



Agriculture & Nutrition Education

Indiana Grown for Schools Network
Farm to School Toolkits

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Introduction

Nutrition and Agriculture are two important topics when it comes to learning about, creating, and maintaining health within a community. Understanding the origins of our food, how it gets to our plates, and the nutrients they contain helps to create informed consumers with foundational habits to consume a diet rich in nourishing foods. Incorporating topics around agriculture and nutrition education into your learning environment can help students learn topics in innovative ways, while aiding in their understanding of life long skills they will need outside of the classroom.



Why It's Important

Food and nutrition education have a critical role in enabling access to sufficient quality and quantity of foods for households and communities. Education for youth can contribute to decreasing rates of childhood nutritional deficiencies and food insecurity. It is important that students receive education about the cultivation and preparation of food and how to connect with food's role in our culture, relationships, history, and environment.



However, this information is often missing within school curricula. Holistic food education can encourage students to develop the critical thinking skills necessary to inform healthy choices by building on the knowledge that students already have about their food. Schools are an ideal setting for the integration of food education into an academic setting, enriching the core curricular areas and further encouraging critical thinking in a manner both tangible and applicable to students' daily lives. Beyond schools, families and communities can play a role in providing food education to young people and supporting classroom-based learning. These foundational lessons can provide children and their families with the tools they need to be active participants in thriving food systems and develop building blocks to make nourishing choices throughout the lifespan.

Getting Support

Deciding to incorporate agriculture and nutrition education concepts into your learning environment is an important first step, but now it is important to gain support from leadership and staff members. In this toolkit we offer multiple strategies for gaining support for your curriculum adjustments, from how to get support and from who, to finding ways to fund more complex projects. Taking the time to build support is essential to ensure your farm to school programming will be able to thrive long term.



Faculty Support

Support from the school's staff and administrators is very important to have a robust agriculture and nutrition program within your learning environment. There may be staff who have significant experience in adapting lessons to meet farm to school pillars, or those who create innovative ways to meet standards. Schools with Ag educators may have a built-in class where these lessons can occur and can assist in embedding these lessons within curricula from various subject areas. For schools without these types of educators, there are many online resources that can provide help incorporating ag and nutrition education into the classroom.

Wellness Policies

Wellness policies are a great way to have written, committed support for ag and nutrition education within your learning environment. Many of the topics that encompass a wellness policy can be connected back to ag and nutrition education or farm to school programming at large. Wellness policies can help build supportive culture around farm to school as leadership changes, and can articulate standards of ag and nutrition education engagement.

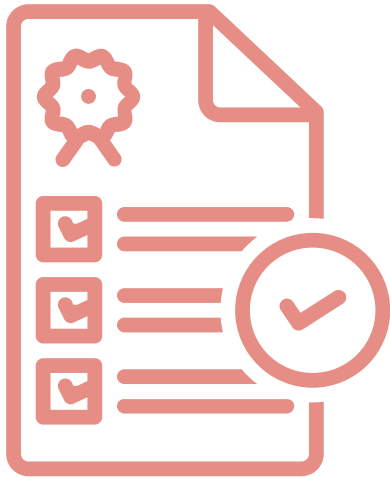
Resources:

This link provides resources from the National Farm to School Network on writing farm to school into your school wellness policy from guides on advocacy, sample language in K-12 settings, and sample language for preschool wellness policies.

<https://www.farmentoschool.org/resources-main/local-school-wellness-policy-resources>

Faculty Support

Linking to Educational Standards



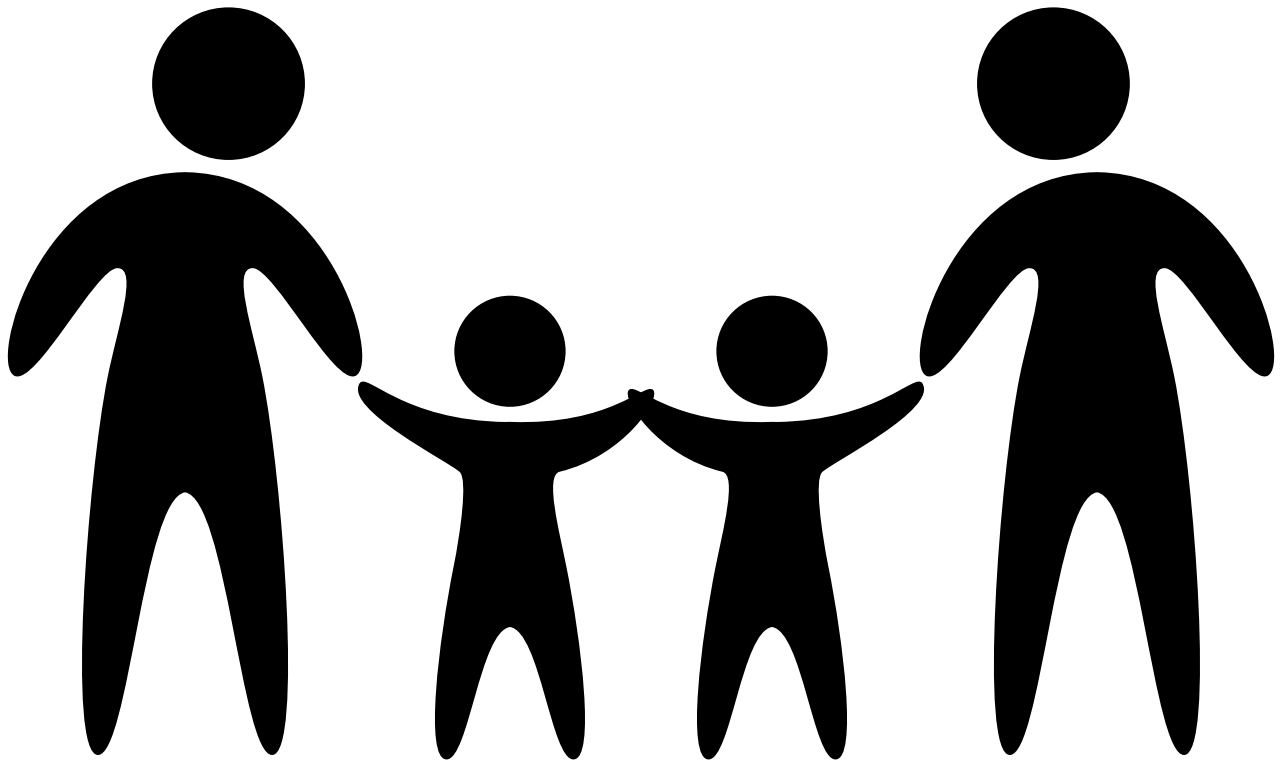
Being able to link ag and nutrition education to curriculum standards is very important. Embedding these lessons within state-level standards can help to build staff and faculty level support for ag and nutrition education. There are many resources, like [Ag in the Classroom](#), that aid in understanding what standards might best be met through different activities. Additionally, thinking about what items can be used to expose students to ag and nutrition education foundations can be a great first step. For example, instead of measuring the side of a paper, a pencil, etc to learn how to read measurements to the appropriate place, students can measure the length of a carrot, the carrot tops, a scallion, etc. With the same item, you can use vocabulary words or writing prompts to describe the item in different ways. In science, you might integrate understanding about the carrot, such as Vitamin K found in carrots is great for your eyes! There are many ways to introduce students to old and new products in simple ways as you begin your journey into ag and nutrition education.

Physical and Mental Health



Ag and nutrition education can be a great way to diversify delivery methods of information while serving the physical and mental health of students. Working with produce in the classroom, interacting with an indoor or outdoor garden space, taking a 5 minute veggie yoga break, etc. can all be ways to enhance learning for students. Serving the physical and mental health of students by teaching ag and nutrition education principles can improve uptake of the information being taught and increase satisfaction with learning environments.

Parent Support



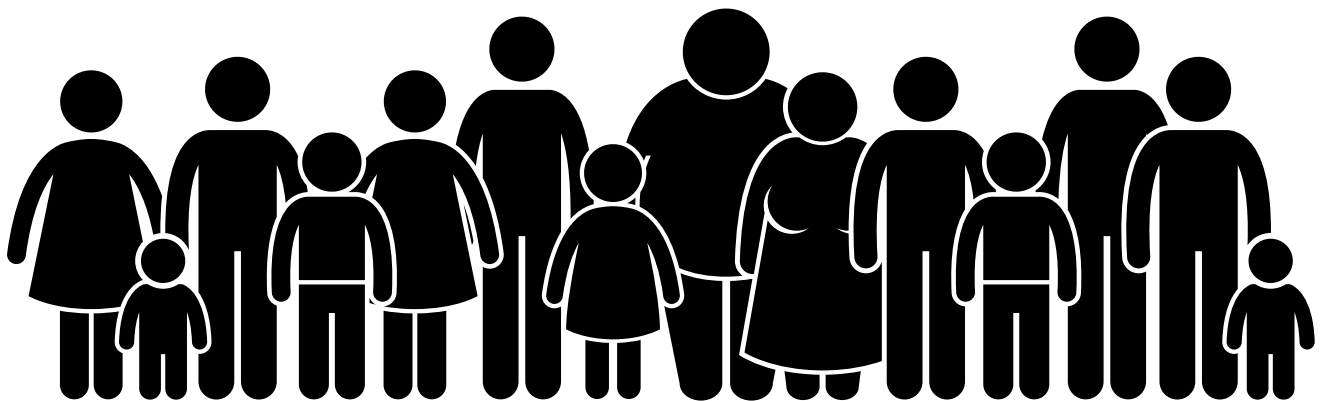
Parents can be incredible advocates for advancing ag and nutrition education principles within the school curriculum. Engaging parents through classroom nights, newsletters, Parent Teacher Organizations, and website postings help to inform them about the new ways their students are learning fundamental educational principles. This engagement can help create and maintain support for the innovation, as well as build community and provide peer learning opportunities. Parents can act as a bridge between the school and community.

Community Support

Community support can come in many different forms, such as general community members, local food councils, master gardeners, local nurseries, or from your county level extension office. Master Gardeners may be able to offer technical assistance, garden expansion or installation assistance, garden maintenance in the summer, class time support, or help with finding garden-based curricula to incorporate into your classroom. Community members and parents may have expertise that can be highlighted in lessons. Local nurseries are a great source of advice and could be utilized for teaching lessons involving plants. Purdue Extension can also offer resources, such as garden lessons, ag and nutrition education lessons, and funding sources. Another place to look for community support is in local food councils. Members of a local food council may have interest in engaging with your school curriculum and can support in a number of ways.

Ideas for Community Engagement

- Get to Know the Farmer
- Partner with Community Organizations
- Fuel Up to Play 60
- Ag Alumni Seed
- Boys & Girls Clubs
- Grown In Gary
- Indiana Agriculture Nutrient Alliance
- The Bloomington Community Orchard
- 4H
- Libraries
- Parks Departments & Summer Programs
- Grocery Stores



Funding and Technical Assistance



Grants

There are many grants available to fund the initiation, continuation, and/or expansion of ag and nutrition education lessons within your learning environment. Whether starting with one small project in one academic unit, or wanting to plant a large learning garden for the entire building, finding funding can be a way to innovate within your learning environment.



Support Organizations

Working with nonprofits and technical assistance organizations can be a great way to include community members and topical experts in the ag and nutrition education movement within your learning environment. These partnerships can take on many different forms, including in-person learning, webinar attendance, resource development, field trips, lesson plans, virtual lesson plans, home activities, and more! The list below is not exhaustive, but can hopefully lead to fruitful partnerships.

Resources

Grants

[No Kid Hungry](#)
[Farm to School Grant Program](#)
[Indiana Farm Bureau](#)
[Indiana Junior Beef Cattle Association](#)
[Indiana SARE](#)
[Indiana Dairy Association](#)
[Specialty Crop Block Program](#)
[United Way](#)
[Spriestersbach Farm Corporation](#)
[Indiana Grant Watch](#)

Support Organizations

<u>FoodCorps</u>	<u>Purdue Extension</u>
<u>Jamie Oliver's Food Revolution</u>	<u>Ag Funder</u>
<u>National Women in Agriculture</u>	<u>Farmished</u>
<u>Just Harvest</u>	<u>FFA</u>
<u>Women Food & Ag Network</u>	<u>4-H</u>
<u>Native Food Systems Resource Center</u>	<u>Big Green</u>
<u>Young Professionals for Agricultural Development</u>	<u>National Agriculture in the Classroom</u>
<u>Real Food Challenge</u>	<u>Growing Places Indy</u>
<u>Real Food Media</u>	<u>Food Coalition of Central Indiana</u>
<u>Slow Food USA</u>	<u>Second Helpings</u>
<u>AgChat Foundation</u>	<u>Black Urban Growers</u>
<u>Spoons Across America</u>	<u>The Townsend Food Project</u>
<u>Change Food</u>	<u>Beyond Pesticides</u>
<u>Indiana Grown for Schools</u>	<u>Nourish Food + Community</u>

AGRICULTURE EDUCATION

chapter one



What is Agricultural Education?

Agriculture education is a program of instruction that aims to teach students about the science, business, and technology of plant and animal production, and the environmental and natural resources systems that support that production. Many modern students, families, and communities possess little understanding of how the foods we eat make their way to our tables. But, one thing is certain, almost everything that we need to survive comes from the process of agriculture.

Today, we know a lot about cultivating safe, nutritious crops and animal products for people to enjoy. Because farming is the main way we get our food, it is important that individuals understand why farmers work, how they work, and how it connects to our daily lives. Educating students on agriculture could help future generations solve and prevent problems, introduce them to a career path they may never have considered, and increase their consumption of nutrient dense foods. Educators can use agriculture education to offer new ways to teach math, English, and social sciences. Students can calculate measurements and analyze how plants grow, develop literacy skills from readings and writings on ag related topics, and engender compassion for others when it comes to understanding how food is consumed and valued in different cultures around the world.



ORANGE COUNTY SUCCESS STORY

by Abby Heidenreich

As generations become more and more removed from farms, the importance of agriculture education in elementary classrooms becomes even more vital. Many states utilize Harvest of the Month curriculum to meet this need, but the curriculum does not currently exist in Indiana. Abby Heidenreich, an Extension Educator in Orange County, designed a curriculum to educate youth about where their food comes from, emphasizing foods grown in Indiana. Youth in elementary classrooms were able to make connections across content areas to recognize the origins of food they see in grocery stores and better understand the processes that exist to move food from farm to their plate. Making healthy choices and choosing locally grown produce is also emphasized in the curriculum, encouraging students to be more aware of their food choices.



This Indiana-specific unit was broken into monthly lessons that each feature a different agricultural product. Lessons followed a template that aligned with state standards for Kindergarten through 5th grade students in the areas of life science, language arts and physical science. Each month, students completed a Life Cycle Worksheet that identified life cycle stages of the featured product that month.

Discussions occurred surrounding the product, how it is grown and how it is harvested. Videos featuring the harvest processes for each product were shown that detailed commercial harvest that ended with delivery to grocery stores. Following the harvest videos, students tasted the product and identified their reaction with either a red/frowning face, a yellow/indifferent face, or a green/happy face. Class reactions were tallied on a chart. Each lesson sparked student-led discussions of how food is grown, how farms work, recipes for each product, and more.

Beginning in August of 2020, Harvest of the Month was implemented in 13 classrooms across 3 elementary schools in Orange County, IN. As the COVID-19 pandemic played havoc with school calendars, e-learning and schools experienced internet connectivity issues, the 4 teachers at one elementary dropped out of the program, leaving 9 classrooms receiving a full year of instruction through Harvest of the Month. Through a follow-up survey sent to the 9 participating teachers, impact was collected through Qualtrics. Of the responses collected, 7 teachers identified the Harvest of the Month lessons as "high quality", "aligning with standards", "appropriate and relevant", and a "valuable addition" to classrooms. 7 teachers also agreed their students had a better understanding of where their food comes from because of Harvest of the Month and tried new foods during lessons.

Most (62.5%) teachers said their students' favorite component of the lessons were the taste tests. When asked explicitly if there were any components missing from Harvest of the Month lessons, three teachers added the comment "no" or "none".

When asked to identify impacts seen in the classroom from Harvest of the Month, a few of the comments included "I saw the students making lots of connections with things that Abby taught to other things we were working on in the classroom.", "They were more open to trying new foods and in turn tried some new unusual activities in my classroom that they may have been too anxious to do before.", "Students talked about the foods tasted and about how they eat them at home, or not.", "I think students got to see more of what the agricultural community is like and what kind of work goes into the food in the stores. I feel that students have a better respect for that now.", and "Some students eat very few vegetables and fruits. My hope is that they share what they've tasted with their families and make better choices at the grocery store."



Resources

National Agriculture in the Classroom: Teacher Center

PreK-12th grade teachers can engage their students with agriculture by using detailed lesson plans, eLearning opportunities, and state resources to strengthen standards in science, social studies, math, and more.

<https://www.agclassroom.org/teacher/>

Growing Minds: Farm to School: Lesson Plans

Fun lesson plans for grades K-12 to help students learn about fruits and vegetables while following the national curriculum.

<https://growing-minds.org/lesson-plans-landing-page/>



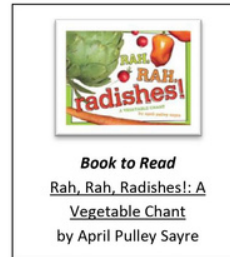
Objectives

- Children gain interest and learn to identify new local fruits and vegetables through making colorful plate spinners.
- Children increase color identification and grouping skills.

NC Foundations for Early Learning and Development

Goals Addressed:

APL-8
HPD-1
LDC-1
CD-1, CD-4, CD-11



Book to Read

[Rah, Rah, Radishes!: A](#)

[Vegetable Chant](#)

by April Pulley Sayre

Free Ag Learning Resources

PreK-12th grade teachers can access free lesson plans and additional resources to engage their students in agricultural education from a variety of curriculum resources.

<https://www.agfoundation.org/free-resources/>

The Sciences of Agriculture

This lesson booklet from Ag in the Classroom includes agriculture activities and lessons students can do to gain a grasp on how agriculture works and the importance of maintaining good nutrition.

<http://www.agintheclassroom.org/TeacherResources/Lesson%20Booklets/The%20Sciences%20of%20Agriculture-2010%20SAI%20Lessons.pdf>

Island Grown Schools Agriculture Curriculum Toolkits

This agriculture toolkit includes lesson plans for grades K-12 based on peak season for specific produce and units such as seeds, soil, nutrition, and cooking.

<http://www.islandgrowschools.org/curriculum-toolkit>

SORT BY	SEASONS	UNITS	BOOK LIST
FALL	WINTER	SPRING	SUMMER

Lessons

Stone Soup (<http://www.islandgrowschools.org/media/documents/stone-soup.pdf>)

Rainbow Scavenger Hunt
(<http://www.islandgrowschools.org/media/documents/Rainbow-Scavenger-Hunt.pdf>)

Garden Observations
(<http://www.islandgrowschools.org/media/documents/Garden-Observation.pdf>)

Planting Garlic
(<http://www.islandgrowschools.org/media/documents/Planting-Garlic.pdf>)

Putting the Garden to Bed
(<http://www.islandgrowschools.org/media/documents/Putting-the-Garden-to-Bed.pdf>)

Growing Classroom Pea Shoots
(<http://www.islandgrowschools.org/media/documents/Growing-Classroom-Pea-Shoots.pdf>)

What We Eat (<http://www.islandgrowschools.org/media/documents/What-We-Eat.pdf>)

Sustainable Agriculture: Lesson Plans

Teachers are able to view free lesson plans to help their students learn what sustainable agriculture is and its economics, environment, production, and social impact.

<https://www.agfoundation.org/sustainability/>

Agriculture Lesson Plans

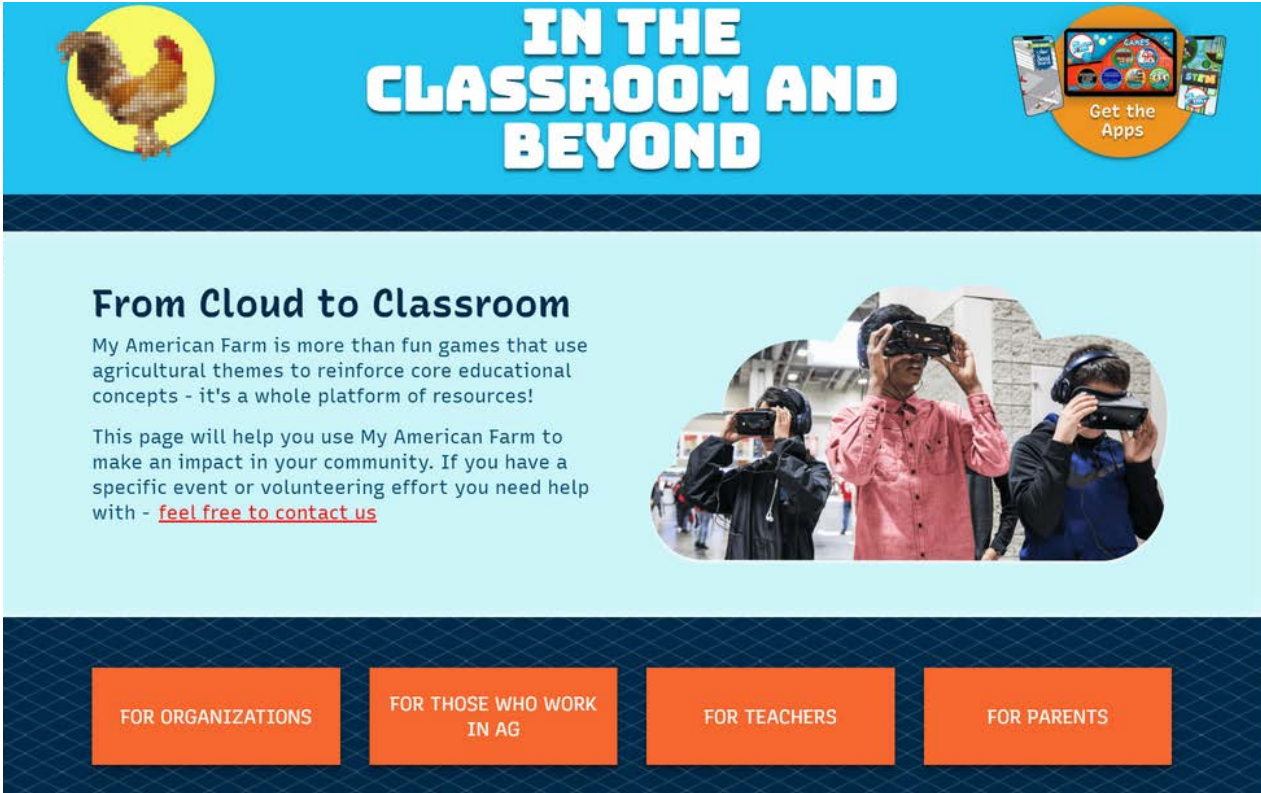
This resource includes numerous lessons for all grade levels to give students the opportunity to learn about agriculture in various subject areas such as nutrition, math, and language arts.

<https://faitc.org/lessons>

My American Farm | Agricultural Games and Educational Resources

Students Pre-K-5 are able to learn about various agriculture topics through interactive, free games.

<http://www.myamericanfarm.org/>



IN THE CLASSROOM AND BEYOND

From Cloud to Classroom

My American Farm is more than fun games that use agricultural themes to reinforce core educational concepts - it's a whole platform of resources!

This page will help you use My American Farm to make an impact in your community. If you have a specific event or volunteering effort you need help with - [feel free to contact us](#)

FOR ORGANIZATIONS FOR THOSE WHO WORK IN AG FOR TEACHERS FOR PARENTS

AG-in-a-Bag AGtivities that Teach

Supported by Indiana Farm Bureau, AG-in-a-Bag is a suite of activities related to agricultural topics. Each activity has a grade level designation, Indiana curriculum standards met, time needed, materials needed, instructions, and related literacy materials all laid out for you.

https://www.infarmbureau.org/docs/default-source/document-library/aitc/activity-books/agtivities-that-teach---ag-in-a-bag.pdf?sfvrsn=5a79e9e8_2

The logo for Pilot Light Food Education Standards features the text "PILOT LIGHT FOOD EDUCATION STANDARDS" in white and light blue on a dark blue background. A stylized flame icon is positioned above the word "LIGHT".

PILOT LIGHT FOOD EDUCATION STANDARDS

Pilot Light Food Education Standards

This Illinois-based resource connected health, nutrition, and agricultural education to Illinois learning standards and activities that can be done to fulfill them. While this resource points directly at Illinois learning standards, it can be helpful in identifying the Indiana learning standards that this resource meets.

http://pilotlightchefs.org/wp-content/uploads/2018/09/PL_FES_2018.pdf

Agricultural Activities for Every Classroom

This booklet contains 94 cross-curricular agriculture-related activities. Each and every activity celebrates Hoosier farmers and the food, fiber and fuel they grow for families right here in Indiana and around the world.

https://www.infarmbureau.org/docs/default-source/document-library/aitc/activity-books/agricultural-activities-for-the-every-classroom.pdf?sfvrsn=5b79e9e8_2

38. Graphing the Melting Times

Instruct students to graph the melting time results for three different locations. Why is there a difference in the melting times? Then, students can read the *Illinois AITC Water Ag Mag* online to learn more about ice's melting point. Ask students: How does melting and freezing relate to weather? Why do farmers care about the weather?

39. Egg Hunt

Compile a list of 100 poultry facts from the *Poultry Ag Mag* or *Terra Nova Reader*. Fill 100 plastic eggs with a different poultry fact. Place eggs around the room or around the school. Invite students to go on an egg hunt. Once all 100 eggs are collected count aloud as a class to make sure you have found all of the eggs. Give each student a *Poultry Ag Mag* or *Terra Nova Reader*. Each student will use a highlighter to highlight their poultry fact from their plastic eggs in their ag mag. Have students share each fact they found with the rest of the class.

40. What Would You Share on the 100th Day of School?

Read *Henry's 100 Days of Kindergarten* by Nancy Carlson. Ask students what 100 things they would bring to share on the 100th Day of School.

41. Four Seasons

After reading *Henry's 100 Days of Kindergarten* by Nancy Carlson write the four different seasons on the board. Talk about each season and have students share what they know about that season. Brainstorm with students to come up with 25 activities to do for each season. Your students will then have a list of 100 ideas for the school year.

Farm Food 360

Interactive website where individuals are able to take online farm and food tours (Canada-based).

<https://www.farmfood360.ca/>

Virtual Farm Trips

Teachers are able to give their students a field trip experience, without ever leaving the room! Students will have the experience of viewing live virtual farm field trips through live and recorded streaming- find the calendar of tours at the link below.

<https://virtualfarmtrips.com/>

The screenshot shows the homepage of the Virtual Farm Trips website. At the top, there is a navigation bar with links for Home, Trips, Archive, Partners, Pricing, About, and Contact. Below the navigation bar, a green banner reads "Click links below to view recorded Virtual Farm Trips you can share with your students". The main content area is divided into three columns: "Virtual Farm Trips to Ohio Pig Farms", "Virtual Farm Trips to Ohio Beef Farms", and "Virtual Farm Trips to Northeast Dairies". Each column features a large video player with a play button and a "Next" button. Below the video players, there is a grid of smaller video thumbnails, each with a title and a date. The titles include "LIVE Virtual Field Trip to an Ohio Pig Farm for Middle-High School Students", "LIVE Virtual Field Trip to an Ohio Pig Farm for Elementary School Students", "LIVE Virtual Field Trip to an Ohio Pig Farm for Elementary School Students", "LIVE Virtual Field Trip to The Ohio State University Meat Laboratory", "LIVE Virtual Field Trip to Maplecrest Farms To Discuss Genetics", "LIVE Virtual Field Trip to a Cow-Calf Farm - Oct. 1, 2020", "Virtual Farm Trip to a North East Dairy - ELVI Farms - 10/26/18", "Virtual Farm Trip to a North East Dairy Farm - Cow Comfort Inn Dairy - 11/24/18", "Virtual Farm Tour to a North East Dairy - Cow Comfort Inn Dairy - 11/24/18", "LIVE Virtual Field Trip to an Ohio Pig Farm for Middle-High School Students", "LIVE Virtual Field Trip to an Ohio Pig Farm for Elementary School Students", "Keeping Pigs Safe and Warm in the Winter! - Live Virtual Field Trip to an Ohio Pig", "Ohio Meat Science Virtual Field Trip for Middle/High School Students", "Virtual Field Trip to an Ohio Beef Feedlot - Don Stikkel - 10/16/19 - 1 p.m.", "Virtual Field Trip to an Ohio Beef Feedlot - Stikkel Farm - 10/18/19 - 10 a.m.", "Virtual Farm Tour to a North East Dairy - ELVI Farms - 10/26/18", "Virtual Farm Tour of a North East Dairy Farm - ELVI Farms, LLC - 3/22/19", and "Virtual Farm Tour to a North East Dairy - Dutch Hollow Farm - 3/29/19".

Illinois Specialty Crop Card Series

Informational cards that include facts about common crops, nutritional values of foods, cooking information, and the best storage tips.

<https://thelandconnection.org/resource/illinois-specialty-crop-card-series/>

Education Homepage | Keep Indianapolis Beautiful, Inc.

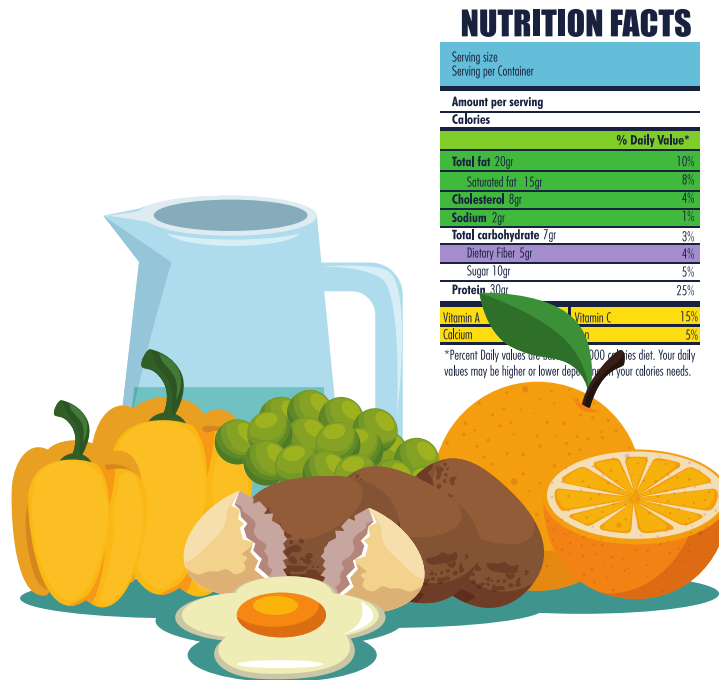
Individuals are able to learn how the Indianapolis community increases the knowledge and skills of their residents when it comes to agriculture for both adults and kids through learning opportunities, activities, and guest speaker programming.

<https://www.kibi.org/education-homepage>

NUTRITION EDUCATION

chapter two





What is Nutrition Education?

Nutrition education is a vital part of a comprehensive health education program and empowers children with knowledge and skills to make healthy food and beverage choices. Nutrition education can be defined as any set of learning experiences designed to facilitate the voluntary adoption of eating and other nutrition-related behaviors conducive to health and well-being. When individuals have a better understanding of nutrition, they experience a lowered risk of chronic diseases such as diabetes and hypertension. Good nutrition is also related to a strengthened immune system, which can provide greater protection from infectious diseases such as cold and flu.

Because educators face many demands, schools can consider ways to integrate nutrition education into the existing schedule. Learning environments can include nutrition education throughout the day using a variety of strategies.

- **In the classroom** - Nutrition education can take place in the classroom, either through a stand-alone health education class or integrated into other subjects.
- **Farm to School** - Farm to school activities help students learn about nutrition and agriculture, try new foods, and consume more fruits and vegetables.
- **School Gardens** - School garden programs can increase students' nutrition knowledge, improve willingness to try new things, and positively impact attitudes towards fruits and vegetables.



- **In the cafeteria** - Cafeterias are learning labs where students are exposed to new foods and balanced meals. Cafeteria staff and teaching monitors are a great resource to encourage students to try new foods and consume all food groups.



- **Other Settings During the School Day** - Messaging about nutrition and nourishment can be incorporated into announcements, assemblies, posters, materials sent home, etc.

Below is a library of resources that can help you implement nutrition education strategies into your learning environment in the way that makes the most sense for your community.

Resources

Opportunities for Nutrition Education in US Schools

This infographic describes the different ways to incorporate nutrition education in schools through weaving into existing programming and activities.

https://www.cdc.gov/healthyschools/nutrition/pdf/308155-A_FS_SchoolNutritionEd-508.pdf



Introduction for Teachers

The U.S. Department of Agriculture is providing this Teacher's Edition of the **Discover MyPlate Emergent Readers** to assist educators in using the readers as part of their English Language Arts instruction. The six **Discover MyPlate Emergent Readers** are included in this full-size, color booklet. Many teachers find it helpful to use this **Teacher's Edition** to introduce the individual readers to students, reading the text aloud as students follow along with their own mini-books/visual aid. It can also be useful as a visual aid in discussing the stories with students, pointing out sight words, and giving instruction (such as where students should write their names in the booklets). Please note that readers feature simpler food terms than those used throughout the curriculum in order to facilitate independent reading. For instance, "meat" is used instead of "hamburger."

If you would like to use the text in the readers as part of cut-apart word and sentence or pocket chart activities, you can download the reader text at <http://teamnutrition.usda.gov>. The student versions of the readers are smaller (for little hands) and include black-and-white drawings that children can color.

The **Emergent Readers** are used as part of the **Discover MyPlate Curriculum** (available at <http://teamnutrition.usda.gov>). Use the "Readers-at-a-Glance" table below as a quick reference for how to integrate these readers into your teaching.

Reader Title	Sight Words	Discover MyPlate Lesson Connection	Summary
Fruits	the, is, eat, are, I	Lessons 1, 3, and 5	Explores colors and foods in the Fruit Group.
Vegetables	I, have	Lessons 1 and 3	Explores foods in the Vegetable Group.
Grains	I, like	Lessons 1 and 5	Explores foods in the Grains Group.
Protein Foods	I, see	Lesson 1	Explores foods in the Protein Foods Group.
Dairy	has, make, she, can, likes, and	Lessons 1 and 5	Explores foods in the Dairy Group and where they come from.
A MyPlate Meal	I, she, he, we, has, have	Lessons 2 and 6	Explores how foods from each food group form a MyPlate meal.

Nutrition Recommendations and Guidelines Curriculum and Activities

Discover MyPlate: Nutrition Education for Kindergarten | USDA-FNS
 Kindergarten teachers can meet education standards for Math, Science, English Language Arts, and Health using the 6 ready-to-go and interactive nutrition lessons.

<https://www.fns.usda.gov/tn/discover-myplate-nutrition-education-kindergarten#anchor1>

Serving Up MyPlate: A Yummy Curriculum | USDA-FNS

Serving Up MyPlate is a collection of classroom materials that helps elementary school teachers (grades 1-6) integrate nutrition education into Math, Science, English Language Arts, and Health.

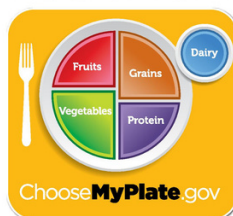
<https://www.fns.usda.gov/tn/serving-myplate-yummy-curriculum>

What's for Dinner? Healthier Choices Made Easier

Vary your protein foods. Include beans and peas at dinner at least once a week.



- Dairy** fat-free milk, low-fat cheddar cheese
- Fruits** kiwi, strawberries, bananas
- Vegetables** onions, carrots, corn, red bell pepper, sweet potato, tomatoes
- Grains** cornbread
- Protein** black beans



Eat your colors. Offer dark-green, red, or orange vegetables at dinner.



- Dairy** fat-free milk, Parmesan cheese
- Fruits** peaches
- Vegetables** broccoli, tomato sauce
- Grains** whole-wheat pasta
- Protein** lean (90% or leaner) ground beef

Make half your grains whole grains. They are good for your heart and digestion and can help you maintain a healthy weight and good overall health.



- Dairy** fat-free milk
- Fruits** orange slices
- Vegetables** red and green cabbage, leaf lettuce, carrots, tomatoes
- Grains** whole-wheat tortilla
- Protein** baked fish (or chicken)

Tips for Families With School-Age Children

Make half your plate fruits and vegetables—on a budget

- Fresh, frozen, and canned fruits and vegetables are all smart choices. Look for sales and buy some of each to last until your next shopping trip.
- Choose frozen vegetables that do not have added fat, salt, or sugars.
- Buy canned fruits packed in "100% juice" or water.
- Look for canned vegetables that say "No added salt."

Start every day the whole-grain way

- Serve whole-grain versions of cereal, bread, or pancakes at breakfast.
- Whole grains with more fiber will help your kids feel fuller longer so they stay alert in school.
- Choose foods with "100% whole wheat" or "100% whole grains" on the label. Or check the ingredient list to see if the word "whole" is before the first ingredient listed (for example, whole-wheat flour). If it is, it's whole grain.

Milk matters

- Children of every age, and adults too, need the calcium, protein, and vitamin D found in milk for strong bones, teeth, and muscles.
- Drink fat-free or low-fat (1%) milk at meals.
 - If you're lactose intolerant, try lactose-free or lactose-reduced milk or calcium-fortified soy beverages.

Strong bodies need strong bones. Offer fat-free or low-fat (1%) milk at meals.



- Dairy** fat-free milk
- Fruits** pineapple
- Vegetables** green lettuce salad, carrots, tomatoes, green onions
- Grains** brown rice
- Protein** pork trimmed of fat (or skinless chicken breast)

Grow It, Try It, Like It! Nutrition Education Kit featuring MyPlate

This seven book resource helps kids learn about various fruits and vegetables while exposing them to basic culinary skills, different tastes, and beginner gardening skills.

<https://www.fns.usda.gov/tn/grow-it>

Fueling My Healthy Life | USDA-FNS

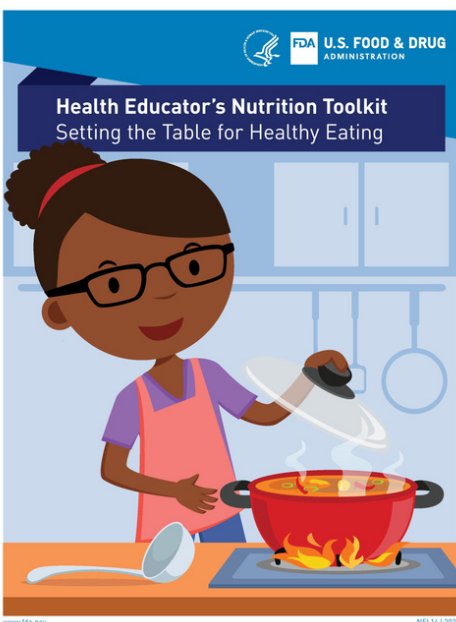
Use project-based learning and technology to engage 6th graders in nutrition education while meeting educational standards for English and Health in this Start Smart with Breakfast lesson.

<https://www.fns.usda.gov/tn/fueling-my-healthy-life>

The New Nutrition Facts Label

This contains resources, activities, and curriculum for youth, youth educators, and older adults explaining the new nutrition facts label.

<https://www.fda.gov/food/food-labeling-nutrition/nutrition-education-resources-materials>



Tips for Making Healthy Choices While Food Shopping

Healthy eating starts at the grocery store, so it's important to make nutritious choices. Here are some tips to help you shop smart.

Use the **Nutrition Facts label** to compare foods and find what's right for you. Choose items higher in dietary fiber, vitamins, and minerals, and lower in saturated fat, *trans* fat, sodium, and added sugars.

- **Check the serving size** when comparing calories and nutrients in different food products. The nutrition information listed on the Nutrition Facts label is based on the serving size listed on the label, which is usually one serving. Some containers have two columns with one column listing the nutrition information per serving and the other column listing the nutrition information for the entire package.
- Balance calories in and out. A total intake of 2,000 calories a day is used as a general guide for nutrition advice. Your calorie needs may be higher or lower and vary depending on your age, sex, and physical activity level. You can find your personal daily calorie needs at <https://www.fda.gov/downloads/Food/LabelingNutrition/UCM606203.pdf>.
- Look at the **%DV** to choose products that are higher in nutrients you want to get more of—like dietary fiber, vitamin D, calcium, iron, and potassium—and lower in nutrients you want to get less of—like saturated fat, *trans* fat, sodium, and added sugars.
- Eat before you shop. Grocery shopping hungry can lead to impulse buying and unhealthy food choices.
- Use fresh vegetables and fruits that are in season. They are easy to get, have more flavor, and are usually less expensive.
- Try canned or frozen fruits and vegetables. Canned and frozen items may be less expensive than fresh. For canned items, choose fruit canned in 100% fruit juice without added sugars and vegetables with "low sodium" or "no salt added" on the label. For frozen items, look for vegetables without sauce or seasoning, which can contain added sodium.

www.fda.gov NFL11 | 2020

Nutrition and Health

Edible Schoolyard Project

A resource library of lesson plans and activities related to food, nutrition and health.

<https://edibleschoolyard.org/resource-search>

Schools Resources | Winners Drink Milk!

This provides a great resource for the nutritional benefits of dairy, Fuel up to Play 60, MyPlate, and classroom activities and curriculum.



<https://winnersdrinkmilk.com/schools/resources/>

Action for Healthy Kids: NourishEd Toolkit

Action for Healthy Kids provides programming and resources to create healthier schools by bringing all the members of a school community together and equipping them with the tools and resources they need to make change happen.

<https://www.actionforhealthykids.org/nutrition-toolkit/>



National Nutrition Month Toolkit

To celebrate National Nutrition Month in March, this toolkit provides handouts, games, activities, and tip sheets for school leaders, educators, parents, and students.

https://www.eatright.org/food/resources/national-nutrition-month/toolkit?rdType=list_redirect&rdProj=nnm_redirects&rdInfo=nnm_listing_page

Eating Well for Good Health: Lessons on Nutrition and Healthy Diets

This lesson guide helps individuals learn what it means to be healthy and the factors that go into maintaining that.

<http://www.fao.org/3/i3261e/i3261e.pdf>

Kids | Food Hero

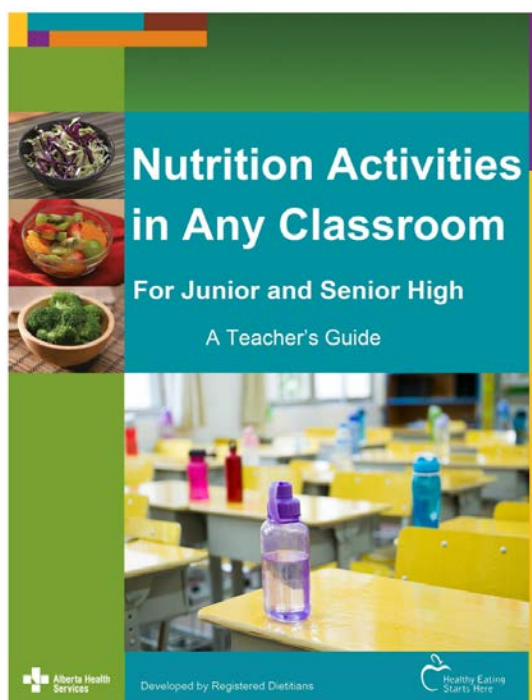
A variety of food activities, curriculum, recipes, produce facts, and gardening resources for kids to use to learn about factors of nutritious eating.

<https://foodhero.org/kids>

Nutrition Activities for Any Classroom: For Junior and Senior High

This teacher's guide from Canada helps to create a fun and educational learning environment for junior and senior high students to learn various topics in nutrition.

<https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-nutrition-activities-classroom.pdf>



Food Detective Worksheet

- 1) What claims does the supplement, product, or diet make?
- 2) Use this checklist to help you spot inaccurate nutrition information.

Question	Yes	No
Do they promise a quick fix or does it sound too good to be true?		
Are they trying to sell you products or supplements?		
Do they promote any unhealthy habits? (examples: skipping meals, restricting food groups, "cleansing" supplements)		
Do they provide information based on personal stories or testimonials rather than on facts?		
Is their promise or claim based on one single study?		
<i>If you answer yes to any of the above questions, the information you have found may not be true.</i>		
Is the information provided by a RD (Registered Dietitian) or PDt (Professional Dietitian) or a government health institution (Health Canada) or professional organization (Dietitians of Canada)?		
<i>If you answer no to the last question, the information may not be true</i>		

- 3) Would you use this product, supplement, or diet? Why or why not?

Remember: If it sounds too good to be true it probably is! There are no quick fixes or magic products when it comes to health. A healthy diet does not have to be complicated and you do not need to buy expensive supplements, health products, or follow restrictive fad diets to be healthy.

Food Safety and Science

Food Safety A to Z Reference Guide

This food safety reference guide can be used as a reference to teach food safety information that meet nutrition standards. This reference does not include lesson plans, but does lay out information in an engaging way.

<https://www.fda.gov/media/90663/download>

Science and Our Food Supply | FDA

This resource contains full curriculum guides for middle and high school students on food safety, nutrition, agriculture and biotechnology.

<https://www.fda.gov/food/students-teachers/science-and-our-food-supply>



MODULE 1: UNDERSTANDING BACTERIA

THE BIG PICTURE

INTRODUCTION

As students walk in, be cooking a hamburger to entice their senses. Other options are to post a large picture of the food in a conspicuous place, use food models, or dress up as a waiter/waitress. You can wear an apron and have a pad and a pen readily available for taking your students' "orders." As the students come in, let them comment on the food. Don't give them an explanation. Let the atmosphere stimulate their curiosity.

"May I take your order"

- Walk up to one student and ask: *May I take your order, please? How do you like your hamburger? What would you like on your salad?*
- Take 2 or 3 more orders and write them down. Then ask students (if they haven't already asked you): *What do you think the hamburger, orange juice, and salad have to do with science?*
- List their answers on the board, then ask: *Which of these foods would you most like to eat? Is there anything that might be on the hamburger, in the orange juice, or in the salad that you didn't order?*
- You may have to give them a few hints. Hopefully, someone will mention bacteria or germs. Then say: *Aha! You have your first clue to the connection between these foods and science!*
- Now ask: *Have you or has anyone you know ever become ill from eating food? Encourage students to explain when? what? and where? How could you get sick from a hamburger, orange juice, or a salad? (You can get sick if harmful bacteria are present in the food. This is called "foodborne illness," sometimes referred to as "food poisoning.")*

PROCEDURE

1. Use the following exercise to emphasize how prevalent foodborne illness is and to help students realize the seriousness of this issue and how it relates to them.
 - Ask students: *How many of you have been affected by foodborne illness?* Write that number on the board.
 - Now compute the percentage of the class who think they've had foodborne illness.
 - Using that percentage, ask the class to estimate the number of students in the entire school who might have had foodborne illness. (Note: Tell the students that this is only an assumption, and not an actual survey. This information is simply being discussed to help the students relate to the statistics that you are about to give them.)
 - Present this information on the board:
Foodborne illness in the U.S. (2010 estimates):
 - 48 million illnesses
 - 128,000 hospitalizations
 - 3,000 deaths*Centers for Disease Control and Prevention*
 - As of February 2014, there were approximately 317.5 million people in America. [For the latest U.S. population count according to the U.S. Census Bureau population clock, check www.census.gov/popclock.]

Ask the students to calculate the percent of the U.S. population that would be affected if 48 million people were to become sick due to foodborne illness. Discuss the students' reactions to this percentage and have them relate it to the percentage calculated for the class. Then, reiterate the importance of studying food safety to prevent foodborne illness.

2. Let the students form the following 3 teams — hamburger, orange juice, and salad. Then ask: *How do you think the hamburger, orange juice, or salad got to you?* Let them brainstorm for about 10 minutes and have them list their ideas. This exercise provides the segue for introducing the Farm-to-Table Continuum.
3. Show students the Food Safety Farm-to-Table Continuum illustration. Let them cross-check their lists with the Continuum. Tell them that they may include even more steps, and that's good!
4. Now ask: *Whose responsibility is it to keep this hamburger, orange juice, and salad safe from harmful bacteria?* Hopefully, the students will come to the conclusion that it's everyone's responsibility, including their own once the food is in their possession. Discuss the reasons we all play a role in protecting our food supply.

Nutrition and Mental Health

Action for Healthy Kids: ConnectEd Toolkit

English and Spanish K-12th grade lesson plans for teachers that promote healthy eating ideas, outdoor activities, and mindful exercises.

<https://www.actionforhealthykids.org/game-on-activity-library/>

Kaiser Permanente Thriving Schools: “Explore Employee Well-Being: School Employee”

Multiple resources for school employees and staff to help promote overall good health through healthy eating, physical activity, and social and emotional well-being.

<https://thrivingschools.kaiserpermanente.org/school-employees/>

Overview

With patience and creativity, children can learn more about the science behind food and nutrition by experimenting in the kitchen. Explore answers to questions such as, “what is baking soda and why is it important?” “how do our taste buds work?” and “how can we make simple recipes even healthier by using ingredients of similar consistency?”. Experimenting in the kitchen provides children with the opportunity to practice problem solving skills while naturally becoming more in-tune with their food!

Take Action

Bubble Up with Baking Soda

If you’ve ever made banana bread or a birthday cake, you’ve probably used baking soda. Have you ever forgotten to include the baking soda and found your bread or cake flat, deflated, and looking more like a pancake? Baking soda adds fluff and volume to cakes and breads through a chemical reaction by interacting with acidic ingredients to produce carbon dioxide gas - creating tiny bubbles of CO₂! Bubble up with a baking soda science experiment to explore the properties and importance of using baking soda as a rising agent.

Rainbow POP

Materials:

- Water

Culinary Education and Healthy Recipes

A vital component of a holistic approach to nutrition education is a focus on developing basic cooking skills. Listed below are resources to guide lessons and conversations around cooking nourishing meals.

Recipe Resources

Healthy Eating Resources - University of Southern Indiana

Educational videos individuals can use to learn about healthy eating habits and practices.

<https://www.usi.edu/health/food-and-nutrition/healthy-eating-resources/>

Eat, Gather, Go- Purdue University Extension

SNAP-Ed approved database of easy, family friendly recipes.

<https://www.eatgathergo.org/recipes/>

FoodLink - Purdue Extension

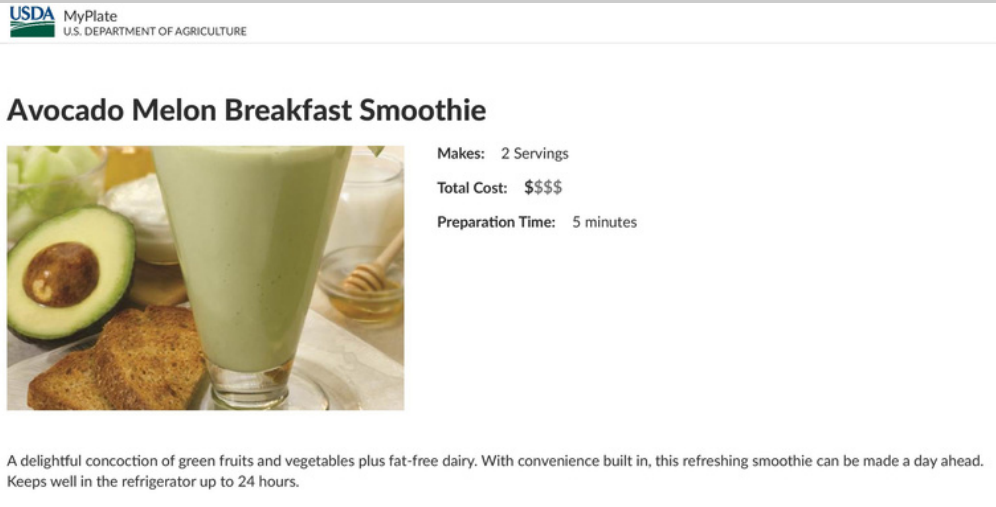
Information about various fruits and vegetables that explain their nutritional value, how to prepare, and recipes.

<https://extension.purdue.edu/foodlink/>

My Plate Recipes

This is a recipe source for all meals of the day from different cuisines.

<https://www.myplate.gov/myplate-kitchen/recipes>



USDA MyPlate
U.S. DEPARTMENT OF AGRICULTURE

Avocado Melon Breakfast Smoothie

Makes: 2 Servings
Total Cost: \$\$\$\$
Preparation Time: 5 minutes

A delightful concoction of green fruits and vegetables plus fat-free dairy. With convenience built in, this refreshing smoothie can be made a day ahead. Keeps well in the refrigerator up to 24 hours.

Budget Bytes - Delicious Recipes Designed for Small Budgets

Filling and healthy recipes that are created to help you stay on a budget.

<https://www.budgetbytes.com/>

Fun Family Recipes, Eat Right, NHLBI, NIH

Easy and healthy recipes that the whole family can make and enjoy.

<https://www.nhlbi.nih.gov/health/educational/wecan/eat-right/fun-family-recipes.htm>

Keep the Beat Recipes: Deliciously Healthy Dinners

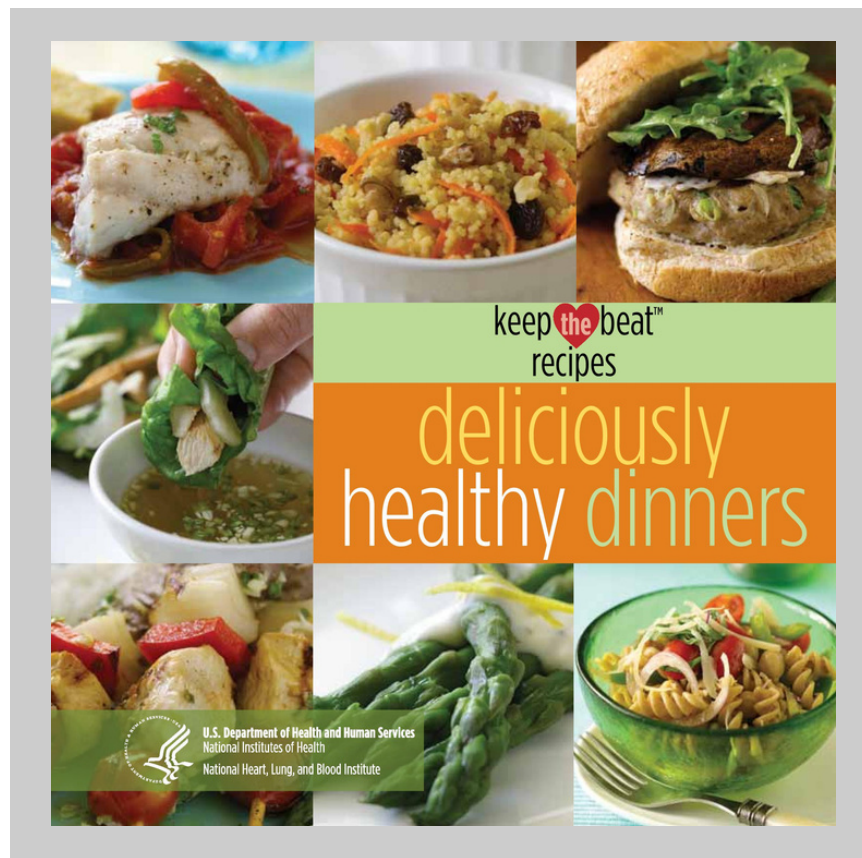
75 good-for-the-heart recipes influenced by Asian, Latino, Mediterranean, and American cuisine.

https://healthyeating.nhlbi.nih.gov/pdfs/Dinners_Cookbook_508-compliant.pdf

Super Healthy Kids - Healthy. Happy. Kids. One healthy habit at a time! Quick and healthy meals like dinner, snacks, and breakfast

Collections of recipes, meal planning, and parent resources to help promote healthy living for children.

<https://www.superhealthykids.com/>



Culinary Education Resources

Cooking with Kids (Cooking Lessons Grades K-5)

How-to videos in English and Spanish meant to teach individuals about basic culinary skills.

<https://cookingwithkids.org/resources/how-to-videos-english/>



Safe and Nutritious Tips for Cooking at Home

A video guide for food safety educators to teach individuals about maintaining a safe and nutritious environment at home.

https://www.youtube.com/watch?v=EzZ_rl4GFSU

Culinary Arts: Curriculum Documents and Resources

Culinary curriculum with downloadable presentations to help facilitate culinary lessons

<https://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Knife-Skills.aspx>

Young Chefs - From Cooking to Science

Culinary and science curriculum that helps improve students' relationship with physical and life sciences while gaining useful culinary skills.

<https://youngchefsprogram.org/about-us/mission/>

Exploring Food Together: Teacher Guide

This guide teaches children about food identification, purchasing, preparation, origins, and culture.

http://cookingmatters.org/sites/default/files/EFT_English.pdf



Food Safety Resources

The Core Four Practices

These short, but informational food safety fact sheets include the four core practices of cleaning, separating, cooking, and chilling foods.

<https://www.fightbac.org/food-safety-basics/the-core-four-practices/#clean>

USDA Food Safety Coloring Book

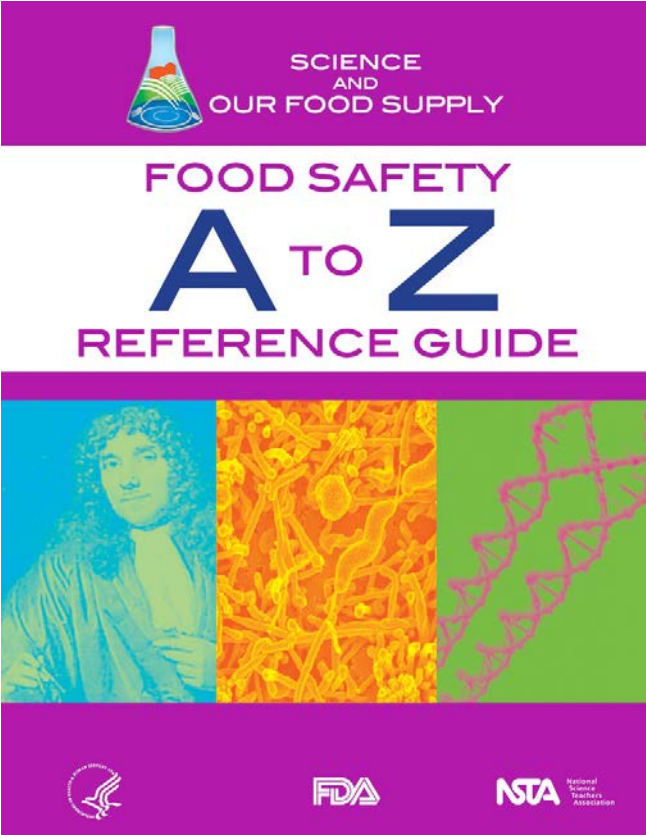
This printable coloring book can be used as a fun activity to teach kids food safety through cleaning, separating, chilling, and cooking foods.

https://www.wichealth.org/Uploads/Resources/Mobile_Coloring_Book10262010105435PM63.pdf

Food Safety A to Z Reference Guide

This food safety reference guide can be used to teach food safety information that meet nutrition standards. This reference does not include lesson plans, but does lay out information in an engaging way.

<https://www.fda.gov/media/90663/download>



SCIENCE AND OUR FOOD SUPPLY

FOOD SAFETY A TO Z REFERENCE GUIDE

F **Food Science**
The discipline in which biology, physical sciences, and engineering are used to study the nature of foods, the causes of their deterioration, and the principles underlying food processing.

Food Technology
The application of food science to the selection, preservation, processing, packaging, distribution, and the use of safe, nutritious, and wholesome food.

Food Thermometer
A special device that measures the internal temperature of cooked foods, such as meat, poultry, and any combination dishes to ensure that a safe temperature is reached.

Four Steps to Food Safety (also known as 4 Cs of Food Safety)
The Fight BAC™ Campaign's 4 food safety messages for preventing foodborne illness. (Also see Fight BAC™ Campaign.)

- 1. Clean** — Wash hands, kitchen utensils, and surfaces with hot, soapy water before and after handling food.
- 2. Combat Cross-Contamination** — Separate raw meat, poultry, and seafood from ready-to-eat foods. Don't cross-contaminate.
- 3. Cook** — Cook foods to safe internal temperatures. Keep hot foods hot. Use a food thermometer to check. (See the "Apply the Heat" chart on page 58 for safe internal cooking temperatures.)
- 4. Chill** — Refrigerate foods promptly. Keep cold foods cold. (See the "Refrigerator and Freezer Storage Chart" on page 70 for proper food-quality storage times.)

Note: For more detailed tips, see the 4 Cs section beginning on page 52.

CLEAN Wash hands and surfaces often.	SEPARATE Don't cross-contaminate.
CHILL Refrigerate promptly.	COOK Cook to proper temperature.

Freezer Gel (see Cold Pack)

DID YOU KNOW?
Around 1925, Clarence Birdseye of Gloucester, MA, introduced a wide range of frozen foods for the home. His process consisted of the rapid freezing of packaged food between 2 refrigerated metal plates. Though Birdseye did not develop the first frozen foods, his freezing process was a highly efficient one that preserved the original taste of a variety of foods, including fish, fruits, and vegetables.
Clarence Birdseye (1886 – 1956)

Frozen foods have been sold since the 1920s. At first, the main products were vegetables, but later new foods, like fish sticks, were specially developed for freezing.

FDA **NSTA** National Science Teachers Association



Safe and Nutritious Tips for Cooking at Home

A video guide for food safety educators to instruct individuals on maintaining a safe and nutritious environment at home.

https://www.youtube.com/watch?v=EzZ_rI4GFSU

Scrub Club

With this resource, kids 3 to 8 years old are able to learn how to wash their hands effectively through activities.

<https://scrubclub.org/>

Partnership for Food Safety Education: Curricula and Programs

Downloadable curriculum for grades PreK-12 regarding food safety.

<https://www.fightbac.org/kidsfoodsafety/curricula-and-programs/>

Creating Safe Recipes

Duration: 30 minutes
Grades: 6 to 8

Lesson Plan

National Health Education Standards

- 1.8.8 Examine the likelihood of injury or illness if engaging in unhealthy behaviors.
- 1.8.9 Examine the potential seriousness of injury or illness if engaging in unhealthy behaviors.
- 7.8.2 Demonstrate healthy practices and behaviors that will maintain or improve the health of self and others.
- 7.8.3 Demonstrate behaviors to avoid or reduce health risks to self and others.

National Science Education Standards

- MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms

Learning Objectives

- Students will analyze the risk and health consequences of foodborne illnesses associated with specific food products and behaviors
- Students will create a recipe that includes instruction for safe food handling, preparation, and storage

Background Knowledge

Research shows that when cooks use recipes with basic food safety information, their food safety behaviors improve. The Safe Recipe Style Guide shows simple edits to boost food safety in any recipe. It focuses on the main areas of food safety problems in homes: temperature, handwashing, cross contamination, and produce. Wording of the Style Guide was chosen by experts to be effective for home cooking.

Studies have shown that most home cooks do not wash their hands properly. When food safety instructions are included in a recipe, handwashing increases from 59% to 90%. Using a food thermometer to check for a safe temperature is also important. Including these instructions raises food thermometer use from 20% to 86%.

Brief Summary of Activity

Students will be given a list of resources for food safety and meal preparation. They will then choose one of five provided recipes without safety instructions and spend 15 minutes making corrections to improve the recipe's safety. Safe versions of the recipes, based on the Safe Recipe Style Guide, are at the end of this packet. Finally, they will take an online quiz on the safety of their recipe and make the recommended changes.

Materials

- Computer or tablet with document editing (i.e. Microsoft Word) and internet connection
- Activity sheet with food safety resources, instructions, and recipes without safety instructions

Meal Planning and Budget Resources



Meal Planning and Budgeting (Life Skills)

Grocery shopping tips, healthy recipes & snacks presented by a dietitian.

<https://youtu.be/mIWEAAEfE60>

SNAP-Ed Meal Planning, Shopping, and Budgeting

Tips, tricks, and resources to help make meal planning, shopping and budgeting a breeze.

<https://snaped.fns.usda.gov/nutrition-education/nutrition-education-materials/meal-planning-shopping-and-budgeting>

Meal Planning Made Easy: Teaching Kids How to Start (3rd-5th Grade Lessons)

A resource for children to develop meal planning and budgeting skills.

<https://www.choosefifoundation.org/Meal-Planning-for-the-3rd-5th-Grade-Learner>

budget calendar

Writing down how much money you make and how much money you spend will help you stretch your SNAP dollars and pay your bills on time. This handout will show you how to do that.

INSTRUCTIONS

- Using the blank calendar, find your payday. Write the amount you get paid on that day and circle it.

If you need help, look at the completed calendar below. We've included it as an example. If you look at it, you'll see that this household gets income from two sources: 1) SNAP benefits and 2) working a job.

They get \$300 a month in SNAP benefits on the 3rd. Their employer pays them every other week. So on the 5th and the 19th, their take-home pay is \$420. This equals \$1,140 of income for the whole month.

- Next, write down your household bills on the blank calendar on the day of the month they're due.

Again, if you look at the completed calendar, you see that the household bought groceries on the 3rd and the 16th. They listed their other bills (car payment, cable and gas) on the days when they're due.

- See how much money you have left.

On the completed calendar, if you subtract the household's expenses from their income, you'll see they have \$20 left at the end of the month.

This exercise is a great way to make sure your income can cover your expenses. Try completing a new budget calendar every month, and stretch your food dollars!

budget calendar						
Months:						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	Rent \$300	2	3 SNAP \$300	4	5 Take-home pay \$420	6
7	8 Car payment \$150	9	10 Groceries \$200	11	12 Gas for car \$25	13
14	15 Insurance \$20	16 Cable/Internet \$30	17 Groceries \$100	18 Electric \$60	19 Take-home pay \$420	20 Gas for car \$25
21	22 Gas \$120	23 Water/Sewer \$20	24	25	26 Gas for car \$25	27
28	29	30	31			

PURDUE NUTRITION EDUCATION EXTENSION PROGRAM
 Find more great tips, recipes and videos at eatgathergo.org

Budget Friendly Foods to Keep in Your Home

Having canned, dried, and other shelf-stable food items at home can ease concerns over running out of food due to finances or if you can't get to the grocery store. These nutritious foods taste great and provide a sense of well-being to those who are looking to stretch their food dollars or want to be prepared for emergencies. Studies show nutritional content of canned foods is similar to cooked, fresh, and frozen varieties, and they provide needed vitamins and nutrients to our diet.

Shelf-stable foods are able to survive long periods of time on shelves without spoiling. Unopened and in their sealed containers or packaging, these items can be kept in the pantry and do not need refrigeration. Most shelf-stable foods can be found in the canned food section of the grocery store and, dried items, like fruits, or baked items like crackers, cereals and granola, are also shelf-stable. Some foods, like canned meats, fruits, and vegetables, will need refrigeration for any leftover amounts.

Whether you choose canned, fresh, or frozen options, be sure to read the label. Some canned or frozen foods can be higher in sodium or sugar. When possible, choose options that are whole grain, low in sodium, and have no added sugar.

Budget friendly, shelf-stable food examples:

Proteins: Beans, lentils, peas - all either dried or canned, peanut butter, canned tuna, salmon, chicken and other meats, peanuts and other tree nuts

Dairy: powdered milk, shelf-stable milk, canned evaporated milk, and some cheeses

Grains: rice, couscous, quinoa, tortillas, and pastas, crackers, cornmeal, wheat flours

Fruits and vegetables: Anything canned is a great option. Ideas for dried fruits include raisins, apricots, prunes, and unsweetened applesauce.

Eggs: They are versatile, an excellent and economical source of protein, and eggs remain fresh in the refrigerator for at least one month.



PURDUE UNIVERSITY

Extension NUTRITION EDUCATION PROGRAM

Visit Us Online at eatgathergo.org

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FOOD SYSTEMS

chapter three



What is a Food System?



A food system involves every mechanism and step along the supply chain that is necessary to produce edible food. It is all the people, processes, and places involved with moving food from the seed that the farmer plants to your school's cafeteria lunch line. The food system is a complex web of activities involving production, processing, transport, and consumption. Issues concerning the food system include the governance and economics of food production, its sustainability, the degree to which we waste food, how food production affects the natural environment and the impact of food on individual and population health⁵.

When approaching nutrition and agriculture education, it is essential for educators to provide a framework for students to understand how complex forces interact to create the environments in which we live and eat. Local, regional, national, and global food systems influence the choices that are available and the ways that individuals and communities consider food and eating.

Resources



Food Systems Thinker

Educational resources where students and adults can learn about food systems for a better understanding of where their food comes from and what they can do to help sustain it.

<https://oomloom.wixsite.com/foodsystemsthinker>

Food System Curriculum - Johns Hopkins University

This free, downloadable curriculum provides high school students with a deep understanding of critical food system issues, empowers them to make healthy and responsible food choices, and encourages them to become advocates for food system change.

<https://www.foodspan.org/>

Food Systems- InTeGrate

This resource helps students describe which food systems contribute to major areas and how these systems are connected.

https://serc.carleton.edu/integrate/teaching_materials/food_supply/module10.html

Food Waste Curriculum

This food waste resource includes educational units to teach topics in food waste impacting the environment, natural resources, and more.

<https://ag.purdue.edu/extension/nature/Pages/Food-Waste-Lesson-Plans.aspx>

Discovering Our Food System

This curriculum was written to provide youth ages 12-18 with insight on how to engage with food systems, including the food in their communities.

<https://gardening.cals.cornell.edu/lessons/curricula/discovering-our-food-system/>

Hunger and Food Security

Hunger and food security lesson plans to teach students how different federal and community structures in our food systems work.

https://static1.squarespace.com/static/55808440e4b05e2c40bdb1d0/t/56254eebe4b0808b4bac2db4/1445285611406/Hunger_and_Food_Security-Lesson.pdf



1960s: Hunger in America

- Hunger in America again came under scrutiny in the late 1960s, after a series of investigations in the rural South reported evidence of widespread hunger.
- These were followed by the award-winning CBS News documentary, *Hunger in America*, which drew further attention to domestic hunger.
 - Although famed journalist Edward R. Murrow had died of lung cancer before work on *Hunger in America* began, the documentary followed his model of rigorous, fact-based journalism. In Murrow's words, "To be persuasive we must be believable; to be believable we must be credible; to be credible we must be truthful."
 - How well does journalism today abide by this principle?

Good Laws, Good Food: Putting Local Food Policy to Work for Our Communities

This Harvard Food Law and Policy Clinic resource explains in great detail ways to change a community's local food system.

<http://www.chlpi.org/wp-content/uploads/2013/12/FINAL-LOCAL-TOOLKIT2.pdf>

HANDS ON APPLICATIONS

chapter four



Ideas for Hands On Activities

One of the most effective ways to introduce new topics to students is through hands-on learning opportunities. In nutrition and agriculture education, educators can promote gardening, taste testing, cooking lessons, farm field trips, and more! These activities provide fun and engaging experiences for students to learn about food.



School garden programs can increase students' nutrition and food knowledge, willingness to try fruits and vegetables, and develop positive attitudes about different types of food. Produce from school gardens can be incorporated into school meals and taste tests. Educators can use the garden to teach lessons in math, science, history, and language arts.



Taste tests provide children with opportunities to learn more about new foods in a fun and relaxing setting and encourages them to step out of their comfort zone by opening up to new or unfamiliar foods. This method also provides an entry point for educators to introduce learning concepts around nutrition, agriculture, science, diverse cultural perspectives, and the social dimensions of food and eating.

Hands-on **cooking lessons** provide students with an application-based companion to culinary education and lessons about healthy eating and cooking. Cooking lessons can benefit students in a variety of ways. It encourages skill building, an adventurous palate, exploration with senses, and confidence and autonomy with food.

Farm field trips can provide countless learning opportunities for students of all ages. The more that learners can touch, smell, and taste the things they are learning about, the more deeply they will understand and remember these lessons.

SUCCESS STORY: GROWING WITH OUR TOWER GARDEN

by Amanda Lyons, Dietitian

We thought about getting a Tower Garden for several years, and this year No Kid Hungry helped make our dream a reality. We purchased a Tower Garden and used it in one of our third-grade classrooms at Stout Field Elementary. The students were responsible for planting seeds, watering the seedlings, planting them in the tower, and caring for the plants as they grew. The classroom teacher taught a lesson on seed planting day to discuss what we were planting and how different plants are used in everyday cooking. They also learned about plants and what they need to grow.



Once the plants were ready to be harvested, we had a class taste testing. The students were each able to harvest plants off of the tower garden, and everyone had the opportunity to taste each plant. They were so excited and surprisingly willing to try new things. We went around the classroom and talked about our favorite, least favorite, and what surprised us the most. The kids loved the peppermint and lettuce, and liked the arugula the least because it was so spicy! This was an amazing experience, and surprisingly easy to maintain. We are planning to use the tower garden next year with our STEM teacher so that more students are able to participate. We are hoping to keep the garden in the cafeteria for everyone to see.

Resources

Taste Testing

Host a Taste Test


Great ideas, tips, and resources for taste testing new foods with kids.

<https://www.actionforhealthykids.org/activity/host-a-taste-test/>

Kids Food Critic Activity

Taste testing worksheet for use in multiple settings, such as the classroom, cafeteria, or even at home.

https://myplate-prod.azureedge.net/sites/default/files/2020-12/Food_Critic_508.pdf



United States Department of Agriculture

KIDS FOOD CRITIC ACTIVITY

Let kids select a new fruit, vegetable, or recipe to sample. Have them taste the food and rate it based on visual appeal, smell, taste, and texture using a scale of 1 to 5 where 5 is the best.

DRAW FOOD HERE!

	1	2	3	4	5
Visual Appeal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smell	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taste	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Texture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

TOTAL: _____

TOTAL SCORE

😞

😊

😄

Serve it again?



YES NO

FOR EXTRA FUN:

- Have kids choose and prepare foods and have friends, siblings, or parents sample and rate them.
- Present 3 new recipes to sample and compare them.

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Home Grown: Taste Test Guide

This is a guide with step by step instructions on how to prepare for and conduct a taste test with students.

<https://dpi.wi.gov/sites/default/files/imce/team-nutrition/pdf/homegrown-taste-test-guide.pdf>

Garden Lessons

School Gardens Toolkit: Indiana Grown for Schools Network

A how-to gardening guide for starting, expanding, and diversifying your school garden and its uses.

<https://www.ingrown4schools.com/links/school-gardens-toolkit>

Grow It, Try It, Like It! Nutrition Education Kit Featuring MyPlate | USDA-FNS

Full teaching guide on several different fruits and vegetables, including hands-on activities (how to grow and taste it) as well as educational activities.

<https://www.fns.usda.gov/tn/grow-it>

Dig, Plant, Grow! A Guide to Planning Your Own Garden Curriculum

A gardening guide to help individuals become acquainted with the aspects of gardening through various activities that can be completed at home or in the classroom.

http://www.farmtoschool.org/Resources/dig_plant_grow.pdf

Learn, Grow, Eat & Go! – Junior Master Gardener

A 10 week lesson plan that guides parents, teachers, and extension staff to growing their own garden, recipe ideas, and physical activity ideas.

<https://jmgkids.us/lgeg/>



The Great Garden Detective Adventure: A Standards-Based Gardening Nutrition Curriculum for Grades 3 and 4 | USDA-FNS

This eleven-lesson curriculum for 3rd and 4th graders includes bulletin board materials, veggie dice, fruit and vegetable flash cards, and ten issues of Garden Detective News for parents/caregivers.

<https://www.fns.usda.gov/tn/great-garden-detective-adventure>

Kids Gardening

Garden based activities and lesson plans creating the opportunity for kids to learn and grow through gardening.

<https://kidsgardening.org/>

Goldleaf Hydroponics

A local and global community store that extends their resources educating children and adults about sustainable agriculture.

<https://www.goldleafhydroponics.com/about-goldleaf-hydroponics/>



Classroom Resources – Big Green

K-12 resources, lessons, and activities to help successfully integrate a school garden into the classroom.

<https://biggreen.org/edresources/classroom-resources/>

TEACHING IN YOUR LEARNING GARDEN

Back-Pocket Activities

Guess the Veggie 20 Questions (5-10 minutes)

- Have a student or the teacher think of a vegetable. The rest of the students must ask up to 20 yes or no questions to figure out the vegetable. For example: "Is it a root?" "Is it green?" "Do you eat it in a salad?"

Memory Game (5-10 minutes)

- Students form a circle. Student 1 names a veggie based on predetermined criteria (random veggie, "veggies" that are fruits, favorite veggie, leaf veggie). Student 2 must name Student 1's veggie and come up with their own. Continue down the line. If a student forgets a veggie, other students can give clues ("it is red!" "it grows in the summer!").

Turn and Talk or Think-Pair-Share (10-15 minutes)

- Give students a topic to brainstorm (stems that we eat, parts of a plant) or a question to answer (Why do veggies taste different from each other? What is the best way to cook a carrot?). In partners or groups, give them a few minutes to share their brainstorms and then have each pair or group present their answer(s) to the rest of the class.

Plant Dance (space required; 5-10 minutes)

- Students stand arms-length apart from each other with their feet, the roots, remaining still. Teacher demonstrates the growth of a plant: crouch (seed), stand up straight (stem), put one and two arms out (leaves), sway and dance (photosynthesis), and jump up off the ground (harvest). Variations include moving slowly (no sun), watering (only grow after being watered), wilting (nighttime), and more.

Jokes and Riddles (prep required; 5-10 minutes)

- Write a few jokes and/or riddles on notecards. One student should read the first part of the

Harvest of the Month: Apples - Indiana Grown For Schools Hub

Educational video opportunity to learn about common produce and how they are grown, harvested, cleaned, and packaged in Indiana.

<https://www.youtube.com/watch?v=OEI2o6eGJlc>

Afterschool Agriculture

Afterschool Agriculture promotes agricultural literacy among young people during out-of-school time while developing their understanding, appreciation and application of science through a variety of hands-on agriculturally based activities.

<https://4-h.org/parents/curriculum/afterschool-agriculture/>

Field Trips

Guide to Farm Field Trips

A guide for farmers and educators to facilitate learning during farm field trips.

https://sustainable-farming.rutgers.edu/wp-content/uploads/2014/09/Children_Farm_Field-Trips_Farmer-Teacher_Guide_NC.pdf

Making the Farm Connection: A Guide to Field Trips for Farmers

Community Alliance with Family Farmers (CAFF) created this guide to help farmers and farm educators plan and implement successful farm visits for students.

<https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/0/4074/files/2014/06/MakingtheFarmConnection-zc6hjg.pdf>

PRE-TRIP CLASS VISIT: PREPPING THE STUDENTS

We recommend a visit to meet the students and teachers in the classroom before the field trip. This gives the farm a chance to communicate expectations, set rules and prepare students for their visit. Of course, this isn't always possible and a teacher packet can accomplish similar things, though not nearly as effectively. In-class visits are also a convenient time to button up any last minute details with the teacher. Students should be informed about where the farm is, what to bring/wear, rules of conduct and the importance of our local farms. A pre-trip class visit can last between 20-45 minutes depending on the class availability and what topics need to be covered. Below is a list of things CAFF usually covers with the students and teachers we will be taking out on farm field trips.

Presentation to Class:

- **Questions to ask students:** Who has been on a farm? What kind of things do you find on a farm? Make the food connection: What do you eat that comes from a farm?
- **Explain where the farm is and what is it like--** Let students ask questions.
- **Go over the expectations and rules on the farm:**
 - Rule #1 – Watch your feet!* That means not running, and most importantly watch where you are stepping. Show students the proper way to walk through rows and fields to minimize damage to the farm's crops.
 - Rule #2 – Pay attention!* That means using all of our senses to listen to instructions, use our eyes and ears to explore the farm, and keep an eye out for potential dangers. Listen to the chaperones and the farm guides. Listen to the farm and the sounds you may not usually hear if you live in a city.
 - Rule #3 – Respect!* Students need to understand that farms are places where people live and make their livelihood. Harvesting and tasting things with out permission, damaging crops, or not listening to instructions is disrespectful. It is important that they respect each other, their chaperones, instructors, the farm & farmer on their trip.

What to bring and wear:

- Sunscreen and hat
- Close toed shoes that can get dirty
- Water bottle
- Rain gear (if rain is likely)
- Layers of clothing for changing weather

Optional:

- Notebooks, art paper, pencil/pen
- A bag lunch (minimal waste) if eating on the farm

Things to go over with the teacher:

- **Name Tags:** Either give the teacher blank name tags during this visit or request that the school provide them for the trip.
- **Lunch:** Will the students make it back to school in time for lunch? If not, have the teacher make arrangements with the cafeteria to pack out lunches, and remind students about sack lunches for the trip.
- **Photo Waivers:** If pictures of students will be used, parents must give permission first. See section three of this manual for a mock waiver to send home with students.
- **Any Extras:** Double check on transportation arrangements and exchange "day-of" contact numbers.

The Hayride: A Resource for Educational Farm Field Trips

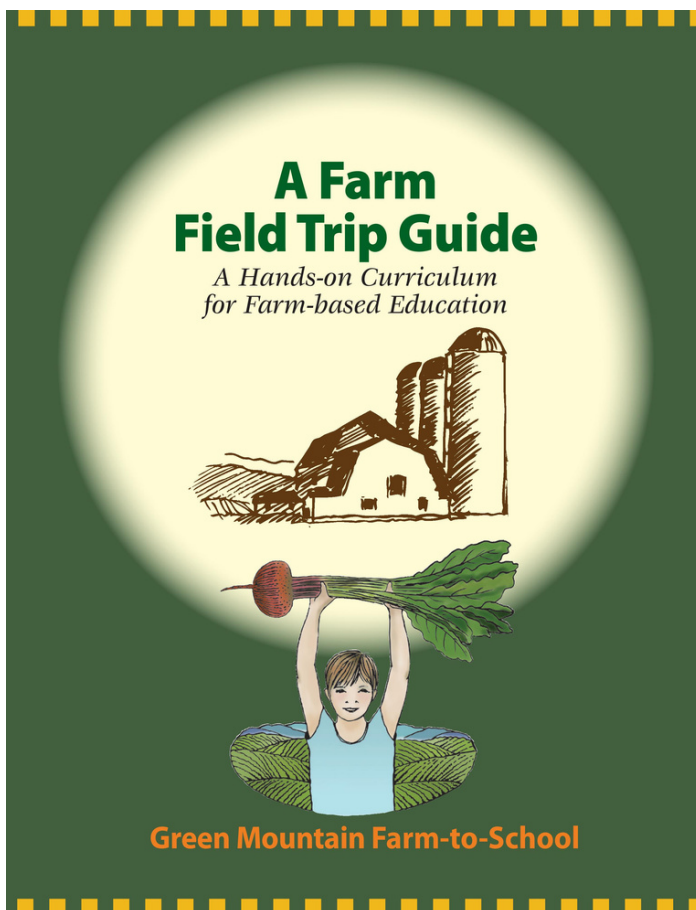
Created by the Appalachian Sustainable Agriculture Project, this guide will be helpful for teachers and others who are planning to take students to visit a farm.

<https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/0/4074/files/2014/06/the-hayride-a-resource-for-educational-farm-field-trips-21a3o5q.pdf>

A Farm Field Trip Guide: A Hands-on Curriculum for Farm-Based Education

This resource provides trip tips for farmers and teachers, lesson plans appropriate for different kinds of farms, and forms to use in planning a trip.

<https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/0/4074/files/2014/06/GMFTS-Farm-Field-Trip-Guide-20121-2jpsrpd.pdf>



Farm Field Trip Guide

Dairy

Meet The Farmer
10 minutes

Greeting: Have students stand in a circle and introduce themselves to the farmer. Ask the farmer to briefly say something about their farm.

Today's Plan: Tell the students what they will be doing today: "We will be touring the farm, helping the farmer with a milking chore, and exploring cow products."

Tour of Farm and Milking Demonstration
60 minutes

Kids get a tour of the cows' living space, food source, the milking stalls, and milking room.

1. Have the farmer give a tour of the farm and facilities.
2. A few great places to see: pasture, calving pen, cow barn, grain/hay storage, and the milk storage.
3. After the tour is completed, students are brought to the milking parlor for the milking demonstration.
4. Instruct students that cows drop their milk when they are calm, so everyone needs to be quiet and calm as well.
5. Introduce students to the milking process. Information to include would be how much milk a cow can produce and how many cows are milked per day.
6. Use your hands to show the students what milking by hand looks like. Use one hand as the udder which gets milked by the other hand. Have all students practice on their own hands.
7. The farmer will give a short demonstration of milking a cow by hand or by machine.

8. When he is finished, a few lucky students can try their hand at milking, closely helped by the farmer.
9. If applicable at the farm, allow students to compare the two milking methods: hand versus machine. The farmer could explain the pros and cons of each system to the students.

Reflect: How easy do you think it is to milk a cow?

Dress Up a Cow
10 minutes

Students learn about the different parts of a dairy cow by dressing up as a cow.

Materials needed: black felt circles (spots), pink felt (stomach), 2 socks (hooves), headband with cardboard or felt ears, bottom of a milk jug with four baby bottle tops glued on (udder), sandpaper strip glued to pink felt (tongue), and a large bag to store items in


1. Ask the students to imagine what the animals look like. What makes them unique?
2. Pick a volunteer from the class or the teacher and have them stand by you, so everyone can see them. (Whisper in your volunteer's ear to ask permission to dress them up.) Explain to the class that they are going to help you turn their volunteer into a cow. Maintain a no touching/harassing the cow volunteer rule to respect privacy.
3. Ask the students for suggestions on how to make your volunteer look more like a cow.
4. As they come up with ideas, dress up the volunteer with the props you have in your large bag:
 - a. **Spots** - Holstein cows are a breed of dairy cow that have black spots on their hides. Loose skin helps to protect the cow from insect bites.
 - b. **Stomachs** - A cow has one stomach with four compartments to help with the digestion of food.
 - c. **Tongue** - Helps to pull in the grass and hay they eat.
 - d. **Hooves** - Hooves help to loosen up the soil so new grass can grow more easily. Each hoof is technically a covering of horn, protecting two toes - very similar to a nail or claw found on other animals.
 - e. **Ears/Horns** - Ears help to transfer heat. Some cows with larger ears can fan themselves in warm weather.
 - f. **Tail** - Used to swat flies away.
 - g. **Udder** - A large bag-shaped organ belonging to female cows that produce milk after she has had her first calf.
 - h. **Eyes** - Cows' large eyes are on the side, to be aware of what is going on all around them including predators or danger.
5. After the volunteer is dressed up with all the props, ask the students what they could add to make the student look even more like the animal (covering, placement of features, lack of features, posture, habitat, etc.).

Reflect: How are you different from a dairy cow?

Which One Is Moo?
10 minutes

Students will learn to identify products made from cows and products that do not come from cows. Use plastic items, real items, or images!

1. Put the students in two equal groups. Arrange them in two lines. Put a bag in front of the two lines of students. About 10 feet away from



COMMUNITY ENGAGEMENT

chapter five



Importance of Community Engagement

Lessons taught in classrooms and/or taste testing events can engage parents in discussions with their children around what they are learning and doing at school, new foods they might have tried and liked, etc. Additionally, including parents and guardians in activities and programs at school can be a great way to demonstrate what happens in the classroom.



Engaging other community members around the topics of nutrition and agriculture education can help expose students and community members to different generations, cultures, and more. An on-farm field trip can put into context information about food production, while an in-school farmer visit can create a real life connection between the producer and consumer. Outside of the value chain, school gardens can plant foods that all students in the school identify with and can invoke conversations about different foods and cultures.

Resources

Great Lakes Great Apple Crunch

This opportunity is open to the community to celebrate Indiana's farmers, promote healthy lifestyles for kids, and build stronger communities.

https://uwmadison.co1.qualtrics.com/jfe/form/SV_b1qukmR1LsiULOe

Team Nutrition Schools

Administrators are able to register their schools as a Team Nutrition school and become a partner in creating healthier school environments.

<https://www.fns.usda.gov/tn/schools>

Indiana Grown for School Buyer's Guide

This buyer's guide is tailored to feature Indiana's agricultural producers by county and product.

<https://static1.squarespace.com/static/5cf1bf22d11c300001d80a38/t/5d65b8ab491c14000168b410/1566947512765/Indiana-School-Buyers-Guide.pdf>

Fall

September

Apples
Beets
Blackberries
Broccoli
Brussels Sprouts
Cabbage
Carrots
Cauliflower
Collard Greens
Cucumbers
Eggplant
Grapes

October

Apples
Beets
Broccoli
Brussels Sprouts
Cabbage
Carrots
Cauliflower
Collard Greens
Cucumbers
Eggplant
Green Onions
Kale

November

Apples (storage)
Beets (storage)
Brussels Sprouts
Cabbage
Carrots
Collard Greens (extended)
Kale (extended)
Lettuce (extended)
Onions (storage)
Pears (storage)
Potatoes (storage)
Pumpkins

Farm Tours



Sommer Dairy Virtual Farm Tour

This video is a dairy farm tour from the Sommer Dairy farm, which shows the areas the cows live, grow, and feed in.

<https://www.youtube.com/watch?v=cwCHQ17Y0Eo>



Milk from Cow to You Series

Part one of three showing how milk makes it from the farm to your table, including the daily lives of cows and how they are taken care of.

https://www.youtube.com/watch?v=FM53V-T-vXU&ab_channel=IndianaDairy



Milk's Journey: 48 Hours in 48 Seconds

A short video showing how milk gets to our tables in 48 hours.

<https://www.youtube.com/watch?v=LVyLCqPIYeE>



Gardening at Home

Gardening at home could be a simple solution to those who don't have reliable access to a garden. This opportunity allows individuals to learn the skill of gardening at their own pace without the fear of judgement and in the comfort of their own home. It is also a great activity for families to do together.

Purdue University Extension Master Gardener Program

Online resources for gardeners to learn about a wide range of gardening topics and items associated with gardening. This is a great program to get more involved in volunteering in your community.

<https://www.purdue.edu/hla/sites/master-gardener/>

Home - Hoosier Gardener

Great resource for anyone that is wanting to get into gardening, including indoor gardening. There are great articles about when to plant, basic maintenance, and placement of plants. They also offer Zoom gardening classes.

<https://hoosiergardener.com/>

Plant Shopping! Native Plants from Keep Indianapolis Beautiful Native plants play a vital role in capturing stormwater, supporting native bee and pollinator populations, and beautifying our city. KIB is growing spring, summer, and fall blooming plants from seed, and new plants will be available throughout the summer and fall. In fact, many 2" plant plugs are ready TODAY for a new home in your yard or neighborhood greenspace. [All plant purchases must be placed online](#) and picked up from KIB's office (1029 Fletcher Ave) on Wednesdays or Thursdays from 3:30 to 5:30 p.m. When you arrive, show your email or printed receipt as proof of purchase. Nursery boss Ethan Olson can answer any questions you may have at eolson@kibi.org.

Free Seeds Indianapolis Public Library Seed Library We provide seeds for check-out as well as education and resources about growing and saving seeds and organic gardening. The Seed Library is open and free to the public. For checkout and seed donation guidelines, please [contact](#) your local seed library branch. Find a list of available seeds and branch locations at <https://www.indypl.org/services/seed-library> Fall cover crop seeds are available at Pike and Glendale locations. Guidance on using oats and crimson clover seed packets are available at marionswcd.org/plantcovercrops.
