Where Did My Soup Come From?

This will be an ongoing lesson throughout the growing season in your region.

Purpose

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Grades 3-5

Students will investigate growing (hardiness) zones in different regions of the United States and the world. Through the reading of the resources and hands-on experiences, students will learn about northern climate plants (zone 4), care and maintenance of soil and plants, and plant growth stages from germination to harvest. Students will also apply the scientific method and observe human-environmental interaction to analyze and identify important elements that impact their plants and environment.

Academic Content Standards

MN K-12 Academic Standards and Benchmarks

Social Studies

4.3.4.10.2 Analyze the impact of geographic factors on the development of modern agricultural regions in Minnesota and the United States.

Science

- **3.4.1.1.2** Identify common groups of plants and animals using observable physical characteristics, structures and behaviors.
- **5.1.1.2.1** Generate a scientific question and plan an appropriate scientific investigation, such as systematic observations, field studies, open-ended exploration, or controlled experiments to answer the question.
- **5.1.1.2.2** Identify and collect relevant evidence, make systematic observations and accurate measurements, and identify variables in a scientific investigation.

5.4.2.1.1 Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs. For example: Design and construct a habitat for a living organism that meets its need for food, air, and water.

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Common Core Connections

Reading

CCSS.ELA-LITERACY.RI.4.7

Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

Writing

CCSS.ELA-LITERACY.W.4.2.D

Use precise language and domain-specific vocabulary to inform about or explain the topic.

National Agricultural Literacy Outcomes

Agriculture and the Environment

- Explain how the interaction of the sun, soil, water, and weather in plant and animal growth impacts agricultural production. **(T1.3-5 b)**
- Identify the major ecosystems and agroecosystems in their community or region. (e.g. hardwood forests, conifers, grasslands, deserts) with agro-ecosystems (e.g.grazing areas and crop growing regions).
 (T1.3-5 d)

Background—Agricultural Connections

This lesson was created to teach students the different kinds of plants grown in their region to make vegetable soup. Students make predictions about germination and harvest timelines and practice hands-on growing techniques to understand photosynthesis, soil, and harvesting of vegetables grown in their garden space. They will also learn the basics of the scientific method.

The activities in this lesson will also help provide students with an understanding about what it takes to produce their food. Understanding what it takes to produce food will help students make the association between the land, farmers and gardeners, and the food they consume.

Materials

Interest Approach:

- Book: Hungry Planet: What the World Eats by Peter Menzel and Faith D'Aluisio
- Hungry Planet powerpoint

 accessible at: <u>https://</u> minnesota.agclassroom.
 org/educator/sclb.cfm

Activity 1:

- Book or PowerPoint of Hungry Planet: What the World Eats by Peter Menzel and Faith D'Aluisio
- Book: Who Grew My Soup? by Tom Darbyshire

Activity 2:

- Seed packets of vegetables grown in Minnesota (or northern climates)
- Prep Worksheet
- Scientific Method worksheet

Activity 3:

- Garden space to grow vegetables (indoors or outdoors)
- Gardening tools (trowel, rake, gloves, watering can, etc.)
- Growth Chart Questions Worksheet
- Seed/Plant Growth Chart Worksheet

Activity 4:

- Growth Chart Journal
- Vegetable Soup Recipe link available at <u>https://</u> <u>minnesota.agclassroom.org/</u> <u>educator/sclb.cfm</u>

Vocabulary

Agriculture – the growing of crops, animals and/or the cultivation of land

Biomes – a large community of plants and animals that occupies a region

Germinate – when the plant's seed has opened and sends up its first stem

Hardiness Zones – a map that is based on the average annual minimum winter temperature used by gardeners and growers to determine what plants can grow in what area

Harvest – to gather crops when they are mature and ready to eat or store

Herbs – a group of plants that are used for flavoring or seasoning food or drinks

Hypothesis – an explanation for something based on what has occurred, an "educated guess"

Observations – paying attention to how things occur or work and making a note of it

Photosynthesis – the process by which plants make their own food

Pollination – the transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization.

Prediction – a good guess of what will happen based on your knowledge

Rake – a long-handled tool with a row of teeth at its head; used to move leaves or loosen soil

Root Vegetables – a group of vegetables with edible portions growing underground (includes carrots, beets, and radishes)

Suppress – to reduce or stop something from happening

Trowel – a small hand tool with a handle and flat metal blade; used for scooping or spreading soil or similar materials

Shovel – a tool with a handle and a broad scoop or blade for digging and moving material

Interest Approach - Engagement

Where does our food come from? A grocery store? A farm? Another country? Why do we eat the foods we do? How come we aren't able to grow certain foods in our region? Why do some regions have more than one growing season? These are questions that can be used to start important conversations about history, culture, and traditions. By starting with something as simple, yet important, as food, students will make new connections and gain a new appreciation about food, land, and people. A great way to introduce this discussion is by showing images from the book, *Hungry Planet: What the World Eats* by Peter Menzel and Faith D'Aluisio. Images can be used from this book to start the conversation about the foods we grow and eat.



Procedures:

Activity 1

 Begin this lesson by looking at pictures from families around the world and the foods that they consume over a week found in the Hungry Planet PowerPoint or in the book *Hungry Planet: What the World Eats.* Ask open-ended questions: What foods are the pictured families eating? Why are some families eating foods that others are not? What are some of the reasons/issues that people face that keep them from being able to eat certain foods? Brainstorm ideas and have discussions from student responses. 2. Next, read the book, Who Grew My Soup? by Tom Darbyshire to the class. Discuss the different ingredients that go into vegetable soup. Ask: Are students familiar with these ingredients? Are there certain vegetables that we don't use in our soup that others might? Take a survey within your classroom of favorite soups, ingredients, etc. Once you have done that, tell the students that they are going to learn about and grow vegetables that grow in our region. The plants that the students grow will be used to make and eat vegetable soup that they grew!

Activity 2

- 1. Handout the Prep Worksheet. Distribute packets of vegetable seeds that will be grown to make your own vegetable soup. Students will read the seed packets and discuss with a partner or peer what is needed to create the best growing environment for their seeds. Encourage students to do extra research to learn all they can about the vegetables and the best soil, water, and light conditions to enhance growth. This will help them complete the worksheet. Discuss the difference between vegetables and fruits (botanists say fruits are what come from flowers and have seeds; chefs often distinguish fruit from vegetable based on sweet taste... tomatoes are often put in both categories).
- **2.** Handout the Scientific Method Worksheet. Using a simplified form of the scientific method, discuss the different steps of the growing process in more detail, talking about photosynthesis and vegetables or fruit appearing on plants. Start by asking the question: How do plants grow?

Activity 3

- Prepare an area to use as your garden. This area can be inside or outside depending on the vegetables you are growing and the space available. There are many resources to help you find a growing area that will fit your school. See the tips for starting an indoor or outdoor garden at <u>https://minnesota.agclassroom.org/</u><u>educator/garden.cfm</u>.
- 2. Introduce specific tools that will be used to maintain their garden space including trowels, shovels and rakes. Follow the planting directions on the seed packets to show students how to correctly plant their seeds. Observe and guide students as they plant seeds.
- **3.** Introduce the Growth Chart Questions Worksheet and the Seed/Plant Growth Chart Worksheet. Explain to students that they will be using these sheets for the next few weeks to write down observations as their plants progress. (include: watering, sunlight, and general weather conditions).

Activity 4

- **1.** Visit plants and keep a weekly journal (using the Growth Chart Journal worksheet) of student observations to use as a resource. Include watering amounts, sunlight, and general weather conditions. This information will be used after harvest, to help students write a descriptive summary.
- **2.** The final assessment will be a written summary using all the data that was collected over the course of the growing season. Students must include specific words chosen by the teacher to show understanding. Examples of specific words: hardiness zone, pollination, germinate, etc.
- **3.** If time allows, help students follow the vegetable soup recipe to make soup out of the vegetables they grew!

Enriching Activities (optional)

 Have students take an in-class survey to decide their favorite vegetables in soup. Then give the same survey asking other students within the building. (Prior to giving the survey, students should decide on the number to be questioned for this activity. This could also be created in a Google Form). Students could then share their findings and discuss/analyze why that soup was the most popular.

Example questions to discuss from their findings:

- a. What is the most favorite vegetable in soup of the outside survey group?
- **b.** What is the least favorite vegetable in soup of the outside survey group?
- c. What is the most favorite vegetable in soup in your class?
- d. What is the least favorite vegetable in soup in your class?
- e. Does your class like the same vegetables in soup as the outside survey group?
- **2.** Students can use math equations to figure out how much space (land) is needed to grow a certain amount of each vegetable. An Inch by Inch worksheet can be found at https://minnesota.agclassroom.org/educator/sclb.cfm
- 3. Videos accesible at https://minnesota.agclassroom.org/educator/sclb.cfm
 - a. The Scientific Method Rap (3:00)
 - **b.** BrainPop-The Scientific Method (2:30)
 - **c.** The Scientific Method Song (3:00)
 - **d.** How to Space Vegetables in your Garden (1:25)
- 4. Books
 - a. Growing Vegetable Soup by Lois Ehlert
 - **b.** Stone Soup by Marcia Brown
 - c. Linnea's Almanac by Christina Bork and Lena Anderson
- 5. Websites
 - a. Growing Minds: <u>http://growing-minds.org/</u>
 - **b.** Photosynthesis for Kids: <u>http://photosynthesiseducation.com/photosynthesis-for-kids/</u>

Sources/Credits

Portions of this lesson were adapted from a New York AITC activity <u>https://www.agclassroom.org/ny/programs/soup.htm</u>





Grow Your Own Soup! Name				
Prep Sheet				
Use a calendar and the seed packets to answer the following questions:				
1. Today's Date				
2. According to the seed package, how many days will it be until the plants are ready to harvest? Carrot Tomato				
3. Using a calendar, estimate your harvest dates: Carrot Tomato				
4. Which plants will take the longest to be ready for harvest? Be specific.				
5. What factors can cause your plants to grow faster?				
6. What factors can cause your plants to grow slower?				

Scientific Method	Name
1. Ask a QUESTION:	?
2. Make a HYPOTHESIS:	
3. Test the HypoTHESIS: Supplies: Procedures:	
4. Record the RESULTS:	
5. Draw a CONCLUSION:	

Name

Grow Your Own Soup!

Growth Chart Q's

During the time your soup garden is growing, keep a growth chart to track important dates (Growth Chart Worksheet). Be sure to also keep a journal (Growth Chart Journal) where you can write down all of your observations. Consider the following questions when charting and journaling:

- **1.** Do the plants seem to take a long time to **germinate**?
- 2. Do the plants germinate or start at the same time?
- **3.** Do the leaves all seem the same or are they different?
- **4.** Do the colors of the leaves vary?
- **5.** Do the shapes of the leaves vary?
- **6.** Do the plants have flowers?
- 7. Do any of the plants grow in clumps?
- **8.** Do any of the plants grow like a vine?
- 9. Do the plants seem to be healthy?
- **10.** How often do you have to water the plants?
- **11.** Do the plants sometimes look like they need water?
- **12.** Do the plants look yellow? As you **harvest** your crop, consider these questions to record in your journal:
 - What is the first plant you harvested?
 - Did it look like you thought it would? If not, what is different?
 - Did you taste it?
 - What is the difference in the way you harvest the plants?
 - Was your indoor garden a success?
 - Would you do something differently next time?

Name

Grow Your Own Soup!

Growth Chart

Seeds/ Plant		
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Week 8		
Week 9		
Week 10		

Grow Your Own Soup!	Name
Growth Chart Journal	
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