

# The Earth as an Apple

**Subject:** Science

**Grade Level(s):** K-12

One of our most valuable resources in agriculture is land and water. This demonstration will show just how important these resources are to everyone.

## Estimated Time

30 - 60 minutes

## Purpose

Students will learn the amount of land area available for the production of food and fiber and water availability and quality for urban and agricultural uses.

## Materials

- Large Apple
- Knife
- Cutting Board

## Vocabulary

**Nonrenewable resource:** limited natural resource that cannot be replaced or reproduced within a generation and cannot be managed for renewal; examples include oil, soil, mineral resources (lead, iron, cobalt, zinc, etc.)

**Natural Resource:** materials or substances such as minerals, forests, water and fertile land that occur in nature and can be used for economic gain.

## Background Agricultural Connections

While the world population is growing, the size of our Earth and the natural resources that provide for our needs are not. How much arable land do we have on Earth to produce our food? How much land is located in climates that are habitable? What does land use in agriculture look like today? Oceans and other water bodies cover approximately 75% of our Earth leaving 25% land. Not all land is created equal. Polar regions, deserts, salt flats, and exposed rock make up one third of global land area. These areas are inhospitable and are not suitable for people to live or produce food. Two thirds of our land is habitable. It is located in climates where people can live and where they produce their food. Half of the world's habitable land is covered in houses, cities, roads, and other developments. The remaining half of all habitable land is used for agriculture.

All living things depend on water for survival. Water covers almost 75% of the surface of Earth. The water found on Earth is the same water that has always been on the planet. We cannot make new water. The water on Earth is constantly moving, and this movement of water is known as the water cycle. Water is an essential natural resource needed for agriculture.

Agriculture today works diligently to protect the natural resources of soil and water. Agricultural scientists work to develop techniques or best management practices that are economically viable, produce the food we need, and protect natural resources like soil and water.

## Engage

Ask students the following:

- What natural resources do we need to live?
- Review the concept of renewable and nonrenewable resources.

## Explore and Explain

1. Begin by explaining that the apple represents the planet Earth.
2. Slice the apple into 4 equal sections (quarters). Explain that three of these quarters represents all the water on the planet, which occupy 75% of Earth's surface. Set these three quarters aside for now.
3. The remaining one quarter represents all the land area found on the planet, which occupies 25% of Earth's surface.
4. Take this land quarter and cut it into three equal wedges. You now have three equal wedges, which are three  $\frac{1}{12}$ <sup>th</sup> sections of Earth.
5. Hold up one of the three sections. This piece represents all the area where food will not grow. Inhospitable land including polar regions, deserts, mountains, swamps, and rocky areas.
6. Hold up the other two sections and explain that they both represent habitable land. This is land where people can live and food can be grown. Set aside one wedge, it will be used later.
7. Hold up the second remaining wedges. Explain that this is habitable land where people live, but food is not produced. This land includes nature preserves, public lands and developed areas like roads, schools, houses, stores, etc.
8. Hold up the last section. This represents the Earth's agricultural land, all the land on Earth that is used to grow food.
9. Cut this section crosswise into four equal pieces, so you have four  $\frac{1}{48}$ <sup>th</sup> sections. Hold three sections up. This land is used for grazing or feed crops for livestock (poultry, cattle, sheep, goats, pigs).  
Special Note: Cattle, sheep and goats spend the majority of their lives grazing grasses and other forages for feed. Their unique ruminant digestive system allows them to obtain nutrition from plants that other animals or humans cannot.
10. Hold up the remaining section of agricultural land. This represents  $\frac{1}{48}$ <sup>th</sup> of our Earth that is used to grow food crops for humans to eat. Examples include beans, grains, fruits, and vegetables.

11. Discuss this tiny piece of the apple. Include land use, climate, and availability of natural resources. Ask questions like:
  - What is happening to this remaining land?
  - Why can't we grow food on all the land on Earth?
  - How does urbanization impact agricultural land use?
  - Can you think of any food not accounted for?
  - What is happening to world population and how is it connected to the amount of land area?
12. Now, go back to the three quarters of the original apple that was set aside in step two. These three quarters represent all the water on Earth. This includes oceans, rivers, lakes, streams, bayous, etc.
13. Cut one of the three quarters in half. Explain that  $2\frac{1}{2}$  quarters represents salt water and the remaining  $\frac{1}{2}$  quarter represents fresh water.
14. Cut the remaining  $\frac{1}{2}$  quarter into 3 equal pieces. One piece represents the unusable fresh water locked in the polar ice caps. One piece represents unusable fresh water that is polluted. One piece represents pure, treated and reclaimed water. (Set aside these two pieces represents unusable water.)
15. Take the remaining piece, representing  $\frac{1}{3}$  of 1 quarter and cut it into 10 pieces. The pieces are represented in the following way:
  - 2 pieces = water for industry
  - 2 pieces = water lost through leaking pipes, waste and misuse
  - 1 piece = water available to the entire world for drinking, cooking, bathing, laundry, dishes, washing your car, etc.
  - 5 pieces = water for agriculture, pure and reclaimed.
16. Discuss the amount of fresh water available for human use for all needs. Ask questions like:
  - What is happening to the amount of water we have?
  - Does population growth affect water supplies?
  - Can we make more water?

### **Variation of Demonstration**

To turn this demonstration into a hands-on activity, provide students with paper apples and scissors. Students will follow the demonstration, cutting their paper apple as instructed. Students should also label the pieces.

### **Louisiana Student Standards for Science**

This is a supplemental activity to be integrated with the following standards.

K-ESS3-1	2-ESS2-3	HS-ESS3-1
4-ESS3-1	5-ESS2-2	HS-ESS3-3
6-MS-ESS3-4	8-MSESS3-3	HS-LS2-7

## Acknowledgements

The calculations for the land portions of the apple demonstration were compiled by Population Education (<https://populationeducation.org>)

Portions of the activity was adapted from the lesson *Earth's Land and Soil Resources* by Utah Agriculture in the Classroom and the National Center for Agricultural Literacy. The lesson can be found at <https://agclassroom.org/matrix/lesson/551/>

# HOW WILL WE SUSTAINABLY FEED NEARLY 10 BILLION PEOPLE BY THE YEAR 2050?



As students virtually farm in different countries they must balance social, economic and environmental factors.

Lesson plans provided in this free, curriculum-based program geared for Grades 7-12.

## REAL FARMS. REAL FAMILIES.

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Journey 2050 Level	Key Concepts	6-12 Agriscience	6-8 Science	6-8 ELA	9-12 Social Studies	9-12 Science	9-12 ELA
Level 1: Sustainable Agriculture	<ul style="list-style-type: none"> <li>Sustainability</li> <li>Food Waste</li> <li>Food Security</li> <li>Human Needs</li> <li>Population Growth</li> </ul>	<ul style="list-style-type: none"> <li>Ag &amp; Environmental Science</li> <li>Sustainability</li> <li>World Hunger</li> </ul>	<ul style="list-style-type: none"> <li>Natural Resources (6-MS-ESS3-4)</li> <li>Environmental Impact (8-MS-ESS3-3)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14)</li> <li>World History (WH.6)</li> </ul>	<ul style="list-style-type: none"> <li>Earth Science (HS-ESS3-3)</li> <li>Environmental Science (HS-ESS3-3, HS-LS2-7)</li> <li>Life Science (HS-LS2-7)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 2: Soil Health	<ul style="list-style-type: none"> <li>Soil Nutrients</li> <li>Plant Health</li> <li>Nutrient Management</li> </ul>	<ul style="list-style-type: none"> <li>Ag &amp; Environmental Science</li> <li>Plant Nutrients &amp; Fertilizer</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Impact (8-MS-ESS3-3)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14, C.14.g)</li> <li>World History (WH.6)</li> </ul>	<ul style="list-style-type: none"> <li>Earth Science (HS-ESS3-3)</li> <li>Environmental Science (HS-ESS3-3, HS-LS2-7)</li> <li>Life Science (HS-LS2-7)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 3: Water	<ul style="list-style-type: none"> <li>Natural Resources</li> <li>Water Conservation &amp; Preservation</li> <li>Population Growth</li> <li>Water Use in Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>Ag &amp; Environmental Science</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Natural Resources (6-MS-ESS3-4)</li> <li>Environmental Impact (8-MS-ESS3-3)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14)</li> <li>World History (WH.6)</li> </ul>	<ul style="list-style-type: none"> <li>Earth Science (HS-ESS3-4)</li> <li>Environmental Science (HS-ESS3-4, HS-LS2-7)</li> <li>Life Science (HS-LS2-7)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 4: Economy	<ul style="list-style-type: none"> <li>Economics</li> <li>Trade</li> <li>Markets</li> <li>Supply &amp; Demand</li> </ul>	<ul style="list-style-type: none"> <li>Agribusiness</li> <li>Sustainability</li> </ul>		<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14)</li> <li>World History (WH.6)</li> </ul>	<ul style="list-style-type: none"> <li>Environmental Science (HS-LS2-7)</li> <li>Life Science (HS-LS2-7)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 5: Land Use	<ul style="list-style-type: none"> <li>Land Use</li> <li>Geography</li> <li>Culture</li> <li>Economy</li> </ul>	<ul style="list-style-type: none"> <li>Ag &amp; Environmental Science</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Natural Resources (6-MS-ESS3-4)</li> <li>Environmental Impact (8-MS-ESS3-3)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14)</li> <li>World History (WH.6)</li> </ul>	<ul style="list-style-type: none"> <li>Earth Science (HS-ESS3-3)</li> <li>Environmental Science (HS-ESS3-3, HS-LS2-7)</li> <li>Life Science (HS-LS2-7)</li> </ul>	<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 6: Careers	<ul style="list-style-type: none"> <li>Career Exploration</li> <li>Education</li> <li>Career Skills</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural Careers</li> <li>Science Careers</li> </ul>		<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1, SL5)</li> </ul>	<ul style="list-style-type: none"> <li>Civics (C.14.g, C.15.a)</li> </ul>		<ul style="list-style-type: none"> <li>Reading (R4)</li> <li>Speaking &amp; Listening (SL1 &amp; SL5)</li> </ul>
Level 7: Technology	<ul style="list-style-type: none"> <li>Technology</li> <li>Innovations</li> <li>Research</li> <li>Food Security</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural Careers</li> <li>Biotechnology</li> <li>Sustainability</li> <li>Technology</li> </ul>		<ul style="list-style-type: none"> <li>Language (L6)</li> <li>Speaking &amp; Listening (SL1)</li> </ul>			<ul style="list-style-type: none"> <li>Language (L6)</li> <li>Speaking &amp; Listening (SL1)</li> </ul>



# Teacher's Guide: Getting Started

## How will we sustainably feed nearly 10 billion people by the year 2050?

Journey 2050 takes students on a **virtual simulation that explores world food sustainability**. The program allows students to make decisions on a virtual farm and witness their **impact on society, the environment and the economy at a local and global scale**. Teachers guide their students through inquiry-based lesson plans that showcase farm families around the world.

**The best part – the entire program is FREE!** Educators do not need an agricultural background to facilitate the learning outcomes. The detailed lesson plans, animated video clips and supporting resources are provided systematically. The program was **developed with teachers and sustainability experts to complement curriculum**. The strongest ties are with science and social studies standards aimed at **grades 7-12**.



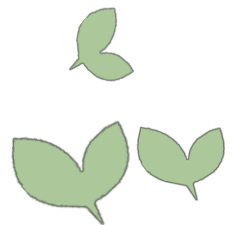
The program can be completed in **seven hours**. It uses agricultural sustainability as the foundation to introduce topics of plant health and nutrients, water conservation, markets and economies, land use, geography, careers, technology and innovative solutions. Those wanting to spend more time engaging with the issues of sustainability will find the content-rich lesson plans a resource for greater exploration.



*The goal of Journey 2050 is to engage students in positive discussions about the importance of sustainable agriculture, best management practices and innovations.*

*Feeding the world is the responsibility of all. We need to think about the ways we act now so that future generations and our natural environment may prosper.*

*Food is life. Sustainable food is our future.*



**Program At-a-Glance:** The lesson plans focus on student exploration, using three-dimensional learning or a backwards design teaching method. The lessons follow the 5E Instructional Model: Engage, Explore, Explain, Elaborate, and Evaluate.<sup>1</sup> Each lesson begins with an interest approach to introduce and *engage* students in the topic. Students will then *explore* and *explain* by watching a video clip and participating in a class activity/discussion. Students then *elaborate* by playing a level of the Journey 2050 *Sustainability Farming Game*. Last, students assess what they learned and teachers *evaluate* their understanding. Each lesson concludes with a wrap-up discussion to serve as a summary assessment of the concepts.

- Lesson 1: Introduction to Sustainable Agriculture (90 min)
- Lesson 2: Plant Health (45 min)
- Lesson 3: Water (45 min)
- Lesson 4: Economy (45 min)
- Lesson 5: Land Use (45 min)
- Lesson 6: Careers for 2050 and Beyond! (45 min)
- Lesson 7: Technology and Innovations (60 min)
- Action: Project Based Learning and Summary (60-90 min)



## Preparation for the first day of class:

1. **Register for the program** on the [Journey 2050](http://journey2050.rnp.io/teachers/sign_up) website ([http://journey2050.rnp.io/teachers/sign\\_up](http://journey2050.rnp.io/teachers/sign_up))
2. Due to the simulation game-play focus of the program, each student needs access to their own computer or tablet. Before you begin the program with the students, please determine if you will need to **download the game onto each device**. For more information and instructions visit: [http://journey2050.rnp.io/teachers/online/activities\\_and\\_resources#download](http://journey2050.rnp.io/teachers/online/activities_and_resources#download)
  - If playing on a computer, the game can be opened directly through a web browser such as Chrome, Safari or Firefox. Internet Explorer is no longer compatible. If playing on a tablet, download the game for free from the App Store or Google Play.
3. **View the curriculum connections** under Teacher Experience/Online Experience/Curriculum Connections
4. **Download the Step-by-Step lesson plans, PowerPoints, videos and games.** [http://journey2050.rnp.io/teachers/online/activities\\_and\\_resources#step-by-step-guide](http://journey2050.rnp.io/teachers/online/activities_and_resources#step-by-step-guide)
5. Once you register, you will be given a teacher code. If students have an **internet connection** and **enter your teacher code** before playing each level, the **game will generate a student report**. The teacher code is found after your name once you sign in. The code generates reports based on each game. Level 1-4 is split into 4 topics for the lesson plans but it is actually one game so students have to complete all 4 levels at once to generate a report. Level 5 and 6 are independent games so a report is generated after each one if the code is entered beforehand.

**Questions:** If you have questions or would like to speak with an agricultural expert please contact us. We have a network of organizations excited to visit with you and your students about agriculture!

**Email:** [Journey2050@Nutrien.com](mailto:Journey2050@Nutrien.com)

<sup>1</sup> <http://enhancinged.wgbh.org/research/eeeeee.html>



# Homegrown in Your State: Fruit and Vegetables

**Grade Level(s):** K - 2

**Purpose:** Students explore their state's specialty crops, discover how food gets from the farm to the table, and discuss the importance of eating fruits and vegetables every day.

**Estimated Time:** 45 minutes

**Louisiana Student Standards for Social Studies**

K.11 1.31 2.17 2.26

**Louisiana Student Standards for English Language Arts**

SL1

**Materials Needed:**

**Engage:**

- MyPlate Activity Poster (Available for purchase from [agclassroomstore.com](https://agclassroomstore.com) (<https://agclassroomstore.com/myplate-activity-poster/>) or MyPlate Image (<https://cdn.agclassroom.org/media/uploads/2020/07/28/MyPlate.png>))
- [Where Do Fruits and Vegetables Come From?](https://www.youtube.com/watch?v=CdPRZ3wjCxA) Video (<https://www.youtube.com/watch?v=CdPRZ3wjCxA>)

**Activity 1: From Farm to Lunch**

- [State Agricultural Facts](https://www.agclassroom.org/teacher/agfacts/) (<https://www.agclassroom.org/teacher/agfacts/>)
- *How Did That Get in My Lunchbox?* by Chris Butterworth
- [Follow That Food - Carrot Edition](https://www.youtube.com/watch?time_continue=191&v=1nx9WMCWIWI) ([https://www.youtube.com/watch?time\\_continue=191&v=1nx9WMCWIWI](https://www.youtube.com/watch?time_continue=191&v=1nx9WMCWIWI))

**Activity 2: What Am I?**

- [What Am I? Cards](https://cdn.agclassroom.org/media/uploads/2020/07/31/what_am_i_cards.pdf) 1 set printed and cut into cards ([https://cdn.agclassroom.org/media/uploads/2020/07/31/what\\_am\\_i\\_cards.pdf](https://cdn.agclassroom.org/media/uploads/2020/07/31/what_am_i_cards.pdf))
- Pocket chart (optional)

## Vocabulary

**climate:** the prevailing weather conditions in a specific area over a long period of time

**consumer:** a person who buys and uses goods and services

**cultivate:** to prepare (land or soil) for the growth of crops; to plant, tend, harvest, or improve (plants) by labor or skill

**floriculture:** the cultivation of flowers

**fruit:** the part of a plant that develops from the flower and contains the seeds of the plant

**horticulture:** the science and art of growing fruits, vegetables, flowers, or ornamental plants

**specialty crop:** fruits, tree nuts, vegetables, herbs, spices, nursery, floriculture, and horticulture crops that are not considered staple foods.

**vegetable:** any edible part of a plant that does not contain seeds

## Background Agricultural Connections

One US farmer produces enough food to feed 172 people worldwide, but farmers are not the only workers involved in making food available to the consumer.<sup>1</sup> Agriculture, food, and related industries employ 21.6 million American workers.<sup>2</sup> These jobs include harvesting, storing, transporting, processing, packaging, and selling the food we eat. Farms are the source of almost all the food we consume.

In most cases, some, but not all, of the foods people eat are grown in their state. While most states produce their own milk, eggs, fruits, vegetables, and grains, the availability of certain foods depends upon season. The **climate** and soil of a particular region determines the types of foods that can be grown. **Consumer** demands influence the items that stores and restaurants offer. Many people want to be able to eat fresh fruits and vegetables in the middle of the winter or out of season. Grocery stores meet these demands by having food transported from other regions of the United States and even from other countries.

**Specialty crops** are **fruits** and **vegetables**, tree nuts, dried fruits, and **horticulture** and nursery crops, including **floriculture**, that are **cultivated** or managed and used by people for food, medicinal purposes, and/or aesthetic gratification.<sup>3</sup> Local specialty crops can be found at grocery stores, food co-ops, farmers' markets, and plant and garden centers. Below is a list of state programs that promote local foods:

- [Buy Alabama's Best](https://buyalabamasbest.org/) (https://buyalabamasbest.org/)
- [Alaska Grown](http://www.buyalaskagrown.com/) (http://www.buyalaskagrown.com/)
- [Arizona Grown](https://azgrown.azda.gov/) (https://azgrown.azda.gov/)
- [Arkansas Grown](https://www.arkansasgrown.org/) (https://www.arkansasgrown.org/)
- [CA \(California\) Grown](https://californiagrown.org/) (https://californiagrown.org/)
- [Colorado Proud](https://ag.colorado.gov/markets/colorado-proud) (https://ag.colorado.gov/markets/colorado-proud)

- [CT \(Connecticut\) Grown](https://portal.ct.gov/DOAG/Marketing/Marketing/Connecticut-Grown-Program) (https://portal.ct.gov/DOAG/Marketing/Marketing/Connecticut-Grown-Program)
- [Delaware Grown](https://delawaregrown.com/) (https://delawaregrown.com/)
- [Fresh From Florida](https://www.followfreshfromflorida.com/) (https://www.followfreshfromflorida.com/)
- [Georgia Grown](https://www.georgiagrown.com/) (https://www.georgiagrown.com/)
- [Hawaii's Seals of Quality](https://hdoa.hawaii.gov/add/md/seals-of-quality/) (https://hdoa.hawaii.gov/add/md/seals-of-quality/)
- [Idaho Preferred](http://www.idahopreferred.com/) (http://www.idahopreferred.com/)
- [Illinois Buy Fresh Buy Local](https://buyfreshbuylocal.org/illinois/) (https://buyfreshbuylocal.org/illinois/)
- [Indiana Grown](https://www.indianagrown.org/) (https://www.indianagrown.org/)
- [Choose Iowa](https://www.chooseiowa.com/) (https://www.chooseiowa.com/)
- [From the Land of Kansas](https://www.fromthelandofkansas.com/) (https://www.fromthelandofkansas.com/)
- [Kentucky Proud](http://www.kyproud.com/) (http://www.kyproud.com/)
- [Louisiana Grown. Real. Fresh.](http://louisianagrown.com/) (http://louisianagrown.com/)
- [Get Real. Get Maine.](https://www.getrealmaine.com/) (https://www.getrealmaine.com/)
- [Maryland's Best](https://marylandsbest.maryland.gov/) (https://marylandsbest.maryland.gov/)
- [Massachusetts Grown...and Fresher!](https://www.mass.gov/orgs/massachusetts-grownand-fresher) (https://www.mass.gov/orgs/massachusetts-grownand-fresher)
- [Pure Michigan](https://www.michigan.org/farms-and-cider-mills#?c=44.4299;-85.1166:6&tid=52&page=0&pagesize=20&pagetitle=Farms%20%26%20Cider%20Mills) (https://www.michigan.org/farms-and-cider-mills#?c=44.4299;-85.1166:6&tid=52&page=0&pagesize=20&pagetitle=Farms%20%26%20Cider%20Mills)
- [Minnesota Grown](https://minnesotagrown.com/) (https://minnesotagrown.com/)
- [Genuine MS \(Mississippi\) Grown](https://genuinems.com/) (https://genuinems.com/)
- [AgriMissouri](https://agrimissouri.com/) (https://agrimissouri.com/)
- [Made in Montana](https://madeinmontanausa.com/) (https://madeinmontanausa.com/)
- [Buy Fresh Buy Local Nebraska](http://buylocalnebraska.org/) (http://buylocalnebraska.org/)
- [Made in Nevada](https://madeinnevada.org/memberdir/) (https://madeinnevada.org/memberdir/)
- [New Hampshire Made](https://www.nhmade.com/) (https://www.nhmade.com/)
- [\(New Jersey\) Jersey Fresh](https://findjerseyfresh.com/) (https://findjerseyfresh.com/)
- [\(New Mexico\) Taste the Tradition](https://www.elevatenmag.com/logo-program/) (https://www.elevatenmag.com/logo-program/)
- [New York State Grown and Certified](https://certified.ny.gov/) (https://certified.ny.gov/)
- [Got to Be NC \(North Carolina\)](https://gottobenc.com/) (https://gottobenc.com/)
- [Pride of North Dakota](https://www.prideofdakota.nd.gov/) (https://www.prideofdakota.nd.gov/)
- [Ohio Proud](http://ohioproud.org/) (http://ohioproud.org/)
- [Made in Oklahoma](https://madeinoklahoma.net/) (https://madeinoklahoma.net/)
- [Buy Oregon Agriculture](https://www.oregon.gov/ODA/PROGRAMS/MARKETACCESS/Pages/BuyOregonAg.aspx) (https://www.oregon.gov/ODA/PROGRAMS/MARKETACCESS/Pages/BuyOregonAg.aspx)
- [PA \(Pennsylvania\) Preferred](https://papreferred.com/) (https://papreferred.com/)

- [Get Fresh Buy Local \(Rhode Island\)](https://agclassroom.orghttps://dem.ri.gov/natural-resources-bureau/agriculture-and-forest-environment/agriculture/ri-grown) (https://agclassroom.orghttps://dem.ri.gov/natural-resources-bureau/agriculture-and-forest-environment/agriculture/ri-grown)
- [Certified South Carolina Grown](https://certifiedscgown.com/) (https://certifiedscgown.com/)
- [South Dakota Local Foods Directory](https://sdspecialtyproducers.org/find-local-foods/) (https://sdspecialtyproducers.org/find-local-foods/)
- [Pick Tennessee Products](https://www.picktnproducts.org/) (https://www.picktnproducts.org/)
- [Go Texan](http://www.gotexan.org/) (http://www.gotexan.org/)
- [Utah's Own](https://www.utahsown.org/) (https://www.utahsown.org/)
- [Dig in Vermont](https://www.diginvt.com/) (https://www.diginvt.com/)
- [Virginia Grown](https://www.vdacs.virginia.gov/vagrown/) (https://www.vdacs.virginia.gov/vagrown/) and [Virginia's Finest](http://www.vdacs.virginia.gov/vafinest.com/) (http://www.vdacs.virginia.gov/vafinest.com/)
- [Washington Grown](http://www.wagrown.com/) (http://www.wagrown.com/)
- [West Virginia Grown](https://agriculture.wv.gov/ag-business/west-virginia-grown/) (https://agriculture.wv.gov/ag-business/west-virginia-grown/)
- [Something Special from Wisconsin](https://somethingsspecialwi.com/) (https://somethingsspecialwi.com/)
- [Grown in Wyoming](https://www.wyomingbusiness.org/ag-food?fbclid=IwAR3-JczAYYtKKIRiidU71XxUdVBK4GNfqioaS7Xp5Es6Vck30qyUi1adc0k) (https://www.wyomingbusiness.org/ag-food?fbclid=IwAR3-JczAYYtKKIRiidU71XxUdVBK4GNfqioaS7Xp5Es6Vck30qyUi1adc0k)

The activities in this lesson will promote a natural curiosity about how food affects health while reinforcing food and agriculture as a connection to a better quality of life. Understanding what it takes to promote food will help students make the association between the land, farmers and ranchers, and the grocery store.

## Engage

1. Hang up the [MyPlate Poster](https://agclassroomstore.com/myplate-activity-poster/) (https://agclassroomstore.com/myplate-activity-poster/) or project the [MyPlate Image](https://cdn.agclassroom.org/media/uploads/2020/07/28/MyPlate.png) (https://cdn.agclassroom.org/media/uploads/2020/07/28/MyPlate.png) onto a large screen. Ask the students, "How much of your plate should hold fruits and vegetables?" (*Half*)
2. Ask the students, "Why are fruits and vegetables important?" (*Fruits and vegetables are low in fat and calories and high in vitamins, minerals, and fiber that help make our bodies strong and keep us healthy.*)
3. Show the class the [Where Do Fruits and Vegetables Come From?](https://www.youtube.com/watch?v=CdPRZ3wjCxA) (https://www.youtube.com/watch?v=CdPRZ3wjCxA) video to help introduce the topic of fruits and vegetables.
4. Explain to the students that they are going to explore specific fruits and vegetables, called specialty crops, that are grown in their state. Specialty crops are crops grown and used by people for food, medicine, or decorations. Fruits, vegetables, tree nuts, herbs, and flowers are all examples of specialty crops.

## Explore and Explain

### Activity 1: From Farm to Lunch

1. Ask the students to raise their hands if they have a garden or have helped in a garden. Ask, "What did you grow in the garden?"
2. Explain to the students that not all fruits and vegetables can be grown in their state.
3. Have the class brainstorm fruits and vegetables that they are familiar with. Point out what kind of climate each grow in. For example, bananas grow in a warm, frost-free climate.
4. Pull out a world map or globe. Point to where your state is located and talk about what fruits and vegetable can best be grown in the state. Use the website for your state found in the *Background Agricultural Connections* section of this lesson for ideas. In addition, visit the [State Agricultural Facts](https://www.agclassroom.org/teacher/agfacts/) (<https://www.agclassroom.org/teacher/agfacts/>) webpage and click on your state for more information about your state's agricultural resources.
5. Ask the students, "How do fruits and vegetables get to our cafeteria or in your lunchbox?"
6. Read the book *How Did That Get in My Lunchbox?* by Chris Butterworth and watch the video [Follow That Food - Carrot Edition](https://www.youtube.com/watch?time_continue=191&v=1nx9WMCWIWI) ([https://www.youtube.com/watch?time\\_continue=191&v=1nx9WMCWIWI](https://www.youtube.com/watch?time_continue=191&v=1nx9WMCWIWI)).
7. Discuss the steps it takes to get food from the farm to your lunch:
  - Planting
  - Growing
  - Harvesting
  - Processing
  - Transporting
  - Preparing
  - Serving

### Activity 2: What Am I?

1. Optional: Prior to this activity, create additional [What Am I? Cards](https://cdn.agclassroom.org/media/uploads/2020/07/31/what_am_i_cards.pdf) ([https://cdn.agclassroom.org/media/uploads/2020/07/31/what\\_am\\_i\\_cards.pdf](https://cdn.agclassroom.org/media/uploads/2020/07/31/what_am_i_cards.pdf)) specific to fruit and vegetable specialty crops grown in your state. Use the website for your state found in the *Background Agricultural Connections* section of this lesson and the [State Agricultural Facts](https://www.agclassroom.org/teacher/agfacts/) (<https://www.agclassroom.org/teacher/agfacts/>) webpage for ideas.
2. Discuss the differences between a fruit and a vegetable. Emphasize that a fruit is the part of the plant that develops from the flower and contains the seeds of the plant. A vegetable is any edible part of the plant—root, stem, leaf, or flower—that does not contain seeds.

3. Read the clue on each *What Am I? Card* aloud to the class. Have the students determine whether the food on the card is a fruit or a vegetable and whether or not it is grown in your state. Sort the cards in a pocket chart or on the floor.

This lesson explores foundational concepts about how climate and geography impact the production of our food and the location of farms throughout the United States and abroad. If you teach in the following states, refer to your local agricultural literacy geography resources:

- [Iowa](https://www.iowaagliteracy.org/Article/The-Very-Hungry-Iowa-Caterpillar) (https://www.iowaagliteracy.org/Article/The-Very-Hungry-Iowa-Caterpillar)
- [Kentucky](https://www.teachkyag.org/lessons/kentucky-farms-feed-me-visit-a-vegetable-farm?rq=fruits%20and%20vegetables) (https://www.teachkyag.org/lessons/kentucky-farms-feed-me-visit-a-vegetable-farm?rq=fruits%20and%20vegetables)
- [Maine](https://teachmefoodandfarms.org/agmebook/) (https://teachmefoodandfarms.org/agmebook/)
- [Michigan](https://cdn.agclassroom.org/mi/edu/lesson/social/fruit.pdf) (https://cdn.agclassroom.org/mi/edu/lesson/social/fruit.pdf)
- [Minnesota](https://cdn.agclassroom.org/mn/edu/sclb/lessons/K-2_lesson3_homegrown.pdf) (https://cdn.agclassroom.org/mn/edu/sclb/lessons/K-2\_lesson3\_homegrown.pdf)
- North Carolina: [Sweetpotatoes](https://www.ncfb.org/wp-content/uploads/2020/10/Final-K-2-Learning-the-Life-Cycle-of-a-Sweetpotato.pdf) (https://www.ncfb.org/wp-content/uploads/2020/10/Final-K-2-Learning-the-Life-Cycle-of-a-Sweetpotato.pdf); [Strawberries](https://www.ncfb.org/ag-in-the-classroom/lesson-plans/) (https://www.ncfb.org/ag-in-the-classroom/lesson-plans/)
- [Oregon](https://oregonaitc.org/lessonplan/abcs-of-oregon-agriculture/) (https://oregonaitc.org/lessonplan/abcs-of-oregon-agriculture/)

## Evaluate

After conducting these activities, review and summarize the following key concepts:

- Specialty crops are grown and used by people for food, medicine, or decoration. Fruits, vegetables, tree nuts, herbs, and flowers are all examples of specialty crops.
- Before fruits and vegetables arrive in the grocery store, plants are planted and grown, and the food must be harvested, transported, processed, and packaged.
- It is recommended that you fill half of your plate with fruits and vegetables.
- Fruits and vegetables are low in calories and fat and high in vitamins, minerals, and fiber that help make our bodies strong and keep us healthy.

## Sources

1. [https://www.agfoundation.org/files/FFF\\_Graphic\\_US\\_Farm\\_Feeds.jpg](https://www.agfoundation.org/files/FFF_Graphic_US_Farm_Feeds.jpg) (https://www.agfoundation.org/files/FFF\_Graphic\_US\_Farm\_Feeds.jpg)
2. <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58282> (https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58282)
3. <https://www.ams.usda.gov/services/grants/scbgp/specialty-crop> (https://www.ams.usda.gov/services/grants/scbgp/specialty-crop)

## Acknowledgements

"What Am I?" game adapted from [pbhfoundation.org](http://pbhfoundation.org) (<https://fruitsandveggies.org/>).

## Recommended Companion Resources

- [A Moose Boosh: A Few Choice Words About Food](https://agclassroom.org/matrix/resource/1226/) (<https://agclassroom.org/matrix/resource/1226/>)
- [Dig In! Posters](https://agclassroom.org/matrix/resource/939/) (<https://agclassroom.org/matrix/resource/939/>)
- [Eating the Alphabet](https://agclassroom.org/matrix/resource/138/) (<https://agclassroom.org/matrix/resource/138/>)
- [Fresh-Picked Poetry: A Day at the Farmers' Market](https://agclassroom.org/matrix/resource/1130/) (<https://agclassroom.org/matrix/resource/1130/>)
- [Fruit Bowl](https://agclassroom.org/matrix/resource/1108/) (<https://agclassroom.org/matrix/resource/1108/>)
- [How Did That Get in My Lunchbox?](https://agclassroom.org/matrix/resource/194/) (<https://agclassroom.org/matrix/resource/194/>)
- [How Does it Grow? Video Series](https://agclassroom.org/matrix/resource/472/) (<https://agclassroom.org/matrix/resource/472/>)
- [How Food gets from Farms to Store Shelves](https://agclassroom.org/matrix/resource/360/) (<https://agclassroom.org/matrix/resource/360/>)
- [MyPlate](https://agclassroom.org/matrix/resource/730/) (<https://agclassroom.org/matrix/resource/730/>)
- [MyPlate Activity Poster](https://agclassroom.org/matrix/resource/600/) (<https://agclassroom.org/matrix/resource/600/>)
- [Plant Part Chart](https://agclassroom.org/matrix/resource/804/) (<https://agclassroom.org/matrix/resource/804/>)
- [Producepedia](https://agclassroom.org/matrix/resource/528/) (<https://agclassroom.org/matrix/resource/528/>)
- [The Fruits We Eat](https://agclassroom.org/matrix/resource/203/) (<https://agclassroom.org/matrix/resource/203/>)
- [The Life of a Potato](https://agclassroom.org/matrix/resource/1091/) (<https://agclassroom.org/matrix/resource/1091/>)
- [Try It! How Frieda Caplan Changed the Way We Eat](https://agclassroom.org/matrix/resource/1136/) (<https://agclassroom.org/matrix/resource/1136/>)
- [What is a Fruit? What is a Vegetable? Bulletin Boards](https://agclassroom.org/matrix/resource/221/) (<https://agclassroom.org/matrix/resource/221/>)
- [Who Grew My Soup?](https://agclassroom.org/matrix/resource/89/) (<https://agclassroom.org/matrix/resource/89/>)

## Author

Angie Greer

## Organization

Minnesota Agriculture in the Classroom

# Fruit & Veggie

Louisiana Specialty Crops



## Know your fruits and veggies?

These colorful cards include clues to help players guess what fruit or veggie is featured. From familiar favorites to the new and different, these cards keep players guessing!

**How to play:** take each flash card and read the clues. Feel free to make up your own clues as well. When the correct answer is given, reveal the answer by showing the picture.





## Yellow Summer Squash

I am a member of the squash family; zucchini is my cousin.

I have a long neck that can have a hook on the end.

I am yellow.



## Yellow Pepper

I am shaped like a bell.

I am mostly hollow inside, with some seeds.

I am sweet.



## Sweet Corn

I grow on a stalk.

I have tiny seeds called "kernels."

I can be boiled, grilled or popped.



## Grapefruit

I am a large, round citrus fruit similar to an orange.

I am really not made of grapes.

I have been described as tasting tart, bitter, or sour.





### **Kumquat**

I am a small round or oval fruit usually about 1 inch in size.

I have an orange-yellow rind.

I am described as tart, slightly sour, and acidic.

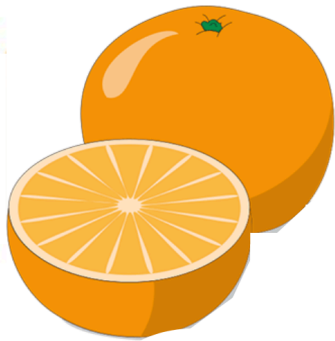


### **Peach**

I am reddish orange on the outside and yellowish orange on the inside.

I have a hard brown pit in my center that surrounds my seed.

I am soft, round, slightly furry, sweet, and juicy.



### **Washington Navel Orange**

I am large and round.

I am seedless.

My orange outside is called a "rind."



### **Lemon**

I am a member of the citrus family.

I am sour.

I am used to create a popular drink.

My yellow outside is called a "rind."



### **Sweet Potato**

I am a popular Thanksgiving food.

I am orange and grow underground.

I am also known as a yam.



### **Satsuma**

I am easy to peel and have few seeds.

I separate easily into segments after peeling.

I am orange in color, but I am not an orange.



### **Pecans**

I have a hard brown outer shell that must be cracked.

I grow on a tree and am shaken to the ground when I am ripe.

I am collected from the ground in the fall and used to make a favorite Thanksgiving dessert.



### **Irish Potato**

I am small, round, and white to cream colored.

I have a thin outer layer called "skin."

I am often eaten boiled, mashed, or fried.



## Cauliflower

I am white and bumpy with green leaves at my base.

My name means "cabbage flower."

I can be eaten cooked or raw.



## Eggplant

I am purple on the outside and white on the inside.

I am large, oblong, and glossy.

I'm really not made of eggs.



## Green Pepper

I am shaped like a bell.

I am mostly hollow inside, with some seeds.

I am sweet.



## Green Cabbage

One of me is called a "head."

I am light green.

I am great in coleslaw.



## Cucumber

I am long and green.

I am white on the inside.

I am used to make pickles.



## Okra

I am green and around 5 inches long.

I am fuzzy or prickly with lengthwise grooves.

I am well known for being cooked in gumbo or fried as a side dish.



## Mustard Greens

I am a leafy green vegetable.

I can be used in salads or cooked into a southern recipe.

The seeds of my plant are used to make a favorite yellow condiment.



## Southern Peas

I am known for my "black-eyed" and "purple hulls" varieties.

The outer covering that I grow inside of is called a pod.



## Tabasco Pepper

I am small and spicy.

I grow green and turn bright red when I am ready to harvest.

I am well known for growing on Avery Island in Louisiana.



## Mayhaw

I am a small, round, reddish fruit less than one inch wide.

I am most often used for making jelly.

I am the official state fruit tree of Louisiana.



## Tomato

I'm really a fruit, but people use me like a vegetable.

I'm round and red with a little green stem.

If you fall behind, I can help you "ketchup."

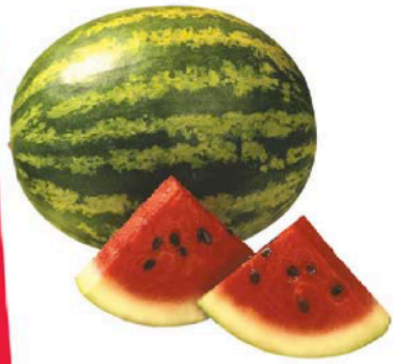


## Red Pepper

I am shaped like a bell.

I am mostly hollow inside, with some seeds.

I am sweet.



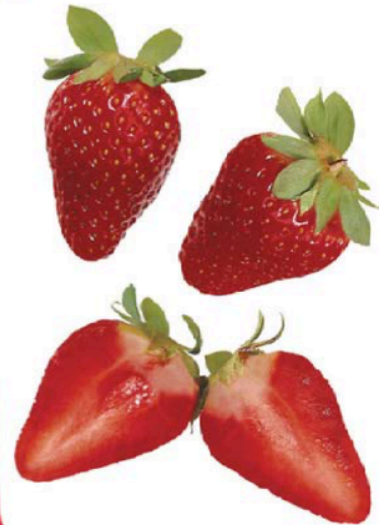
## Watermelon

I can be large or small.

My green outside is called a "rind."

I am usually red on the inside, but I can also be yellow.

I often have seeds, but can also be seedless.



## Strawberry

I am bright red with some white inside.

I have a green leafy top.

I am the only fruit with seeds on the outside.

# Pizza Time!

**Grade Level(s):** 3-5

**Purpose:** Students use pizza as a basis for exploring agriculture, geography, and mathematics

**Estimated Time:** 30-minutes

**Louisiana Student Standards for Mathematics**

MP4 MP6

**Louisiana Student Standards for English Language Arts**

R1 SL1 SL2

**Materials Needed**

## Activity 1: Fabulous Fractions and Pizza Probability

- [Pizza Starts on the Farm](https://cdn.agclassroom.org/media/uploads/2015/05/15/Pizza_Starts_on_the_Farm.pdf) activity sheet  
([https://cdn.agclassroom.org/media/uploads/2015/05/15/Pizza\\_Starts\\_on\\_the\\_Farm.pdf](https://cdn.agclassroom.org/media/uploads/2015/05/15/Pizza_Starts_on_the_Farm.pdf))

## Activity 2: Pizza in Real Time

- [Ingredients—Where Do They Come From?](https://cdn.agclassroom.org/media/uploads/2015/05/15/Ingredients-Where_Do_They_Come_From.pdf) handout  
([https://cdn.agclassroom.org/media/uploads/2015/05/15/Ingredients-Where\\_Do\\_They\\_Come\\_From.pdf](https://cdn.agclassroom.org/media/uploads/2015/05/15/Ingredients-Where_Do_They_Come_From.pdf))
- [In Real Time](https://cdn.agclassroom.org/media/uploads/2015/05/19/InRealTime1.pdf) activity sheet  
(<https://cdn.agclassroom.org/media/uploads/2015/05/19/InRealTime1.pdf>)
- [Pizza Time Bulletin Board](https://agclassroomstore.com/pizza-time/) (<https://agclassroomstore.com/pizza-time/>) (optional)

## Activity 3: Pizza Math

- [My Favorite Pizza](https://cdn.agclassroom.org/media/uploads/2015/05/15/My_Favorite_Pizza.pdf) activity sheets  
([https://cdn.agclassroom.org/media/uploads/2015/05/15/My\\_Favorite\\_Pizza.pdf](https://cdn.agclassroom.org/media/uploads/2015/05/15/My_Favorite_Pizza.pdf))

## Activity 4: Cracker Pizzas

- Crackers
- Pizza sauce
- Cheese, pepperoni, and pizza toppings of your choice



## Vocabulary

**farm:** an area of land used for growing crops or rearing animals

## Background Agricultural Connections

Farming and agriculture are a part of everyone's life in one way or another. From the job you might have someday to the lunch you eat today—many things in our lives are related to agriculture.

Take a look at a typical school cafeteria lunch of ham, corn, tater tots, chocolate pudding, and a bread roll. Each part of the meal is related directly to agriculture. Milk comes from cows on a dairy farm and is pasteurized at a dairy plant. Ham is a pork product that comes from pigs, and bread is made from flour, a product of wheat. Wheat is grown and harvested on a farm, then ground to make flour at a mill. Corn is also grown on a farm, as are the potatoes that were shredded for the tater tots. The corn was probably canned in a factory, while the potatoes were peeled, shredded, cooked, frozen and packaged at a different factory before being shipped to the school. Even the chocolate pudding is made of milk, soybeans, and corn from farms.

As you go through this lesson, remind students that all food begins on the **farm**. Now it's pizza time!

## Engage

1. Ask students to identify their favorite pizza toppings. List them on the board.
2. Ask your students if they know where the pizza toppings came from.
3. Inform your students that they will do the following:
  - Identify where pizza ingredients were produced;
  - Calculate how long it takes to produce pizza ingredients beginning with production on the farm;
  - Practice skills in division and graphing using the pizza; and
  - Locate the states where pizza ingredients were produced.

## Explore and Explain

### Activity 1: Fabulous Fractions and Pizza Probability

1. Have students complete the [Pizza Starts on the Farm](https://cdn.agclassroom.org/media/uploads/2015/05/15/Pizza%20Starts%20on%20the%20Farm.pdf) activity sheet.  
(<https://cdn.agclassroom.org/media/uploads/2015/05/15/Pizza Starts on the Farm.pdf>)

### Activity 2: Pizza in Real Time

1. Share the information from the attached [Ingredients—Where Do They Come From?](#)

Pizza Time!: <https://agclassroom.org/matrix/lesson/228/>

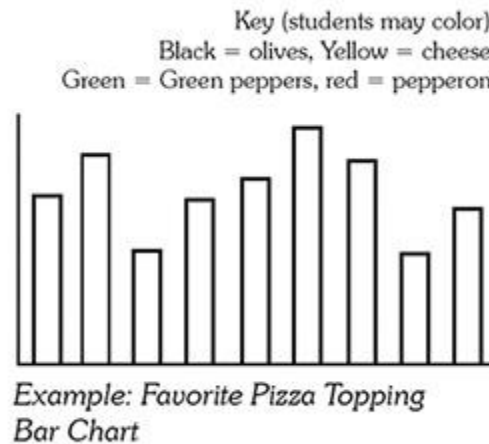
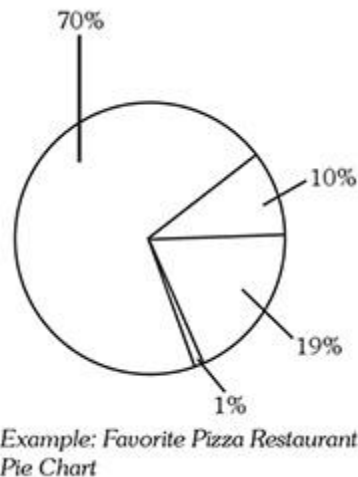
(<https://cdn.agclassroom.org/media/uploads/2015/05/15/Ingredients-Where Do They Come From.pdf>) with students, and have them consider the time it actually takes to produce a pizza. Then have them complete the [In Real Time](https://cdn.agclassroom.org/media/uploads/2015/05/19/InRealTime1.pdf) (<https://cdn.agclassroom.org/media/uploads/2015/05/19/InRealTime1.pdf>) activity sheet.

- Optional: Use the Pizza Time Bulletin Board to have your students use the skill of "telling time" with the time it takes to grow, process, and produce the ingredients of a pizza. The bulletin board can easily be used to teach concepts of time, community involvement, raw to finished products, careers, and much more.



### Activity 3: Pizza Math

- Have students interview their classmates about what their favorite pizza toppings and/or pizza restaurants are and graph the results. You may use the [My Favorite Pizza](https://cdn.agclassroom.org/media/uploads/2015/05/15/My Favorite Pizza.pdf) (<https://cdn.agclassroom.org/media/uploads/2015/05/15/My Favorite Pizza.pdf>) activity sheets included with this lesson, or you may simply use them as a guideline for other interview questions and charts that your students may enjoy.
- This is also an opportunity to introduce or review with your students how to read and create different types of graphs for different kinds of data.



### Activity 4: Cracker Pizzas

- To conclude the lesson, provide ingredients for students to build their own cracker pizza. As each ingredient is distributed, review with students where the ingredient originated or how it was produced or processed.
- Display a map of the United States and have students locate the state that is the top producer of that pizza ingredient. As each state is identified, point out it's

characteristics such as climate and open space. Explain to students that pizza ingredients, with the exception of pineapple, can be produced in any state. However, some states, due to their climate or other available resources, can produce certain food products more efficiently. For example, California is the highest producing state for milk, peppers, and tomatoes. California's warm and temperate climate makes farming very easy and efficient. Tomatoes and peppers *can* grow in any state, but the natural growing season may be too short, requiring the added expense of using a greenhouse. Cattle require open land and pastures to graze. Texas is a large state that can provide the open space for cattle to grow.

- **Pizza Crust (cracker):** The primary ingredient of a pizza crust is wheat. Kansas is the highest wheat producing state in the United States.
  - **Pizza Sauce:** The primary ingredient of pizza sauce is tomatoes. California produces the most tomatoes for commercial sale.
  - **Pepperoni:** Pepperoni is seasoned beef and pork meat. Texas produces the most beef cattle of any state. Iowa is the highest producing state for market pigs.
  - **Peppers:** California is the leading producer of peppers.
  - **Cheese:** California is the leading producer of milk. Cheese is one of many dairy products produced from milk.
  - **Mushrooms:** Pennsylvania is the leading producer of mushrooms.
  - **Pineapple:** Hawaii is the leading producer of pineapple in the United States. Pineapples require a tropical climate to grow.
3. When all toppings have been distributed, allow students to eat their cracker pizzas.

### Elaborate

- Have the class interview their friends and families or ask another class in a different town (or even another state) to conduct the same survey and compare the results. Another option would be to survey local pizza restaurants and compare their responses.
- [Use the Pizza Reader or Pizza Ag Mag](https://www.agintheclassroom.org/media/qhofoklq/pizza-ag-mag.pdf) for reading time.  
(<https://www.agintheclassroom.org/media/qhofoklq/pizza-ag-mag.pdf>)

### Evaluate

After conducting these activities, review and summarize the following key concepts:

- All food products (including pizza) begin on the farm, are processed, and then sold to consumers.

- The ingredients to make a pizza take months and even years to grow on the farm before the pizza can be assembled.

### **Acknowledgements**

- Activity 4 was contributed by Mary Jo Baitinger, Marshall County Iowa Agriculture in the Classroom.
- Statistics in Activity 4 were reported by *Crop Production 2014 Summary* (January 2015) 5 USDA, National Agricultural Statistics Service

### **Recommended Companion Resources**

- [A True Book: Tomatoes](https://agclassroom.org/matrix/resource/723/) (https://agclassroom.org/matrix/resource/723/)
- [A True Book: Wheat](https://agclassroom.org/matrix/resource/478/) (https://agclassroom.org/matrix/resource/478/)
- [Eating Fractions](https://agclassroom.org/matrix/resource/136/) (https://agclassroom.org/matrix/resource/136/)
- [Extra Cheese, Please!](https://agclassroom.org/matrix/resource/26/) (https://agclassroom.org/matrix/resource/26/)
- [Food and Farm Facts Junior Booklet](https://agclassroom.org/matrix/resource/934/) (https://agclassroom.org/matrix/resource/934/)
- [Pizza Day](https://agclassroom.org/matrix/resource/1249/) (https://agclassroom.org/matrix/resource/1249/)
- [Pizza Time Bulletin Board](https://agclassroom.org/matrix/resource/386/) (https://agclassroom.org/matrix/resource/386/)
- [Say Cheese! A Kid's Guide to Cheese Making](https://agclassroom.org/matrix/resource/1141/) (https://agclassroom.org/matrix/resource/1141/)
- [The Little Red Hen \(Makes a Pizza\)](https://agclassroom.org/matrix/resource/606/) (https://agclassroom.org/matrix/resource/606/)
- [Wheat](https://agclassroom.org/matrix/resource/507/) (https://agclassroom.org/matrix/resource/507/)
- [Where Does Your Pizza Come From?](https://agclassroom.org/matrix/resource/943/) (https://agclassroom.org/matrix/resource/943/)

### **Author**

Debra Spielmaker

### **Organization**

Utah Agriculture in the Classroom

# Heart of a Farmer

**Subject:** Science

**Grade Level(s):** K-12

Plants are vital to life on Earth. Plants are known as producers because they use energy from the sun to make their own food and are the main source of energy entering food chains. Sunlight energy is transferred by plants into chemical energy through the process of photosynthesis. Consumers like deer, humans, and mice eat plants and that energy gets transferred from one organism to another through the food chain. Plants come in all shapes and sizes and can be found on mountain tops, in valleys, deserts, fresh and salt water—almost everywhere on Earth. Plants provide us with food, clothing, medicine, shelter, and oxygen. Everything we eat comes directly or indirectly from plants.

## Estimated Time

20 - minutes

## Purpose

Students will make a bracelet representing the things plants need to grow and complete their life cycle.

## Materials (per student)

10"-12" thin leather cording or use a chenille stem for younger students

1 small heart bead	Farmer
1 small brown pony bead	Soil
1 small orange pony bead	Seed
1 small clear pony beads	Air
1 small blue pony bead	Water
1 small yellow pony bead	Sun
1 small green pony bead	Sprout
1 small flower pony bead	Bud/Flower
1 small butterfly bead	Pollinator

## Procedure

1. Tie a knot at one end of the leather cord. Beginning with the heart bead string the beads on the cord in the order listed above.
2. Thread the unknotted end of the cord back through the heart "adjuster" bead so that both free ends hang together. Your heart "adjuster" bead is now an adjuster for the bracelet. The cycle begins with the farmer planting the seed and ends with the farmer harvesting the crop.

## Background

Soil – Soil is a natural resource. Plants grow in soil that provides them the nutrients that plants need to live.

Seed – Seeds allow for growth and reproduction. Seeds contain the embryo which will become a new plant.

Seeds supply the nutrients the plant needs to begin to grow.

Air – Plants take in carbon dioxide from the air and use it to make food. Plants give off oxygen.  
Water – Water is a natural resource that plants need to live.  
Sun – The sun provides warmth and light. Without the sun, plants and animals would not survive.  
Sprout – The seed sprouts and grows into the mature plant.  
Buds – The plant buds and a flower emerges.  
Pollinator – The flower is pollinated. There are many types of pollinators such as bees, butterflies and birds.  
Heart – The heart represents the farmer. The farmer cares and nurtures the plant (crops) to produce the food and fiber people need. The cycle begins with the farmer planting the seed and ends with the farmer harvesting the crop.

### **Louisiana Student Standards for Science**

This is a supplemental activity to be integrated with the following standards.

K-LS-1-1	2-LS2-1	3-LS1-1	5-LS1-1
K-ESS3-1	2-LS2-2		

### **Acknowledgements**

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