributors.

* USDA DOD Item ~ USDA commodity item



SPRING

Lettuces



BOOK LIST

SO YOU WANT TO GROW A SALAD?

BY: BRIDGET HEOS

A young girl wants to grow her own salad, learns where the many ingredients come from, and learns how to grow vegetables. Includes a kid-friendly salad recipe.

This book is best for grades 1–3.

CLASSROOM ACTIVITY

WATER MOVEMENT THROUGH PLANTS

TIME

30 minutes, 3 days

GRADE LEVEL

2nd Grade (Lower Elementary)

OBJECTIVES:

- Students investigate the movement of water through plants
- Students measure liquids
- Students conduct a sensory taste test of romaine lettuce

STANDARDS:

NGSS 2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

NGSS 2-PS1-2: Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

MATERIALS NEEDED

Romaine Lettuce leaves: one bag of whole leaves, and one bag of chopped romaine for tasting

Graduated cylinders or measuring cups (3 per table or group)

Water

Red Food Coloring

INSTRUCTOR STEPS

1. Review with your students the elements that plants need to grow: soil, air, sun, and water.
2. Introduce the concept that water moves through plants through their cells, and different amounts of water influence the taste of the plant.
3. Distribute the chopped romaine. Have students raise their hands to guess what parts of the plant have the most water - the crunchy bottoms or the dark green tops?
4. Distribute the graduated cylinders or measuring cups, along with one whole romaine leaf per student.
5. Create hypotheses: how much water does romaine lettuce use to taste crunchy and soft? How does water flow through the leaf?
6. Have students fill their containers with their estimated amount of water and 1 drop of food dye, then have students track the amount of water used in their workbook.
7. Over the next three days, have students track the water used by the romaine and draw a model of how water flows through the plant - using the food dye as a guide.
8. At the end of the experiment, celebrate with another romaine taste test in whatever form your students think tastes best!

SPRING

Spinach



FUN FACTS ABOUT SPINACH!

Spinach is a cool season crop and belongs to the goose foot family along with Swiss chard and beets. Spinach is a native plant of Persia (modern day Iran). It was introduced to China in the 7th century. It was most probably brought to Europe in about the 12th century and to the U.S. in 1806. Reflecting its origin, spinach is still widely known in China as “the Persian Green”. There are many varieties of spinach, though they mostly fall into three distinct groups: Savoy (Dark green, crinkly and curly leaves. Commonly found in supermarkets.), Flat/smooth leaf spinach (Most commonly used for canned and processed spinach products, though “baby spinach” also fits in this group. Easier to wash and clean than Savoy.), and Semi-savoy (Hybrid variety with slightly crinkled leaves. It has the same texture as savoy, but it is not as difficult to clean.).

“Florentine” is a common part of names of recipes where spinach is a significant ingredient. Florence in Italy was the hometown of Catherine de Medici, a lover of spinach, who married the King of France in the 16th century.

In the 1930’s U.S. spinach growers credited Popeye, a cartoon character, with a 33% increase in domestic spinach consumption—a welcome boost to an industry during the depression era. The spinach growing town of Crystal City, Texas, erected a statue of the cartoon character, Popeye, in 1937.

QUICK NUTRITION FACTS

- Spinach is low in calories, and is a good source of vitamin C, vitamin A and minerals, especially iron.
- Eating spinach is beneficial for maintaining healthy skin, hair and strong bones, as well as helping with digestion, and lowering the risk for heart disease.
- It is one of the best sources of dietary potassium and magnesium, two very important electrolytes necessary for maintaining human health. Spinach has twice the amount of potassium as a banana!

Spinach is a native plant of Persia (modern day Iran)

FOOD SERVICE RECIPE

SPINACH & STRAWBERRIES BALSAMIC SALAD

Serves: 100 servings

Serving Size: 1 ¼ cup

INGREDIENTS

- 2 ½ lbs Sunflower or Pumpkin Seeds
- 6 lbs Cucumbers *
- 6 lbs 8 oz Strawberries, fresh *
- 4 lbs 8 oz Romaine Lettuce, chopped *
- 5 lbs 8 oz Baby Spinach *
- 1 cup Balsamic Vinegar
- 12 tbsps Maple Syrup, real
- 2 tbsps Dijon Mustard
- 3 tsps Garlic Powder
- 2 tsps Salt
- 2 tsps Black Pepper
- 2 cup Vegetable Oil

INSTRUCTIONS

1. Toast seeds in a large skillet, over medium heat stirring often, until beginning to brown. Let cool.
2. Peel cucumbers, cut in half, and then slice ¼ inch thick.
3. Hull strawberries and cut ¼ thick slices.
4. Mix spinach and romaine in a large tub or bowl.
5. Whisk or process (w/steel blade) vinegar, syrup, mustard, garlic pwd, salt and pepper until combined. Slowly add oil in a stream and continue to incorporate for 10-20 seconds.
6. Add strawberries, cucumbers, and seeds to greens. Drizzle dressing, tossing to coat. Serve immediately.

NUTRIENTS PER SERVING

Calories 134 | Sodium 58.74 mg | Vitamin A 4146.15 IU | Total Fat 10.43 g | Carbohydrates 8.56 g
 Vitamin C 26.19 mg | Saturated Fat 1.20 g | Dietary Fiber 2.76 g | Calcium 51.98 mg | Trans Fat 0 g
 Cholesterol 0 mg | Protein 3.72 g | Iron 1.68 mg

MEAL PATTERN

Provides ½ cup dark green vegetable, ¼ cup other vegetable and ¼ cup fruit

NOTES

This recipe was developed by New School Cuisine, featured in the Vermont New School Cuisine Cookbook https://healthymeals.nal.usda.gov/hsmrs/Vermont/EDU-New_School_Cuisine_Cookbook.pdf

* USDA DOD Item

SPRING

Spinach



BOOK LIST

HOW DID THAT GET IN MY LUNCHBOX?: THE STORY OF FOOD

BY: CHRIS BUTTERWORTH

One of the best parts of a young child's day is opening a lunchbox and diving in. But how did that delicious food get there? From planting wheat to mixing dough, climbing trees to machine-squeezing fruit, picking cocoa pods to stirring a vat of melted bliss, here is a clear, engaging look at the steps involved in producing some common foods. Health tips and a peek at basic food groups complete the menu.

This book is best for grades K–2.

CLASSROOM ACTIVITY

SOIL SCIENCE

TIME

1 hour, plus 15 minutes a day

GRADE LEVEL

Grades 1-5

OBJECTIVES:

- Students learn that different types of soil affect plant growth differently
- Students plant spinach and observe plants over time
- Students taste spinach

STANDARDS:

NGSS Topic Area: Interdependent Relationships in Ecosystems.

NGSS Topic Area: Earth's Systems: Processes that Shape the Earth.

MATERIALS NEEDED

Spinach, raw or cooked, prepared for students to taste (with recipe if available). Baby spinach with a vinaigrette is an easy preparation (students could help prepare salad)

Plain raw spinach for passing around to students

Spinach seeds

A pot (for each group of students)

A bag of potting soil

A bag of compost

A bag of collected soil from around the school

Trowels and large bags

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the spinach with your students however you'd like and have them look at the nutrition facts! If the spinach was prepared with a recipe, please distribute to students.
2. Pass around the raw spinach, a bit for each group of students. Have the students think about what it took to grow that spinach. What do plants need to grow? (Soil, sun, air, water).
3. Tell students that soil is important for growing plants, and soil can have different characteristics. Different soils grow plants differently—some better than others.
4. Take a walking tour of outdoor spaces/gardens around your school. Have the students make observations about the soil in each area. What color is it? How hard or soft is it? What's growing in it? Are there different types of soil for different plants?
5. Have students collect soil from the various gardens around the school.
6. In the classroom, have the students make a list of words that could be used to describe soil (or dirt). Examples: soft, moist, cold, hard, gritty, dry, warm, thick, thin, fresh, chunky, etc.
7. Have students go into at least three groups for planting spinach seeds. Have them make a hypothesis about how the soil they choose will impact the growth of their spinach. Try to make sure that one group has a heavy clay soil, one group has a sandy silt soil, and group has a loamy soil. You can mix compost into the collected soil to make it work.
8. Plant the spinach seeds (make sure to water immediately) and either place in a sunny classroom spot, under growing lights, or outside in a sunny area.
9. Every day, have the students water and check on their spinach. Make observations about how the different soils are doing. Is one soil better or worse than the others?



SUMMER

Summer Squash



FUN FACTS ABOUT SUMMER SQUASH!

Summer squashes are believed to be indigenous to Mexico along with South and Central America. Archeological digs have recovered preserved seeds from the summer squashes in Mexican caves that could be well over 10,000 years old! A gourd called spaghetti squash, also called cucuzzi, calabash and sussa melon, is often classified as summer squash but is not a true squash. Only after cooking does the flesh resemble spaghetti in appearance. Summer squash are squashes that are harvested when immature, while the rind is still tender and edible. Did you know you can eat summer squash, like zucchini and crookneck, raw or cooked?

QUICK NUTRITION FACTS

- Varieties of summer squash include chayote, patty pan, yellow crookneck, yellow straightneck and zucchini. Squash is a good source of beta carotene, one of the best antioxidants.
- It is low in calories, fat and sodium and a good source of fiber and potassium.
- Squashes are mostly water, and thus are not a great source of calories. However, they do contain a number of vitamins and minerals such as vitamin A, vitamin C, Calcium, and Iron.

You can eat summer squash raw or cooked

FOOD SERVICE RECIPE

OVEN-FRIED ZUCCHINI STICKS

Serves: 100 servings

Serving Size: ¾ cup zucchini sticks (approx. 2-3 sticks per serving)

INGREDIENTS

- 17 lbs 8 oz** Zucchini, cut into matchsticks *
- 5 lbs** Egg whites
- as needed** Canola OR Olive Oil Cooking Spray
- 2 lbs** Flour, whole wheat ~
- 1 lb** Flour, all purpose ~
- 1 lb** Corn Meal, whole grain yellow
- 1 tbsp** Black Pepper, ground
- 2 tbsps** Basil
- 2 tbsps** Oregano
- 1 tbsp** Ground Red Pepper
- 1 lb** Parmesan Cheese, grated

INSTRUCTIONS

1. This recipe is perfect for utilizing a food processor. You may also go "old school" and rely on your knife skills. Matchstick zucchini using appropriate blades.
2. Preheat oven to 475°F. Cover a large baking sheet with parchment paper, then coat with cooking spray.
3. Combine flours, cornmeal, cheese and seasonings in a large sealable food safe plastic bag. Place egg whites, beaten in a large bowl.
4. Add zucchini sticks to the bowl w/ egg whites tossing to coat.
5. Then drop zucchini sticks into the bag, shake in the bag to coat with flour mixture, and arrange, not touching, on the baking sheet.
6. Bake on the center rack for 10 minutes. Turn the zucchini and spray lightly with cooking spray. Continue to bake until golden and just tender, about 8 to 10 minutes more.
CCP: Heat to 165°F or higher for at least 15 seconds.
7. Serve hot.

NUTRIENTS PER SERVING

Calories 106 | Sodium 116 mg | Vitamin A 217 IU | Total Fat 1.9 g | Carbohydrates 16.5 g
 Vitamin C 13.4 mg | Saturated Fat .9 g | Dietary Fiber 2.5 g | Calcium 69.1 mg | Cholesterol 3.9 mg
 Protein 7.2 g | Iron 1.1 mg

MEAL PATTERN

Provides ½ cup other vegetable, 1 oz grains

NOTES

This recipe was adapted from USDA Mixing Bowl Recipes for Schools and Vermont Farm to School.

* USDA DOD Item ~ USDA commodity item

SUMMER

Summer Squash



BOOK LIST

OH SAY CAN YOU SEED

BY: BONNIE WORTH | ILLUSTRATOR ARISTIDES RUIZ

Quite a lot is packed into this early reader book about flowering plants. Narrated by The Cat in the Hat, the rhyming text and illustrations keep the spirit of Dr. Seuss alive. The text takes complex scientific information and breaks it down into more digestible pieces. Young readers will encounter many new vocabulary words, such as pollen, photosynthesis, carbon dioxide and embryo. With the able assistance of Thing 1 and Thing 2—and a fleet of Rube Goldbergian vehicles—The Cat in the Hat examines the various parts of plants, seeds, and flowers; basic photosynthesis and pollination; and seed dispersal. This book is best for grades K–3.

CLASSROOM ACTIVITY

MAP YOUR SQUASH

TIME

30 minutes

GRADE LEVEL

Grades 3-4

OBJECTIVES:

- Students learn about varieties in types of food
- Students trace the origins of summer squash through the Americas and the world
- Students map how far their squash traveled to get to their classroom

STANDARDS:

SS.G.3.3: Show how the consumption of products connects people to distant places.

SS.G.3.4: Describe some of the current movements of goods, people, jobs, or information to, from, or within Illinois, and explain reasons for the movements.

MATERIALS NEEDED

Summer squash, raw (examples include Zucchini, Crookneck squash, Zephyr squash and Cousa squash)**Summer squash**, cooked and prepared for students to taste (with recipe)**Map of the world** (printable here: https://www.eduplace.com/ss/maps/pdf/world_country.pdf)**Colored pencils****Access to google maps**

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the cooked summer squash with your students however you'd like and have them look at the nutrition facts! If the squash was prepared with a recipe, please distribute to students.
2. Pass around the raw summer squash. If using multiple varieties, please label them!
3. If possible, let the students know where their squashes were grown and have them mark it on the map with a green dot. If not possible, let students know that most store-bought squash (mainly zucchini) sold in the US was not grown in the US. Countries that grow squash for the US include China, Spain, Mexico, and New Zealand. Mark them with a black dot.
4. Either hand out or verbally go over the following directions to fill in the rest of the map:

Squash first grew in Central and South America, in the Andes region.

#1: On your map, color Central America all the way south through the Andes mountains in green.

Native Americans grow squash as a part of the three sisters: corn, squash, and beans.

#2: On your map, color the United States in blue.

There are many different types of squash, and the White Scallop Squash was grown in pre-Columbian times (look at it here: <http://www.rareseeds.com/white-scallop-sq/>).

#3: On your map, draw a brown star where you think Scallop Squash was first grown.

Squash is grown all over the world today. Mexico grows the most squash today.

#4: On your map, color Mexico red to highlight where the most squash comes from
5. Using Google Maps, calculate how far your squash traveled to get to our classroom today and draw the route it took on the map.

NOTES

Adapted from Vermont Harvest of the Month:

http://www.vermontharvestofthemonth.org/uploads/2/8/9/6/28966099/12_winter_squash_lesson.pdf

SUMMER

Cucumbers



FUN FACTS ABOUT CUCUMBERS!

Cucumbers belong to the plant family cucurbitaceae, which includes melons, squash, and pumpkins. Cucumbers originated in India around 3,000 years ago. Cucumbers come in many sizes, shapes, textures, and colors, including white, yellow, and even orange. Two common kinds of cucumbers grown in the U.S. include slicing and pickling. Slicing cucumbers are usually large with a thick skin, while pickling cucumbers are smaller with a thin skin. The biggest cucumber, grown in southern China, was 67 inches long and weighed 154 pounds. Wow!

Have you ever heard of the term “cool as a cucumber”? Did you know it is actually derived from the cucumber’s ability to cool the temperature of the blood? When a slice of cucumber is applied to an injury like a sprain, cucumber really does cool the blood and eases the swelling.

QUICK NUTRITION FACTS

- Cucumbers contain most of the vitamins you need every day! Just one cucumber contains vitamin B1, vitamin B2, vitamin B3, vitamin B5, vitamin B6, folic acid, vitamin C, calcium, iron, magnesium, phosphorus, potassium and zinc.
- Feeling tired in the afternoon? Put down the caffeinated soda and pick up a cucumber. Cucumbers are a good source of B vitamins and carbohydrates that can provide that quick pick-me-up that can last for hours!

Cucumbers originated in India around 3,000 years ago

FOOD SERVICE RECIPE

CHICKEN CAESAR-STYLE SALAD

Serves: 100 servings

Serving Size: 1 salad

INGREDIENTS

- 9 lbs 6 oz** Diced Cooked Chicken, drained ~
- 4 tbsps** Caesar Seasoning
- ½ cup** Olive Oil
- as needed** Non-stick Cooking Spray
- 4 lbs** Whole Wheat Bread, cut into cubes
- 4 lbs 9 oz** Iceberg Lettuce, chopped *
- 9 lbs 6 oz** Romaine Lettuce, chopped *
- 9 lbs 6 oz** Cucumbers, chopped *
- 7 lbs 8 oz** Celery, chopped *
- 3 cups** Parmesan Cheese, grated

DRESSING:

- 2 cups** Lemon Juice
- ½ cup** Dijon Mustard
- ½ cup** Garlic, fresh minced
- 2 tbsps** Black Pepper
- 2 cups** Olive Oil

FIND THE **DRY CAESAR SEASONING MIX** RECIPE ON OUR WEBSITE!

INSTRUCTIONS

1. Place chicken in a tote or large bowl. Add oil and toss. Add Caesar seasoning mix and toss to distribute well. Place chicken on lined sheet pans in a single layer and bake at 375°F for approx 20 minutes, until chicken just begins to brown and internal temperature is 145°F or more for 20 seconds. Remove and cool to 41°F within 4 hours.
2. Coat a full sheet pan with cooking spray. Spread bread cubes evenly, spritz with cooking spray. Bake 10-15 minutes until golden. Cool.
3. Whisk by hand or in a food processor lemon juice, mustard, garlic and pepper until smooth. Add oil in a thin stream to incorporate. Set aside.
4. Place croutons in a large tote and toss with a small drizzle of dressing to coat.
5. Add lettuces and other vegetables, plus the parmesan to the tote. Toss. Add remaining dressing while tossing to coat.
6. Lay out large boats on sheet pans, 50 for 50 servings, 100 for 100. Add 1 cup (approx. 1.7 oz) lettuce mix to each boat. Top with 1 ½ oz chicken. Hold salads at a minimum of 41°F through service.

CCP: Hold salads at a minimum of 41°F through service.

NUTRIENTS PER SERVING

Calories 123 | Sodium 154 mg | Vitamin A 16.9 IU | Total Fat 7.9 g | Carbohydrates 1.6 g
 Vitamin C 2.7 mg | Saturated Fat 1.3 g | Dietary Fiber .2 g | Calcium 41.4 mg | Trans Fat 0 g
 Cholesterol 0 mg | Protein 10.6 g | Iron .2 mg

MEAL PATTERN

Provides 1 ½ oz protein, ½ cup (credits as ¼ cup) dark green vegetable, and ¾ cup other vegetable

NOTES

This recipe was adapted from the Produce for Better Health Foundation’s Fruit & Veggie Quantity Cookbook, Oct 2011, the New Hampshire Obesity Prevention Program

* USDA DOD Item ~ USDA commodity item

SUMMER

Cucumbers



BOOK LIST

CUCUMBER SOUP/ SOPA DE PEPINO

BY: VICKIE LEIGH KRUDWIG

A counting book about a giant cucumber! All the insects in the garden, from ten little black ants down to one tiny flea, get involved in moving a fallen cucumber. Includes a recipe for cucumber soup and factual information about the insects in the story.

This book is best for grades K–1.

CLASSROOM ACTIVITY

FRUIT OR VEGETABLE?

TIME

20 minutes

GRADE LEVEL

Grades 1-5

OBJECTIVES:

- Students learn the difference between culinary foods and horticultural plants
- Students taste cucumbers

STANDARDS:

2-LS4-1: Biological Evolution: Unity and Diversity.

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

MATERIALS NEEDED

Cucumber, raw plain or prepared specially for students to taste (with recipe if available). Thin sliced cucumbers with a tart vinaigrette is an easy preparation (students could help prepare!)

Cucumber for passing around to students

Cucumber seeds

Printed pictures of fruits and vegetables: cucumber, bell pepper, spinach, summer squash, apple, strawberry, peach, pumpkin, green bean. The pictures should be handed out to each student group.

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the cucumber with your students however you'd like and have them look at the nutrition facts! If the cucumber was prepared with a recipe, please distribute to students.
2. Pass around the raw cucumber. Have students think about what it took to grow that cucumber. What do plants need to grow? (Soil, sun, air, water). When are cucumbers in season—meaning when are they harvested and ready to eat? (Summer). When are they planted? (late spring)
3. Tell students that chefs and farmers think about food differently. Chefs think about taste and texture, and (while farmers think about that as well!) farmers think about how plants grow.
4. Create two areas on your board: chefs and farmers. Underneath each area, create two lists: Fruit and Vegetables.
5. Have the students pretend to be chefs. Have them sort their food pictures into Fruit and Veg groups like a chef would.
6. Go through the answers. Chefs call savory food vegetables and sweet foods fruit.
7. Have the students pretend to be farmers. Have them do a first sort.
8. Assess your students' work. If they need extra help, go over a diagram of plant parts to show them that the fruit is the area where the plant makes a seed. Usually comes out of the flower.
9. Have the students sort the foods again. Spinach is a trick question! It's not a fruit—it's a leaf.

NOTES

Answer Key:

Farmer fruit: cucumber, pepper, squash, apple, strawberry, peach, pumpkin, green bean.

Spinach is a leaf and a vegetable.

SUMMER

Sweet Corn



FUN FACTS ABOUT SWEET CORN!

An American staple, corn (called maize in other countries) was first cultivated in Southern Mexico and Central America six to ten thousand years ago. Native Americans taught the European settlers how to grow and prepare corn, including popcorn, which they ate as a breakfast cereal with milk and maple syrup.

In the days of the early settlers to North America corn was so valuable that it was used as money and traded for other products such as meat and furs. Corn is now a completely domesticated plant so you're unlikely to find it growing in the wild. Corn can be produced in various colors including blackish, bluish-gray, purple, green, red, white and the most common yellow.

Corn is a cereal crop that is part of the grass family. An ear or cob of corn is actually part of the flower and an individual kernel is a seed. On average an ear of corn has 800 kernels in 16 rows. Corn will always have an even number of rows on each cob. There is one piece of silk, the long thread-like material tucked inside the husk, for each kernel of corn on an ear.

An ear or cob of corn is actually part of the flower and an individual kernel is a seed

An area termed the "Corn Belt" in the U.S. where growing conditions are ideal includes the states of Iowa, Illinois, Nebraska, Minnesota, Indiana, Ohio, Wisconsin, South Dakota, Michigan, Missouri, Kansas and Kentucky.

QUICK NUTRITION FACTS

- Corn contains good levels of some of the valuable B-complex group of vitamins such as thiamin, niacin, pantothenic acid, folates, riboflavin, and pyridoxine.
- It also contains healthy amounts of some important minerals like zinc, magnesium, copper, iron, and manganese.

FOOD SERVICE RECIPE

LLAPINGACHOS (POTATO CORN PATTIES)

Serves: 100 servings

Serving Size: ½ cup (1 patty)

INGREDIENTS

- 19 lbs kernels only OR 43 med ears** Sweet Corn, fresh husked *
- 11 lbs** Yukon gold potatoes *
- 2 lbs 8 oz** Mozzarella Cheese, part skim, shredded ~
- 2 bunches** Green Onions, thinly sliced
- 1 cup** Parsley, fresh chopped
- 8 tps** Salt
- 1 tsp** Pepper

INSTRUCTIONS

1. For the sweet corn: Bring a large pot of water to boil. Cook corn until just tender, about 8 mins. Drain and let cool.

To cut corn off cobs: stand ear on its flat end on a cutting board. Cut off kernels with a sharp knife moving down ear.
2. Preheat convection oven to 375°F.
3. Scrub the potatoes and place in large pots covered with water. Bring to a boil over high heat, then reduce heat to medium and cook potatoes until tender but not mushy, about an hour. Remove from heat, drain. Rinse the potatoes with cold water to stop them from cooking.
4. Let potatoes cool completely. Put the potatoes in the bowl of the mixer. Using the paddle on low speed, mash the potatoes until nearly smooth, but with some chunks remaining. DO NOT OVERBEAT.
5. Add the corn, cheese, green onions, parsley, salt, and pepper. Mix on low speed until combined. (Be careful! If over mixed, it will become gummy.)

Lightly spray parchment lined baking sheets. Using a #8 scoop, fill each pan with 24 servings, flattening each scoop to form a patty. Bake for 15 minutes or until lightly browned. Keep warm until serving.

CCP: Hold for hot service at 135°F or higher.

NUTRIENTS PER SERVING

Calories 115 | Sodium 260 mg | Vitamin A 153 IU | Total Fat 2 g | Carbohydrates 18 g | Vitamin C 19 mg
Saturated Fat 1 g | Dietary Fiber 2 g | Calcium 87 mg | Cholesterol 6 mg | Protein 1 g | Iron 1 mg

MEAL PATTERN

Provides ½ cup starchy vegetable

NOTES

This recipe was adapted from National Food Service Management Institute on USDA What's Cooking Mixing Bowl Recipes website at: <https://whatscooking.fns.usda.gov/>

* USDA DOD Item ~ USDA commodity item

SUMMER

Sweet Corn



BOOK LIST

THE POPCORN BOOK

BY: TOMIE DEPAOLA

Brothers Tiny and Tony are hungry for a snack, and their mother allows them to make some popcorn. The two boys learn about the history of popcorn in the Americas, how much popcorn is eaten on an annual basis, and methods of popping corn. Two recipes to pop corn are included in this book.

This book is best for the youngest students.

CLASSROOM ACTIVITY

THE THREE SISTERS

TIME

1 hour

GRADE LEVEL

Grades 1-3 (Lower Elementary)

OBJECTIVES:

- Students learn the plants that make up the Three Sisters and why they are important
- Students read a native American legend
- Students learn about healthy soil and healthy food

STANDARDS:

NGSS Topic Area: Interdependent Relationships in Ecosystems.

MATERIALS NEEDED

Sweet corn, prepared for tasting (either raw fresh and plain or prepared as a part of a recipe. Extra fun to use the squash and beans in the recipe, too!)

Raw corn for passing around (if still wrapped in its leaves, have the students shuck the corn it's passed)

Paper and materials for drawing as groups

Scissors and tape

INSTRUCTOR STEPS

1. Have students wash their hands and get ready to eat food. Run a taste test of the corn with your students however you'd like and have them look at the nutrition facts! If the corn dish was prepared with a recipe, please distribute to students.
2. Pass around the raw corn.
3. Tell the students that corn is a very important crop in the Americas and is part of the Three Sisters. Read the Legend of the Three Sisters to your students. You can optionally choose three students to act out the Three Sisters characters. The Legend is found here: <http://gardening.cals.cornell.edu/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/a-legend/>
4. Explain to the students that the Three Sisters plants work together to make healthy soil and healthy food. The Three Sisters supplement and complement each other when grown together. The corn grows tall and supports the tendrils of the bean plants as they grow upward toward the sunshine. The squash plants, which sends shoots with huge leaves across the ground, protects the soil from the drying sunshine and helps the soil beneath to retain moisture so that all three plants may thrive. They all add different nutrients to the soil. Corns, beans, and squash supplement and complement each other when eaten together. It is a healthy, balanced meal.
5. Put your students into three groups. Have each group choose a different 'sister' plant and draw the plant on a large poster board. When they are all done, have the groups cut their plant out and tape them all together as three sisters on a new poster.



SUPPORTERS



USDA Food and Nutrition Service

"This project has been funded at least in part with Federal funds from the U.S. Department of Agriculture. The contents of this publication do not necessarily reflect the view or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government."



The Walter S. Mander Foundation

The Willow Springs Charitable Trust

CORE PARTNER

