



# BIOREGIONS AND LOCAL FOOD SYSTEMS

Garden

EST. TIME 45 minutes SEASON winter 

GRADE 3 | LESSON #12

## ? ESSENTIAL QUESTION(S)

- What is a local food system?
- What occurs between the farm and the market?
- How do the bioregions of our state determine the location of the farms?



## MATERIALS

- Handouts / Visual Aids
- Equipment
- Materials for Cleaning Up

## Abc VOCABULARY

- Pollinating, pollinator, pollinated
- Juice (noun), juice (verb), juicer
- Funnel, mold
- Farmers market

## ✓ ASSESSMENT

- Observational checklist

## PREPARATION (15 MINUTES)

To prepare for this lesson, gather materials and read *Before We Eat* by Pat Brisson to develop comprehension questions for read aloud. Also, research the bioregions of your individual state and your local farms and farmers markets to bring a real-world context to the modeling of the local food system.

## TEACHER BACKGROUND

While there is no consensus on the definition of a local food system, in this context we are discussing all of the natural features of the bioregions of your state along with all of the workers along the way that make it possible to produce, process, and distribute local food goods for consumption to enhance the environmental, economic, social, and nutritional health of your state.

## LESSON DESCRIPTION

In this lesson, students will review the plant life cycle from seed to fruit, and discuss the bioregions of their state. Then students will walk through processing that same food (oranges are used as an example in this lesson), throughout its travels across the state to be juiced and frozen into popsicles before traveling to the farmers market to be sold to the community. Students will read the book *Before We Eat* to explore other local food systems and write a letter to a local farmer that vends at the farmers market showing gratitude for the work and care they contributed every step along the way.



Use the lesson template to create your own and share with us!

LEARNING OBJECTIVES

**Content Learning Objectives**

**GFS.3.4** Define local food system.

**WSCG.3.1** Define and map the bioregions of your state (cross map with food system).

**Life Skills Learning Objectives**

**CLS.4** Students appreciate and are respectful of differences and diversity in their communities.

ACADEMIC STANDARD CONNECTIONS

**Social Studies:** Economics.

HEALTH STANDARD CONNECTIONS

**National Health Education Standard 7:** Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.



## LESSON MATERIALS

### Materials for Lesson Introduction

#### Handouts

- Seed to Tree Yoga Pose Cards
- Before We Eat* by Pat Brisson

### Equipment

- Laminated map of your state, dry erase markers
- Small hula hoop or toy steering wheel
- Hand juicer (1 per every 5 students)
- Cutting Board (1 per every 5 students)
- Paring Knife (1 per every 5 students)
- Pitcher (3, 1 shared between each 2 groups)
- Funnel
- Popsicle molds, or Dixie cups with plastic wrap and popsicle sticks (enough for 1 popsicle per student)

### Materials for Cleaning Up

- 3 wash bins, garden-safe soap, sponge, dish towel

CULTIVATE CURIOSITY (5 MINUTES) *engage*

1. Show students orange popsicles and explain that today they are going to work together to show the full adventure an orange went on to end up as a popsicle.

**Note:**

The focus of this lesson is on local foods. If oranges are not grown in your state, use a different fruit that is grown in your state. For fruits that do not juice as easily as oranges, you can blend them with juice before freezing into popsicles.

2. First, draw a star on a map at a place where oranges grow (this could be a farm that vends at the local farmers market) and discuss what features the place has that makes it a good place to grow, such as plenty of sunlight, clean air, the right temperature, rainfall, the right soil, etc.
3. Then, as a whole group review the beginning of the life cycle of the orange from seed to tree using seed to tree yoga pose cards. As all students stand as tall trees, mimic the bees **pollinating** the flowers (for example, by buzzing around and tapping students' hands). Once students have been "pollinated," have them turn their hands into a fist to represent the fruit.

ROOT AROUND (25 MINUTES) *explore*

1. Ask students to explore what will happen next. Likely, someone has to pick the oranges. As the students continue to stand as tall as trees with their hands in fists as fruits, travel throughout them pretending to pick the fruits to put into a basket.
2. Tell students that the work at the farm is done and they can sit down. Then present to them baskets full of real oranges (that were picked on the farm).
3. Work with students to determine what happens next. Likely, the oranges travel to a place where they can be juiced. While a student models driving the truck full of oranges with a small hula hoop or toy steering wheel, draw on the map a line to where they may have traveled for this step.
4. Model for students in small groups of 5 how they will halve and **juice** their oranges and then use manual juicers to juice them and pour the juice into a measuring cup.

5. Provide small groups each with a cutting board, a paring knife, a juicer, and 5 oranges, and observe and assist their work (collecting the knives as soon as this step is complete). Distribute 3 pitchers (one for every 2 groups) so the groups can pour their juice in when their measuring cup gets full.
6. Remind students that there are also workers that are in charge of the very important clean-up steps. Choose 2 students from each group to deliver the organic waste to the compost bin and 3 students from each group to clean the cutting boards and juicers using garden-safe soap.
7. Work with students to determine what happens next. Likely, the oranges travel again to a place where they can be frozen into popsicles. While a student models driving the truck full of juice with a small hula hoop or a real steering wheel, draw on the map a line to where they may have traveled for this step.
8. Demonstrate how to use a **funnel**. Choose a few students that have not participated in individual jobs (like “driving”) to use a funnel to pour the juice carefully into the **molds** and pretend to put them in a freezer (this step will happen after class). If you do not have popsicle molds, you can use Dixie cups. Simply cover with plastic wrap and poke a popsicle stick in the center of each.
9. Work with students to determine what happens after the popsicles are frozen. Likely, the popsicles will travel again to the market to be sold. While a student models driving the truck full of popsicles with a small hula hoop or a toy steering wheel, draw on the map a line to where they may have traveled for this step (this could be a local **farmers market** or grocery store).
10. Lastly, choose students to model a transaction at the farmers market that brings the popsicle from the farm all the way to the plate.
11. Explain to students that the popsicles they have created will be frozen and they can taste them the following week.

GROW UNDERSTANDING (5 MINUTES) *explain*

Read the book *Before We Eat* to review all of the people that play a part in bringing local food from the farm to the table for not only crops but fish, honey, dairy, and many others.

 OBSERVE THE FRUITS (5 MINUTES) *elaborate*

Begin a letter to a farmer that vends at a local farmers market, thanking them for all of the steps they carefully complete from seed to plant and from farm to market. Students can finish this for homework or in their classrooms.

**Note:**

Similar to the reflection prompts at the end of most lessons, this letter can be used to assess student understanding of content learning objectives.

REFLECT (5 MINUTES) *evaluate*

1. Recognize specific students' behaviors that aligned with being the best for themselves, their communities, and their environment. Specifically, ask students to reflect on how they appreciate and respect the diversity throughout their state.
2. Review the steps of the local food system with students by allowing volunteers to present their letters to local farmers.

 ADAPTING FOR INDOORS

In the case of inclement weather, this lesson in its entirety can occur inside the classroom.

## CONNECTIONS TO KITCHEN LESSONS

Prepare a dish in the kitchen featuring key crops from your state. For each crop, highlight the region it was grown and discuss all of the people that got it to where it is now.

## POSSIBLE EXTENSIONS

**Community:** Create a market stand and sell (or give away!) your food products, for example in front of the school at the end of the school day.

## ADDITIONAL RESOURCES

- *Sustainable Table, What is a Food System?*  
<http://www.sustainabletable.org/254/local-regional-food-systems>
- *USDA Local Food Systems Resources*  
<https://www.nal.usda.gov/afsic/local-food-systems>
- *Community Wealth, Local Food Systems Overview*  
<http://community-wealth.org/strategies/panel/urban-ag/index.html>
- *EPA Ecoregions of North America*  
<https://www.epa.gov/eco-research/ecoregions-north-america>

SEED TO TREE



YOU ARE A LITTLE SEED,  
JUST PLANTED IN THE GROUND.

SEED TO TREE



WITH WARMTH AND WATER,  
YOU GROW...



SEED TO TREE



...AND GROW.

SEED TO TREE



THEN YOUR STEM COMES UP OUT OF THE GROUND.

SEED TO TREE



YOUR ROOTS DIG DOWN INTO THE EARTH  
AS YOUR LEAVES STRETCH UP TOWARDS THE SUN.

SEED TO TREE



WITH THE SOIL HOLDING YOU TIGHT AND PROVIDING YOU WITH NUTRIENTS,  
YOU STAND STRONG.