

FOOD DOESN'T GROW IN THE SUPERMARKET

TEACHERS GUIDE

Presented by New Jersey Agriculture in the Classroom

a project of the New Jersey Agricultural Society

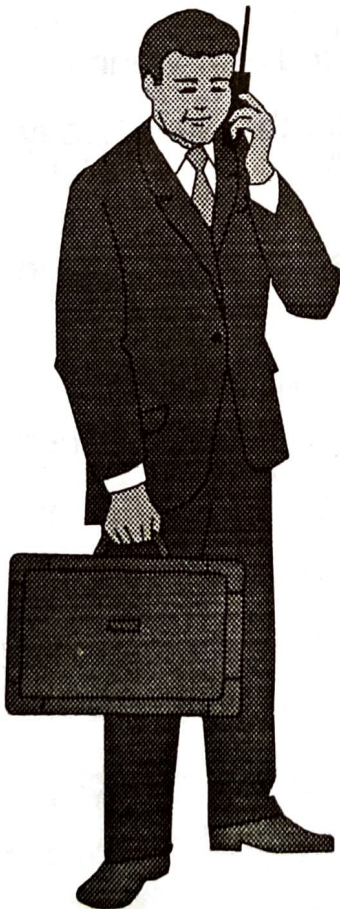
Dear Teacher,

Agriculture is everywhere, and most of your students don't even realize it. It's the food on their table, the cotton shirt on their backs, and the soft grass under their feet. This video and activity supplement will educate children about the importance of farming in their daily lives.

A variety of activities have been prepared by experienced educators to motivate your students to explore and discover how agriculture in this state touches them every day. The learning experiences included with this video are designed to promote fundamental knowledge and help develop process skills. The goals of the New Jersey State Standards in the development of content knowledge are also reflected in the activities. Complete your study by having students compile all the activities which are done into individual booklets. The children can design their own special covers.

A list of resources has been included with this material to enhance your agricultural adventure. Everything has been designed to help your students widen their perspectives of how other children live in New Jersey.

Explore! Wonder! Imagine! Learn! Discover the fabulous world of agriculture with your students while helping them meet the new state standards. Most of all, have fun!



P.S. This is the City Guy. He will accompany your students on their agricultural adventure.

INTRODUCTION TO NEW JERSEY AGRICULTURE IN THE CLASSROOM

Agriculture drives our economy and world politics. It serves the needs of millions of people by supplying the foods we eat, the clothes we wear, and much more. Unfortunately, many young students fail to realize these most basic facts.

The goal of New Jersey Agriculture in the Classroom (NJ ATIC) is to introduce agriculture to students in a manner that is enjoyable and interesting to both students and teachers. Starting in kindergarten and continuing through graduation, NJ AITC sprinkles agricultural topics throughout existing curriculum so all children can be exposed to agriculture.

NJ AITC wants to instill agricultural awareness in students, so they realize the value of agriculture and have the ability to make informed decisions about agricultural topics. We want to give students the knowledge to make decisions that will help ensure urban and agricultural co-existence.

This teachers guide was developed by Marie Chesnutt and Sue Vienne, teachers at Alpine Elementary School in Sparta, New Jersey for the New Jersey Agricultural Society.

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NATIONAL AGRICULTURE FACT SHEET

Agriculture is the United States' biggest industry. Its assets, which exceed \$1 trillion, are equal to about 88% of the capital assets of all manufacturing corporations in the nation.

Agriculture is also the nation's largest employer. Over 22 million people work in some phase of agriculture. Farming itself uses 3.4 million workers — as many as the combined payrolls of transportation, the steel industry and the automobile industry.

Approximately one out of every five jobs in private enterprise are dependent on agriculture.

In the last 50 years, there has been a 71.5% decline in the number of farmers. During that same time, technology has yielded a 700% increase in the number of people fed by each farmer. In 1940, one farmer fed 19 people; in 1950, 27 people; in 1960, 46 people; in 1970, 73 people; in 1980, 115 people; and, in 1990, one farmer fed 128 people.

Less than 3% of the nation's farms are owned by corporations. Of that amount, 80% are owned and operated by 10 or fewer members of a farm family that have formed a corporation. That means that most of the farms in America are family owned and operated.

American agriculture has a massive effect on the remaining sectors of the American economy. The performance of agriculture directly affects the price Americans pay for food — both in the grocery store and in the restaurant. And it also has considerable influence on the country's international balance of trade and the number of jobs available in this country.

For all these reasons, it is critical that all citizens develop an understanding of agriculture, and that's why there is a program called "Agriculture in the Classroom".

AGRICULTURE . . .

A VITAL PART OF NEW JERSEY'S ECONOMY

Agriculture is a vital part of New Jersey's economy, employing thousands of people in a variety of careers on and off the farm. Our farm products can be found in homes statewide, throughout the nation and around the globe as well.

The Garden State scenic vistas, open space and wildlife habitat, though sometimes taken for granted, are absolutely critical to the quality of life we all value so highly. They are a direct result of the thriving, diverse agriculture industry we have in New Jersey.

DID YOU KNOW THAT

- New Jersey ranks number three nationally in the production of cranberries.
- New Jersey is second to California in the production of freestone peaches.
- New Jersey is Number 2 nationally in blueberry production.
- the average per acre value of New Jersey farmland is \$8,172, the highest average value in the nation.
- New Jersey has 9,400 farms.
- New Jersey has 830,000 acres of farmland.
- the average farm size is 88 acres.
- over 250 farms and more than 50,000 acres have been preserved through the Farmland Preservation program.



LISTEN UP!

Use context clues to fill in the blanks with the correct vocabulary word in the following sentences from the video.

1. Instead of growing a lot of different crops for themselves, farmers _____ in producing large harvests of just a few crops.
2. Our farmers learned to _____ their production by considering the climate, the soil, and the marketplace.
3. _____ includes the foods you eat, the milk and juice you drink.
4. The _____ of milk was a major discovery which had a big effect on agriculture.
5. Janel knows which cow is which because they are _____, and their spots are like finger prints.
6. Once a calf is done drinking milk, it is called a _____ and drinks water and eats hay, silage, and grain.
7. Cows eat corn _____, which is corn stalk and corn ears chopped up together and then mixed in with the hay.
8. You're going to need some help and not from _____, but from nature.
9. Cranberries grow in a _____ on little vines.
10. You'll need to _____ your crops by using bees.
11. When there is a frost, you have to turn on the _____ which is like sprinklers.
12. Farmers will continue to figure out how to _____ their losses by developing crops that can withstand nature's worst problems.
13. Jay is studying how scientists develop disease _____ plants.
14. The actual breaking out of the seed and starting of the root system, the stem, and the leaves is called _____.

germination

irrigation

limit

resistant

silage

bog

Holstein cows

pasteurization

pollinate

agriculture

technology

increase

specialize

heifers

WORD DETECTIVE

Listen for the following words in the video. Use clues to match vocabulary words with their meanings by writing the correct letter next to the word.

- | | |
|-------------------|---|
| 1. Agriculture | A. The name given to calves after they stop drinking milk; a young cow that has not had a calf. |
| 2. Specialize | B. Course food for livestock. |
| 3. Pasteurization | C. Supplying land with water. |
| 4. Heifers | D. Soft, wet, spongy ground; marsh. |
| 5. Silage | E. To concentrate on some special branch of study or work. |
| 6. Holstein cows | F. The occupation of cultivating the soil and raising crops and farm animals; farming. |
| 7. Bog | G. The use of scientific knowledge to solve practical problems; the science of technical methods. |
| 8. Technology | H. The beginning of growth; the sprouting or developing of a plant. |
| 9. Pollinate | I. A breed of cows whose spots are like fingerprints; no two are alike. |
| 10. Irrigation | J. Heating milk to a point where certain harmful germs are killed. |
| 11. Germination | K. The carrying of pollen to or a shedding of pollen on. |
| 12. Resistant | L. Acting against or fighting against; withstanding the effect of. |
| 13. Combine | |

Are you really a good detective?
Search the list for the one word you
DID NOT hear in the video.
Write it on the line.

The Water Harvest

Jobs of the Harvest

CRANBERRY

Michelle

CREATION

Growing Healthy
Cranberries

Promoting Cranberries

Make a shape mobile after filling in shapes with information from the video and illustrating on the other side.

ALL ABOUT A NEW JERSEY _____ FARM

Brainstorm ideas and record them in the first two boxes of the following graphic organizer *before* watching the video. Fill in the third box *after* the video. Analyze your information using these questions: 1) Did you learn the answers for the things you wanted to know? 2) Did the things you knew prove to be correct? 3) Was any of the information unexpected?

What I know

What I want to know

What I learned from the video

DESKTOP FARMING

Imagine that you own 100 acres and have \$50,000 to work with for the season. You will use your desktop to help you complete the following activities.

1. Based on information gathered in the "Food Doesn't Grow in the Supermarket — Vegetable" section of the video, you will create a plan showing a birds-eye view of a working farm.

Your farm should include:

- * buildings necessary for daily operation (barn, machine shed, etc.)
- * farmhouse
- * travel routes from farmhouse to buildings and fields
- * the layout of the acreage (what crops are planted where, irrigation lines, etc.)
- * name the crops that have been planted

2. Zoom in on one plant on your desktop farm. Illustrate and label the stages of the development of its seed and its continued growth until it is harvested. Provide a written plan for dealing with the effects poor weather, fertilization and insect invasion has on your plant.

Your illustration should include:

- * period of germination
- * changes over time
- * effects of weather, fertilizer, insect population

3. Using a map of New Jersey, prepare a presentation that shows where you will sell your crops.

Your presentation should include:

- * a list of the big market cities in your area
- * written directions for a route to at least one city from your farm
- * an estimate of your traveling time based on mileage using map scale

Name of recipe:

From the kitchen of:

Preparation time:

Number of servings:

INGREDIENTS

INSTRUCTIONS

Notes to the teacher:

1. Make a recipe book using only cranberries, dairy products, or vegetables as the main ingredient.
2. Divide your class into groups and have each group bring in recipes for one of New Jersey's top crops, such as blueberries, cranberries, eggplant, asparagus, Bell peppers, and spinach).
3. Select recipes that can be made in class, and use them as a math lesson reviewing measurement.
4. Have each student design a box or bag that would contain what his/her recipe makes. On the back, list important information about the product.

DESIGNER T-SHIRTS

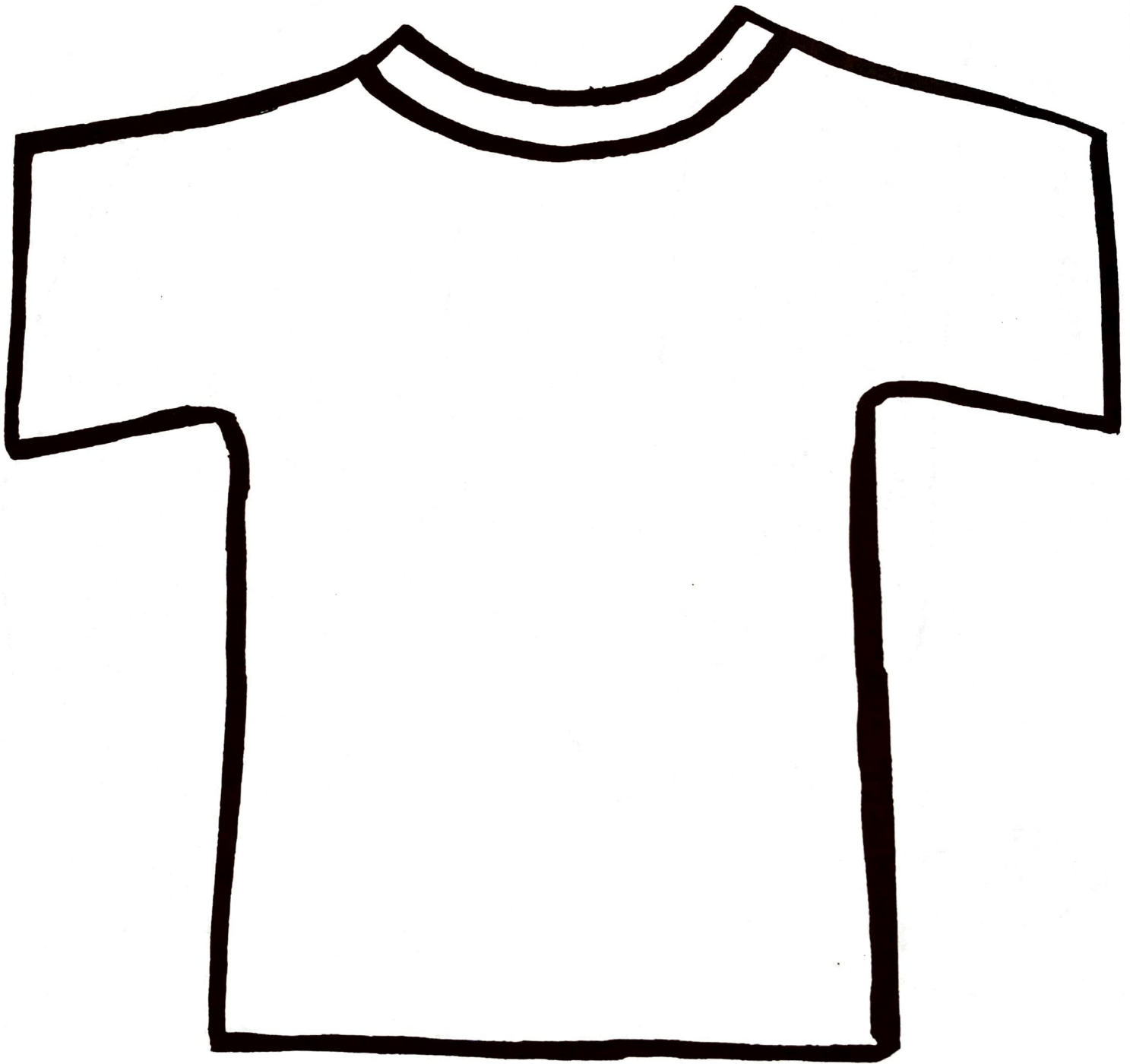
Use this pattern to design a rough draft of a New Jersey farm T-shirt.

Materials needed:

1 white T-shirt provided by student

fabric crayons

white paper for final design

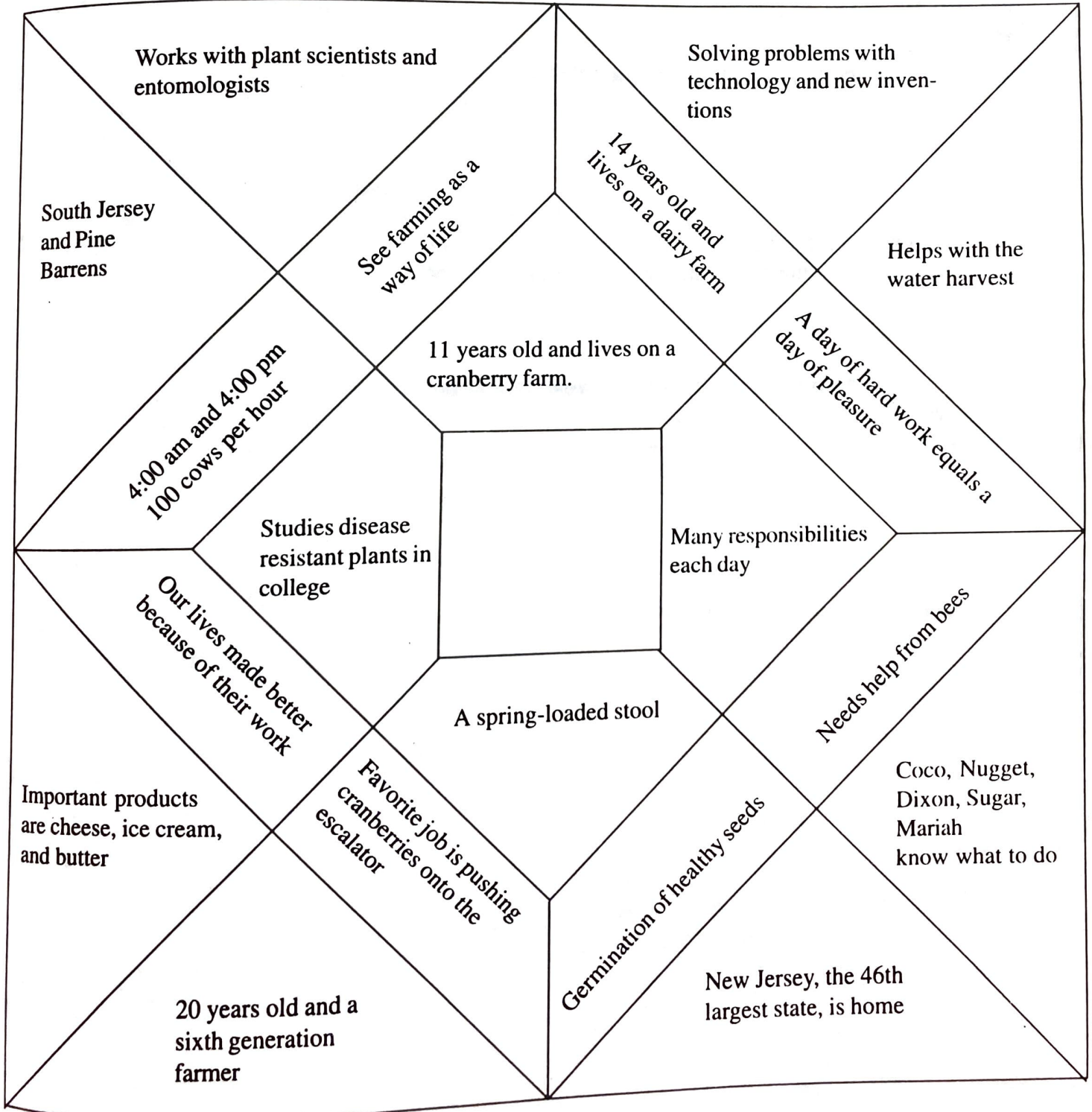


Some ideas for designs include New Jersey farm slogans, pictures of crops or cows, or anything related to agricultural industry. Designs can be made in art class, and ironing the design onto the T-shirt can be done at home with adult supervision.

FARM-O-RAMA

1. Each shape contains a clue.
2. Match the clues with the video stars.
3. Color the shape using the code.

Michelle = Red Janel = Yellow Jay = Green All = Orange





BECOME AN INVENTOR WITH THE CITY GUY

Invent a tool or machine that would make a job on a farm easier to complete. Draw a diagram below with parts labeled. Write a brief description that tells how it works and how it will help a farmer. Exchange inventions with a classmate. Create an advertisement for your classmate's invention. Have a class display of all the advertisements.

CRANBERRY DAY

Give each student or group a handful of cranberries. Use them for a variety of learning activities.

MATH

Have students estimate the number of cranberries in a package. To see how close the estimates are, add the number each student or group has counted.

Make graphs showing varying shades of cranberries. Based on color, predict which cranberries are most tart.

Using a recipe for cranberry sauce, calculate the amounts of each ingredient needed so that there is one serving per student.

LANGUAGE ARTS

Write a description of a cranberry.

Write a story about an imaginary cranberry that has come to life.

Write a story about winning a lottery in which you win five million cranberries instead of five million dollars. Be sure to include what you will do with your winnings.

SOCIAL STUDIES

Do research to find what states, other than New Jersey, grow cranberries.

Use a New Jersey map to show where cranberry farms are located in New Jersey.

Use an encyclopedia to determine if cranberries are an important product in other countries.

SCIENCE

Prepare experiments to determine the following:

Do cranberries float?

What happens to cranberries when they are placed in water, after being cut in half?

How does the cranberry change after being cooked?

HEALTH

Do research on why cranberries are nutritious.

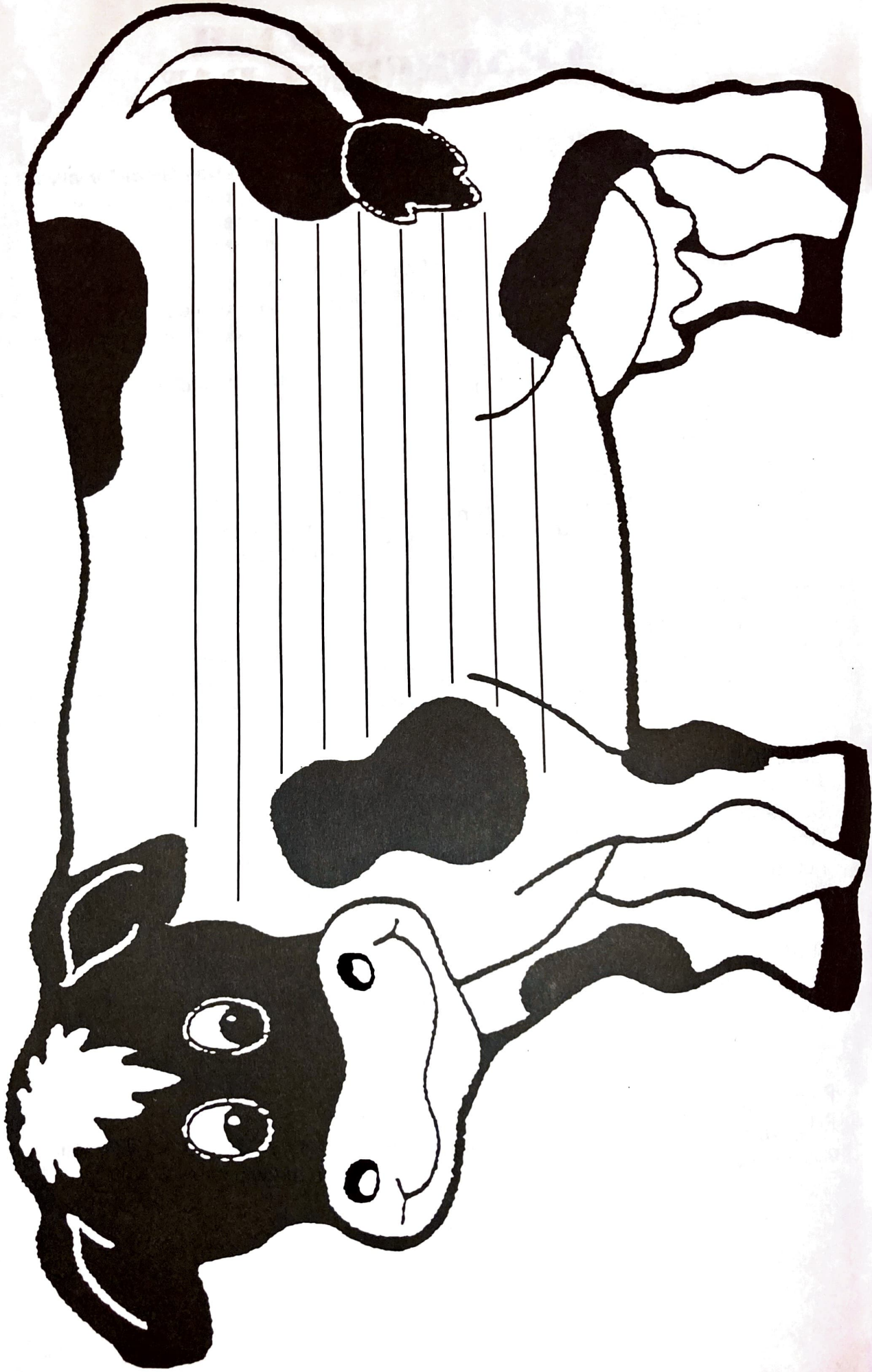
Have students find recipes using cranberries.

PHYSICAL EDUCATION

Relay races can be set up carrying a spoonful of cranberries to a jar. The team with the most cranberries in the jar at the end of the game is the winner.

TIME TO REMEMBER

After viewing the video, list five things on the lines below which you learned about Holstein cows.
Choose a name you would like to give a cow, and print it at the bottom.



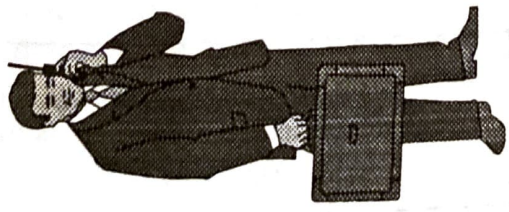
**RUTGERS
TOMATO
PERFECTED
IN
NEW JERSEY**

**Milking machine
breaks down
Back 1**

**C.F. Seabrook
first freezes
fresh produce**

**Record crop
production
Forward 2**

**SEVERE
DROUGHT
GO BACK 3**



THE CITY GUYS' FARM FUN

**Low market
prices on
cranberries
Back 2**

**World's largest
pumpkin grows
in New Jersey
Forward 2**

**High milk
production
Forward 1**

**Plant scientist
makes new
discovery
Forward 1**

**Research
develops
disease resistant
asparagus
Forward 1**

START

FINISH

**Insects
Invade
Crop
Back 4**

**Cranberry
harvest
Forward 1**

**Plant scientist
makes new
discovery
Forward 1**

**FROST
HITS
CRANBERRY
BOG
BACK 2**

Game Preparation:

1. Cut the questions apart using the lines.
2. Each player makes a game piece that will fit on the game board.

Directions:

1. View the video.
2. Set up question cards face down.
3. First player draws a question.
4. If answered correctly, move the number of spaces shown on the card.
5. The winner is the first player to reach the finish line!

THE CITY GUY'S FARM FUN TRUE OR FALSE QUESTION CARDS

1. New Jersey is home to the largest cultivated blueberry farm in the world. (3)	14. Millions of bees are needed to pollinate the cranberry bogs. (2)
2. Our farmers produce over 70 varieties of fruits and vegetables. (2)	15. Frost can help your cranberries grow. (1)
3. Farmers specialize in producing large harvests of just a few crops. (1)	16. Irrigation systems help when there is too much rain. (3)
4. About one half of New Jersey is farmland. (3)	17. The roots, stem, and leaves break out of the seed during germination. (2)
5. New Jersey is one of the top 5 producers of potatoes in the nation. (2)	18. The New Jersey Department of Agriculture tests seeds for farmers. (1)
6. Farmers need to know about science and technology, as well as business and marketing. (1)	19. A plant scientist helps farmers sell their crops. (3)
7. There are 8,000 farms in New Jersey. (3)	20. Stress tests on seeds are like athletic competitions for people. (2)
8. Pasteurization means that the milk is frozen to kill germs. (2)	21. An entomologist is a scientist who studies weather. (1)
9. The spots on a Holstein cow are like a person's fingerprints. (1)	22. Farmers must work with nature, even when nature works against them. (3)
10. A cow weighs about 500 pounds. (3)	23. Many careers in today's world are related to agriculture. (2)
11. New Jersey farmers grow 1/30 of the world's supply of cranberries. (2)	24. Farming is more a way of life than a business for New Jersey farmers. (1)
12. It takes cranberry vines about 3 or 4 years to grow after a bog is planted. (1)	25. Practical problems in agriculture can often be solved by using technology. (3)
13. Today, cranberries are harvested with a scoop. (3)	26. There is more to agriculture than growing crops and raising animals. (2)

ADDITIONAL ACTIVITIES

Language Arts

1. Write a letter to one of the video stars.
2. Keep a seven day journal of one of the stars.
3. Write original poems about farming, and compile a class poetry book.
4. Select a problem that New Jersey farmers face today, and write a newspaper editorial.
5. Research and write about changes that have occurred in New Jersey which have taken away farm land.
6. Pretend you are one of the stars in the video. Write a letter to a friend describing your daily activities on the farm.
7. Write to your local 4-H club or FFA to gather more information about farming in New Jersey.

Research/Oral Presentations

Select from the following topics, and prepare an oral presentation using the New Jersey ESPA guidelines.

1. Specialized farms in New Jersey (horse, tree, flower, etc.)
2. Conservation
3. Colonial farming
4. Promoting one of the top crops
5. Video farms (compare and contrast)

Social Studies

1. Create a law that would help farmers, and write a persuasive letter to a New Jersey legislator stating your reasons.
2. Use a Venn diagram to compare and contrast two of the farms.
3. Create a timeline that shows the change in farm tools over the years.

Science

1. Investigate the growth of a seed and illustrate the process.
2. Germinate seeds in class and keep a journal of growth.
3. Prepare an experiment demonstrating the effects of weather on the growth of a plant.

Math

1. After watching the video, have students create word problems using the information presented.
2. Conduct a pantry hunt. Look for products that contain New Jersey's top crops. Make a class graph from the results.
3. See *Desktop Farming* for additional ideas.

Art

1. Make a filmstrip using transparencies to illustrate information learned from the video.
2. Make a class farm story quilt. Have each child design a paper square illustrating a scene from the video. Assemble for classroom display.
3. Make a shape mobile using *Cranberry Creation*. Students can write a fact on one side, and illustrate it on the other.
4. Design an advertisement for a New Jersey farm product (food, machinery, clothing)
5. See recipe activity for additional ideas.

These organizations and web sites provide students with excellent links to a variety of related databases, graphics, games, and activities. For more information about the agriculture industry, please contact these organizations are the following addresses.

The National FFA Organization
PO Box 68960
6060 FFA Drive
Indianapolis, IN 46268-0960
Phone: 317-802-6060
Fax: 317-802-6061
<http://www.ffa.org>

Families, 4-H and Nutrition Unit
U.S. Department of Agriculture
Cooperative State Research, Education
and Extension Service
Room 3441-S/Ag Box 0925
Washington, D.C. 20250-0925
Phone: 202-720-6925
Fax: 202-690-2469
<http://www.reeusda.gov>
<http://www.fourcouncil.edu/>

New Jersey Agricultural Statistics Service
P.O. Box 330
Trenton, NJ 08625-0330
<http://www.nass.usda.gov/nj/>

Rutgers Cooperative Extension
Cook College
P.O. Box 231
New Brunswick, NJ 08903-0231
[http:// aesop.rutgers.edu/](http://aesop.rutgers.edu/)

New Jersey Agricultural Society
P.O. Box 331
Trenton, NJ 08625-0331
Phone: 609-394-7766
Fax: 609-292-3978

New Jersey Museum of Agriculture
PO Box 7788
North Brunswick, NJ 08902
Phone: 732-249-2077
Fax: 732-247-1035
www.agriculturemuseum.org

Afton Publishing Co., Inc.
P.O. Box 1399
Andover, NJ 07821-1399

Agriculture Education National Headquarters
1410 King Street
Suite 400
Alexandria, VA 22314
Phone: 800-772-0939
Fax: 703-838-5888

WEBSITES

The following web sites contain information that can help support the agricultural and environmental themes in your classroom.

<http://www.nppc.org/foodfun.html>

Go on a farmtastic voyage and see everything from new baby pigs to how pigs are fed. Meet Adam and find out about his 4-H project. Also explore the world of food from a kid=s-eye view.

<http://netvet.wustl.edu/PIGS.htm#pets>

Everything you ever wanted to know about pigs but were afraid to ask.

<http://www.kyfb.com/aged.htm>

Kentucky Farm Bureau=s Ag in the Classroom program. Find out about the lending library, mini grants, lesson plans and teacher conference information.

<http://www.ca.uky.edu/>

The University of Kentucky College of Agriculture web site. Look under Agripedia to find out about ag careers and under Extension Service Publications to find just about everything you have questions on relating to agriculture.

<http://viking.stark.k12.oh.us/~orcard/farmunit.htm>

A farm unit from North Canton, Ohio schools.

<http://www.brigadoon.com/~owlmouse/foldup3.htm>

Free software for kids to create a fun and educational arts and crafts project on how to make a farm.

<http://www.ns.doe.ca/udo/paydirt.html>

Composting information and activities.

<http://www.cas.psu.edu/doc/casprof/agclassroom/agclassroom.html>

The Pennsylvania Ag in the Classroom web site. Click on lesson plans.

<http://www.cfaitc.org/resource-materials/instructional-materials/index.html>

California Foundation for Ag in the Classroom instructional materials.

<http://wkuweb1.wku.edu/Dept/Academic/Education/CNSEE/main.html>

The Center for Mathematics, Science & Environmental Education offers educational opportunities and resources.

<http://www.farmjournal.com/>

The section referred to as BookWagon has a Children=s Book option. You may review book titles and purchase over the internet.

<gopher://eelink.umich.edu:777/11/activities/cornell>

Solid waste classroom activities.

<http://www.gatewest.net/green/index/html>

From The Group Up provides teachers with five lessons on agriculture and environment themes.

http://seawifs.gsfc.nasa.gov/ocean_planet.html
Ocean Planet is a traveling exhibit about the ocean.

<http://home.sprynet.com/sprynet/heiskell/>
Home page of a Kentucky beef cattle farm.

<http://www.hcs.ohio.state.edu/hcs/htr/htr.html>
Horticulture teaching resources from Ohio State University.

<http://www.agricareers.com/>
Careers resource for agribusiness.

<http://www.fb.com/>
American Farm Bureau

<http://www.nppc.org/>
National Pork Producers

<http://www.beef.org>
National Cattlemen's Beef Association

<http://www.ansi.okstate.edu/>
Department of Animal Science, Oklahoma State University

<http://aesop.rutgers.edu/>
Cook College/NJAES Home Page

<http://www.nalusda.gov/>
The National Agricultural Library

<http://www.ars.usda.gov/>
Agricultural Research Service

<http://www.acpa.org/>
American Crop Protection Association

<http://www.ais.msstate.edu/aglinks/aglinks.html>
AgLinks for Educators

<http://www.clipartconnection.com>
The Clip Art Connection - theme specific clip art

<http://sun.vvcrc.tec.va.us/vvcrc.html>
Virginia ag curriculum development

<http://www.uark.edu/depts/aeedhp/agsci.htm>
University of Arkansas: Agri-Science Project

<http://www.usda.gov/>
United States Department of Agriculture Home Page

<http://www.ceismc.gatech.edu/BusyT/>
K-12: Table of Contents

<http://www.modern.com/>
modern video catalog

<http://www.dole5aday.com/>
Dole 5 A Day

<http://www.mda.state.mi.us/kids/index.html>
Kidz Korner - Michigan Department of Agriculture

<http://www.moomilk.com/home.htm>
Welcome to MooMilk - Dairy activities

<http://www.classroom.net>
K - 12 educational resources

<http://www.libertydairy-deanfoods.com/index.htm>
milk information

<http://www.dcwnet.org>
Wisconsin Dairy Council

<http://vizlab.beckman.uiuc.edu/chickscope>
learn about chick embryology through on-line MRI project

<http://ag.arizona.edu/AES/mac/ahb/ahbhome.html>
Africanized Honeybee Lessons

<http://cvs.anu.edu.au/andy/beye/beyehome.html>
See the world through the eyes of the honeybee

<http://www.ncga.com/>
National Corn Growers Association

<http://www.popcorn.org/mpindex.htm>
The Popcorn Institute

<http://www.ohiocorn.org/kids/default.htm>
Kids corn activities

<http://www.tx.nrcs.usda.gov/urban/Watersv.html>
Water saving fact sheet

<http://www.tx.nrcs.usda.gov/class/sammy.htm>
Sammy Soil Coloring Book

<http://www.rce.rutgers.edu>
Rutgers Cooperative Extension

<http://www.agriusa.com/vga.htm>
Vegetable Growers Association of NJ

<http://www.jerseytomato.com>
NJ Tomato Council

<http://www.jerseyasparagus.com>
NJ Asparagus Farms, Inc.

<http://www.centertonnursery.com>
Centerton Nursery

<http://www.state.nj.us/agriculture/index.html>
NJ Department of Agriculture

<http://www.agriusa.com>
AgriUSA

<http://www.newjerseywines.com>
NJ Wineries

<http://www.matarazzo.com>
RJM Marketing

<http://www.farm-rite.com>
Farm-Rite, Inc. & Owen Supply Company

<http://www.mes.umn.edu/~hoefer/extnsion/ceelgust.htm>
Continuing Education & Extension at Land Grant Universities

<http://www.milk.co.uk>
National Dairy Council

<http://www.ffa.org>
National FFA Association

<http://www.reeusda.gov/news/csrees.htm>
Cooperative State, Research, Education & Extension Service

<http://www.farm.ewu.edu>
Center for Farm Health and Safety

<http://www.agriculture.com/contents/ffa/partners/nvata>
National Association of Agricultural Educators

<http://www.agriculture.com>
Agriculture Online

<http://www.farmnews.co.nz>
Farm News

<http://www.usda-apmru.tamu.edu>
USDA ARS Areawide Pest Management Research Unit

<http://www.hfw.com/world>
Holstein World Online