



Ag in the Classroom | Going Local

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The Vegetables We Eat- Third Grade

Purpose

Students will gain information from the text, *The Vegetables We Eat* written by Gail Gibbons to understand and classify vegetables according to their edible parts and create and design experiments with vegetable gardens for the seasons and regions of North Carolina.

Subject Area(s)

English Language Arts, Math, Social Studies, and Science

Common Core/Essential Standards

ELA

- **CCSS.ELA-LITERACY.RI.3.7**

Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

- **CCSS.ELA-LITERACY.RI.3.8**

Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).

Social Studies

- **3.E.1.1** Explain how location impacts supply and demand.

- **3.E.1.2** Explain how locations of regions and natural resources influence economic development (industries developed around natural resources, rivers and coastal towns).

- **3.E.2** Understand entrepreneurship in a market economy.

- **3.E.2.1** Explain why people become entrepreneurs.

- **3.E.2.2** Give examples of entrepreneurship in various regions of our state.

Math

- **CCSS.MATH.CONTENT.3.MD.C.7.A**

Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

- **CCSS.MATH.CONTENT.3.MD.B.4**

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

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Science

- **NCES 3rd Grade Science: Ecosystems**

Understand how plants survive in their environments.

- **3.L.2.2** Explain how environmental conditions determine how well plants survive and grow.
- **3.L.2.3** Summarize the distinct stages of the life cycle of seed plants.
- **3.L.2.4** Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the ability of soil to support the growth and survival of many plants.

Agricultural Literacy Outcomes

Plants and Animals for Food, Fiber & Energy

- Explain how the availability of soil nutrients affects plant growth and development.
- Explain the value of agriculture and how it is important in daily life.

Agriculture and the Environment

- Explain how the interaction of the sun, soil, water, and weather in plant and animal growth impacts agricultural production.
- Recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants, and fuel (e.g., soil, water, air, plants, animals, and minerals).

Essential Questions

1. How do farmers show stewardship and care for land and plants?
2. What are specific methods that farmers use to care for plants?
3. What different ways are vegetables classified?
4. What are the parts of the vegetable plant and the stages of its life-cycle?
5. How are vegetable prices determined?
6. What type of soil is best for a raised garden bed?
7. What vegetables will grow best during each season in your school's region?
8. What are the basic properties and components of soil?
9. What type of soil will support the growth and survival of a plant?
10. What environmental changes can affect the growth of a plant?

Vocabulary

Perennials: plants that grow for many growing seasons without having to be replanted.

Annuals: plants that grow for only one growing season and must be planted to grow again.

Vegetables: parts of plants that are grown to be eaten.

Botanist: a scientist who studies plants.

Tuber: various types of modified plant structures that are enlarged to store nutrients. They are used by plants to survive the winter or dry months and to provide energy and nutrients for regrowth.

Fertilizers: liquid or solid substances added to the soil as food for plants.

Seedlings: starter plants.

Market economy: economy in which decisions regarding investment, production and distribution are based on supply and demand. The prices of goods and services are determined in a free price system.

Supply: stock of a resource from which a person or place can be provided with the necessary amount of that resource.

Demand: ability and need or desire to buy goods and services.

Entrepreneur: a person who starts a business and is willing to risk loss in order to make money.

Control: in scientific testing, a variable or variables kept constant so that the impact of another factor can be better understood.

Variable: in scientific testing, a factor that can be changed.

Experiment: a scientific test that involves manipulating some factor or factors in a system to determine how those changes affect the outcome or behavior of the system. Experiments are important in science, but they are not the only way to test scientific ideas.

Student Motivator

Begin a discussion with students about gardens. *Does your family grow a garden? What are your favorite fruits and vegetables that you have grown in your gardens? When do you begin planting your garden? When do you harvest the fruits and vegetables from your garden?*

Show the following website to the students. Navigate through the site looking at the vegetable growing tips and other resources that will be used throughout these lessons. <http://www.kidsgardening.org/>

Background Knowledge

The book, *Vegetables We Eat* written by Gail Gibbons is all about vegetables. The book identifies the parts of vegetables we eat and how vegetables are grown. Students can examine the parts of vegetables and understand their importance to the food supply. The book engages students with captions and illustrations of the growth of vegetables. This text presents a perfect opportunity for students to learn how vegetables are classified and what parts are consumed. Through the use of the Vegetable Guide and the Vegetables Grown in North Carolina found in the Essential Links portion of the lesson plan students will develop a commercial. They will become "experts" on vegetables that are represented in the text and grown in their region. They will share their knowledge with other students in the class or school.

As students read the book, they should consider when they eat the produce. Is it seasonable or can they get it year round? If so, from where? Is the product always consumed in a fresh state? How is the product processed? Is it dried, frozen, canned, pickled, juiced, baked, or roasted? Is the product added to other processed foods? What has changed? What has not changed? These are just some of the questions that should be considered while reading the book.

As an example concerning the significance of agriculture, this book illustrates vegetables that students may or may not be familiar. In North Carolina we have a great climate for growing vegetables. A cool spring, warm summer and mild winters, which enables farmers to have three seasons to produce crops. Many of the vegetables are planted twice during the year. Depending on the region the vegetables may vary. Agriculture provides the food supply needed for survival, growth, and health for both humans and animals. The variety of year-round food choices has grown; consequently foods not locally produced are available partly due to the transportation and distribution networks. The major factors in food and feed choices for people and their animals are cost, culture, convenience, access and availability.

Procedures

Activity 1

1. Introduce the book, *The Vegetables We Eat* written by Gail Gibbons.
2. Show students the vocabulary and use the power point to discuss vegetable classification and the meaning of each word. You can use the following website to review each word.
<http://quizlet.com/20530149/3rd-grade-economics-vocabulary-flash-cards/>
3. Read the book to the class, discussing the many text features and pictures as you read.
4. Have the students create a tree map to identify vegetables for each category.
5. Students will choose the category from which they eat the most vegetables.
6. Place students in groups to research their category for classifying their favorite vegetable and create a commercial about why their group is the best to eat. Use a digital program such as a video, iMovie or other digital program you may have at your school to record the commercial.
7. Next, the student groups will share their commercials with the class trying to persuade others to choose their vegetable category.

Activity 2

1. Students need to be divided into groups according to the three regions of North Carolina; Coastal, Piedmont, and the Mountains.
2. Students will create a list of vegetables grown in each season for all three regions.
Vegetables Grown in North Carolina <http://www.ncagr.gov/stats/general/overview.htm> can be used as a resource.
3. They will need to organize a plan on how to create a vegetable stand.

4. They will need to use this website to look at different farms.
<http://www.motherearthnews.com/homesteading-and-livestock/start-a-produce-stand-zmaz92amzshe.aspx>
5. Each group should plan for the four seasons.
6. Students can determine the price, quantity of vegetables, and the supplies needed for their market stands.
7. Have students draw and design their market stand. Create a poster with the price list.

Activity 3

1. Students will design a raised garden bed for their school yard.
2. They will research the vegetables that are growing during a particular season and region. You can group students according to seasons and regions of North Carolina.
3. Once the students have chosen the season, region, and found the vegetables that will grow best, they can determine the amount of vegetables to be planted in the raised garden bed within a specific measurement. This guide is helpful for the piedmont region.
<http://www.wqseeds.com/documents/WQVegPlantGuide-revised.pdf>
4. This guide is helpful for all regions of NC: <http://www.ces.ncsu.edu/depts/hort/hil/ag-06.html>
5. Next, have the students plot their garden on graph paper. They will need to create a key for the measurement of each cell.

Activity 4

1. Students will create and implement an experiment to show what plants need to survive and grow.
2. Students will change the variables in their experiment. Sun, water, and soil.
3. Group students into three groups according to the soil. Clay, sand, and rich topsoil.
4. Students will use 4 similar plants. Butter beans, corn, and soybean seeds work well.
Plant A: the control
Plant B: sun, no water
Plant C: water, no sun
Plant D: no sun, no water
5. Students will record their observations on a chart. They will note the growth or the unhealthy growth.
6. Place the plants in their appropriate locations. The students can cover the plants with black plastic or another dark material to simulate the lack of sunshine.
7. Have students introduce an environmental change that would affect their control plant.
Example, extreme heat and water.

8. Continue making observations on the chart for 2 weeks. Have students take pictures of their plants daily. This will help in the overall experiment.

The following questions can be used for discussion throughout the lesson.

Discussion Questions

1. How are vegetables classified by Botanist?
2. Explain how farmers grow vegetables?
3. Identify and explain the new vocabulary words.
4. What are the purposes for vegetables?
5. How did the structure of the book help you categorize the vegetables? What was the best part of the assignment?
6. Explain the economic terms as related to your market stand?
7. How does your market stand effect farmers in your region?
8. Compare and contrast the vegetables that grow in different seasons and regions.
9. What did you discover through completing the experiments?
10. How can you use this information to help a farmer?

Materials

- The Vegetables We Eat PPT
- Graph paper
- Poster board
- Plant Chart

Suggested Companion Resources

- The Vegetable Thief
<http://www.readworks.org/passages/vegetable-thief>
- Popular Vegetable Books to Use
<https://www.goodreads.com/shelf/show/vegetables>
- Books on Economics for Students
<http://www.scholastic.com/teachers/lesson-plan/books-teaching-economic-concepts>
- Vegetables Grown in North Carolina
<http://www.ncagr.gov/stats/general/overview.htm>

Essential Files

- How Does Your Garden Grow?
http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=206&search_term_lp=vegetables
- Give Me Five

http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=36&search_term_lp=vegetables

Essential Links

- Agriculture Information
<http://agriinfo.in/?page=topic&superid=1&topicid=863>
- Encyclopedia for Plants
http://www.eplantscience.com/index/medicinal_plants/classification_and_identification/classification_of_vegetables.php
- Vegetables Grown in North Carolina
<http://www.ncagr.gov/stats/general/overview.htm>
- Vegetable Guide
<http://www.wqseeds.com/documents/WQVegPlantGuide-revised.pdf>
- Raised Bed
<http://www.ces.ncsu.edu/depts/hort/hil/ag-06.html>

Ag Facts

- North Carolina farmers are meeting the increasing demand for high quality fruits and vegetables, enjoyed by millions of consumers every day. The fruit and vegetable industry is part of the diversification practiced by many Tar Heel farmers to meet the demand for fresh produce.
- North Carolina produces a significant amount of Sweet Potatoes, cucumbers for pickles, lima beans, turnip greens, collard greens, mustard greens, strawberry, bell peppers, blueberries, chile peppers, fresh market cucumbers, snap beans, cabbage, eggplant, watermelons, pecans, peaches, squash, apple, sweet corn, tomatoes, and grapes for millions of people in the United States and numerous other countries. <http://www.agclassroom.org/teacher/stats/northcarolina.pdf>

Extension Activities

Give the students a writing prompt that involves being a vegetable farmer. For example: Today, I worked in the field planting or harvesting _____. Choices of commodities should be given that are grown in the state where students live.

Sources & Credits

- <http://www.choosemyplate.gov/food-groups/vegetables.html>
- <http://www.ncfarmfresh.com/>
- <http://www.ces.ncsu.edu/depts/hort/hil/ag-06.html>

- <http://www.ncagr.gov/stats/general/commodities.htm>
- <http://www.choosemyplate.gov/food-groups/vegetables.html>
- <http://www.agclassroom.org/>
- <http://www.mbgnet.net/bioplants/parts.html>
- <http://quizlet.com/20530149/3rd-grade-economics-vocabulary-flash-cards/>
- <http://www.agclassroom.org/teacher/stats/northcarolina.pdf>

PROCEDURE: Record a description of your 4 plants before you start the experiment, then place the plants where they belong.

PLANT A:

PLANT B.

PLANT C.

PLANT D.

RECORD OF EXPERIMENT

1st

2nd

3rd

4th

5th

6th

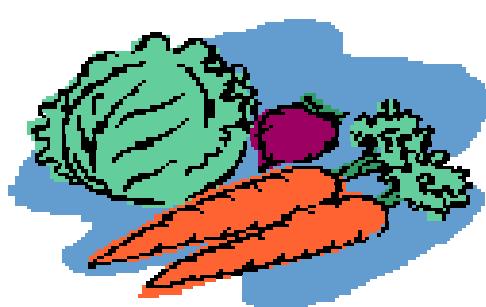
7th

8th

9th

10th

CONCLUSION: Summarize your results.



Vegetable Power Point(Right click on the power point to present)

The Vegetables We Eat

