

How Did That Get Here?

A Closer Look at the Biography of Things

Students wonder about the origins of the things they see or use every day. The *How Did That Get Here?* Teacher Guide serves to fuel further exploration of such objects. By using this guide, you have an opportunity to tap into high student interest while exposing students to broader concepts.

By participating in these lessons, students will begin to make global connections and understand higher-level concepts, such as the balance of supply and demand and consumer impact on the economy. Students will also gain an awareness of some of the pertinent historical and contemporary issues involved in the production of goods as they come to form opinions and realize that they can make a positive difference through their actions.

The lesson plans are tailored for grades 4–6 and cover the humanities, geography, economics, sociology, mathematics, biology, and ecology. Each lesson plan is designed to stand alone. As such, they do not have to be presented in sequential order. Helpful reproducible worksheets and rubrics appear at the end of this guide.

The book titles referenced in this guide include:

The Biography of Bananas

The Biography of Silk

The Biography of Chocolate

The Biography of Spices

The Biography of Coffee

The Biography of Sugar

The Biography of Corn

The Biography of Tea

The Biography of Cotton

The Biography of Tobacco

The Biography of Potatoes

The Biography of Tomatoes

The Biography of Rice

The Biography of Vanilla

The Biography of Rubber

The Biography of Wheat

The Biography of Wool

As students investigate the topics addressed in the series and become more aware of global matters, they will sharpen their critical thinking skills to work towards creative solutions to worldwide problems. We invite you to jump in and ask questions with your class as you have fun learning more about the everyday products around you.



National Standards Correlation

Lesson Plan Title	Correlation to National Standards
<p>My Life as a Plant</p>	<p>Language Arts Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.</p> <p>Science Students should develop the abilities necessary to do scientific inquiry. Students should develop understandings about scientific inquiry.</p> <p>Social Studies The learner can use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs, and maps to generate, manipulate, and interpret information. The learner can work independently and cooperatively to accomplish goals.</p>
<p>What a Pest!</p>	<p>Language Arts Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purposes and audience.</p> <p>Science Students should develop an understanding of the characteristics of organisms. Students should develop an understanding of the life cycles of organisms. Students should develop an understanding of organisms and environments.</p> <p>Social Studies The learner can explore causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues, such as pollution and endangered species. The learner can work independently and cooperatively to accomplish goals.</p>
<p>Where in the World?</p>	<p>Social Studies The learner can examine the interactions of human beings and their physical environment, the use of land, the building of cities, and ecosystem changes in selected locales and regions. The learner can apply knowledge of economic concepts such as supply, demand, and price to help explain events in the community and nation. The learner can compare basic economic systems according to who determines what is produced, distributed, and consumed. The learner can interpret, use, and distinguish various representations of the earth, such as maps, globes, and photographs.</p>
<p>Trading Cases</p>	<p>Social Studies The learner can compare basic economic systems according to who determines what is produced, distributed, and consumed. The learner can examine, interpret, and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas, and ecosystem changes. The learner can analyze the effects of conflict, cooperation, and interdependence among groups, societies and nations.</p>
<p>What's in Your Cup?</p>	<p>Science The student can develop abilities necessary to do scientific inquiry.</p>

Lesson Plan Title	Correlation to National Standards
What's in Your Cup? (continued)	<p>Social Studies</p> <p>The learner can use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs, and maps to generate, manipulate, and interpret information.</p> <p>The learner can recognize and give examples of the tensions between wants and needs of individuals and groups, and concepts such as fairness, equity, and justice.</p> <p>The learner can give and explain examples of ways that economic systems structure choices about how goods and services are to be produced and distributed.</p> <p>The learner can use economic concepts to help explain historical and current developments and issues in local, national, or global contexts.</p>
An Island Home	<p>Language Arts</p> <p>Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purposes and audience.</p> <p>Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).</p> <p>Science</p> <p>Students should develop the abilities necessary to do scientific inquiry.</p> <p>Students should develop an understanding of organisms and environments.</p> <p>Students should develop an understanding of populations, resources, and environments.</p> <p>Students should develop an understanding of changes in environments.</p> <p>Social Studies</p> <p>The learner can examine the interaction of human beings and their physical environment, the use of land, building of cities, and ecosystem changes in selected locales and regions.</p> <p>The learner can propose, compare, and evaluate alternative uses of land and resources in communities, regions, nations, and the world.</p>
The Little Book of Chocolate	<p>Language Arts</p> <p>Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.</p> <p>Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).</p> <p>Science</p> <p>The student can develop abilities necessary to do scientific inquiry.</p> <p>The student can develop an understanding of organisms and environments.</p> <p>The student should develop an understanding of types of resources.</p> <p>Social Studies</p> <p>The learner can give and explain examples of ways that economic systems structure choices about how goods and services are produced and distributed.</p>
Let's Weigh It Out	<p>Math</p> <p>Students should develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers.</p> <p>Science</p> <p>Students should develop abilities necessary to do scientific inquiry.</p> <p>Social Studies</p> <p>The learner can work independently and cooperatively to accomplish goals.</p>

Overview and Scope of Lesson Plan Activities

Lesson Plan Title	Subject Areas	Major Concepts
My Life as a Plant	Biology Ecology Economics Writing	<ul style="list-style-type: none"> • organic and commercial cultivation of plants • life cycle of plants • writing process and narrative writing form
What a Pest!	Drama Ecology History Sociology	<ul style="list-style-type: none"> • effects of pests on the world's food supply • harmful and beneficial insects • drama techniques
Where in the World?	Ecology Geography	<ul style="list-style-type: none"> • areas of food production around the world • origins of foods and the relationship to climate
Trading Cases	Economics Sociology	<ul style="list-style-type: none"> • import and export processes and their relationship to the production of goods in different parts of the world • awareness of global economy and global interdependence
What's in Your Cup?	Biology Economics	<ul style="list-style-type: none"> • awareness of global economy and global interdependence • study of the growth and production of coffee • fair trade
An Island Home	Ecology Language Arts Sociology	<ul style="list-style-type: none"> • relationship between human actions and the environment • conservation of resources
The Little Book of Chocolate	Ecology Economics Writing	<ul style="list-style-type: none"> • production of chocolate • climate and biome study • summarizing
Let's Weigh It Out	Economics Mathematics Science	<ul style="list-style-type: none"> • accurate weights and measures of common products • methods of calculating to compare quantities

Pacing Chart and Vocabulary

One class period is approximately 40 minutes.

Lesson Plan Title	Pacing	Vocabulary	Assessment
My Life as a Plant	2–3 class periods	cultivation (commercial and organic)	Evaluate student narratives by checking for creativity and accuracy of information.
What a Pest!	2 class periods	agricultural pest cultural, chemical, and biological control pesticide pest management	Evaluate student presentations with the corresponding rubric.
Where in the World?	1 class period	biome climate	Check the completed world maps for accuracy.
Trading Cases	1 class period	export import	Check for student understanding of main concepts during the activity.
What's in Your Cup?	1 class period	fair trade import	Review reproducible for accuracy and synthesis of information.
An Island Home	2–3 class periods	conservation development land use management	Evaluate student presentations with the corresponding rubric.
The Little Book of Chocolate	1 class period	biome cacao tropical rainforest	Evaluate books for accuracy and synthesis of information.
Let's Weigh It Out	1 class period	pre-measured quantity weight	Check the <i>Let's Weigh It Out</i> reproducible for accuracy and completeness.

My Life as a Plant

A Lesson on the Life Cycle of Plants and the Trip from the Farm to the Table

Content

Students will practice their writing and composition skills while learning about the production and distribution of a plant.

National Standards

The following standards will be addressed in the lesson:

Language Arts

Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

Science

Students should develop the abilities necessary to do scientific inquiry.

Students should develop understandings about scientific inquiry.

Social Studies

The learner can use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs, and maps to generate, manipulate, and interpret information.

The learner can work independently and cooperatively to accomplish goals.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:

 Spatial

 Bodily-Kinesthetic

 Interpersonal

 Verbal-Linguistic

Prerequisites

Students should read books in the *How Did That Get Here?* series that highlight agricultural food products (e.g., *The Biography of Corn*) and focus on how these food goods are planted, grown, harvested, and used throughout the world. Review these ideas with students before proceeding with the lesson.

Materials

- *How Did That Get Here?* books
- writing paper and implements
- student copies of the *My Life as a Plant* reproducible
- construction paper and/or poster board
- food components for healthy snacks
- small plastic bags
- plastic spoons

Instructional Procedure

Anticipatory Set

Ask: *Have you ever thought of what life would be like if you were a plant? How would you start out and where would you end up?* Explain to students that they will write a creative story about life as a fruit, vegetable, or grain. They will use the writing process to turn their ideas into interesting stories that will reflect accurately the plant life and product cycle—from seed to dinner table.

Class Discussion

Complete a *My Life as a Plant* reproducible as a sample to illustrate the process of seed to food. After choosing an example, such as bread or chocolate, talk about how the food started from seeds and later was processed into something edible. Think aloud as you answer the questions.

Objectives

The student will be able to...

- define the term *cultivation* and understand the difference between *commercial* and *organic cultivation*
- chart the growth of a plant and its progression from farm to table on a graphic organizer
- process the meaning of plant life cycles (e.g., growing from a seed to a fruit)
- move through all the stages of the writing process to create a narrative piece

Activity

Have students choose a food from the series that they would like to investigate. Direct students to work alone or with a partner to complete the *My Life as a Plant* reproducible. Approve students' completed organizers, and then allow them to draft their creative piece. The story should be a first-person narrative, with the plant telling the story. Have students exchange stories for peer review. Students should edit the stories for grammar, spelling, punctuation, and proper sequence (from farm to table). Encourage students to illustrate their stories if time allows.

When all corrections and revisions have been made, ask students to read their stories aloud as part of a special Celebration of Food Day. To accompany the festivities, ask students to create a healthy snack. Each student should contribute an item made from his or her plant (e.g., banana chips, popcorn, granola, chocolate chips). Distribute the small plastic bags to the students and invite them to fill their bags by spooning the snack items into them. Students will have a new sense of appreciation for what they are eating while enjoying great writing.

Accommodations and Extensions

Students may tell their stories through pictures or cartoons or by outlining the plant-to-table process.

As an extension, students can research the idea of inventing a new use for their chosen plants.

Closure

Stress that the foods we consume all have a story and that knowing these stories can help us to appreciate the unique qualities of foods we eat every day.

Assessment

Evaluate student narratives by checking for creativity and accuracy of information.

What a Pest!

A Lesson on Agricultural Pests and Pest Control

Content

Students will identify agricultural pests and analyze their effect on the world's food supply. Students will learn about the boll weevil and solutions that have helped to limit the damage created by this insect.

National Standards

The following standards will be addressed in the lesson:

Language Arts

Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purposes and audience.

Science

Students should develop an understanding of the characteristics of organisms.

Students should develop an understanding of the life cycles of organisms.

Students should develop an understanding of organisms and environments.

Social Studies

The learner can explore causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues, such as pollution and endangered species.

The learner can work independently and cooperatively to accomplish goals.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic



Interpersonal



Verbal-Linguistic

Objectives

The student will be able to...

- define the following terms: *agricultural pest*, *pesticide*, and *pest management*
- work in teams to explore harmful and beneficial insects
- dramatize ways insects affect crops and people

Prerequisites

Students should read books in the *How Did That Get Here?* series that highlight the cultivation of various agricultural products and how pests affect them (e.g., *The Biography of Cotton*). Students should pay particular attention to the management of pests during cultivation.

Materials

- *How Did That Get Here?* books
- reference books about insects and agricultural pests
- materials to make props and costumes (construction or drawing paper, cardboard, paint, markers or crayons, paper bags, etc.)
- *What a Pest!* reproducible

Instructional Procedure

Anticipatory Set

Explain to students that any unwanted organism can be a pest. Common pests include insects that eat our plants. Some insects are food for other insects, and some actually help crops. Pest management is an approach to pest control that keeps pests at a manageable level rather than eliminating them entirely. The boll weevil is one example of an insect pest. In the past, cotton production in the United States was greatly reduced by the boll weevil. Ask: *What do you think happened to the farmers and the towns the boll weevil inhabited? Do you think that there are still problems with boll weevils and other pests today?*

Class Discussion

Talk about the concept of pest management, which includes a wide array of options available to farmers to combat pests. Introduce the terms *cultural*, *chemical*, and *biological control*. Help students understand that pest control must be done carefully. Guide them to think about what happens to the ecosystem when the quantity of a particular pest is reduced.

Activity

Have students write and perform a skit, commercial, or news program to learn more about insect pests and their effects. Divide the class into small groups, and have each group choose an insect pest they would like to learn more about. Consult the *How Did That Get Here?* series for examples. Pests may include nematodes (*The Biography of Bananas*), corn earworms (*The Biography of Corn*), potato flea beetle (*The Biography of Potatoes*), and aphids (*The Biography of Wheat*). Each presentation should include what the insect pest eats and where it lives, the insect's life cycle, and management of the pest. Use the *What a Pest!* reproducible at the back of this guide as an example presentation. Solicit volunteers to present the sample interview to the class. Encourage students to be creative as they develop their own ideas. Schedule time in the school library for groups to conduct research. Remind students that each group presentation should be informative *and* entertaining.

Accommodations and Extensions

English language learners may draw, label, and color the parts of an insect pest to show to the class.

As an extension, have students research and write a summary of a major agricultural plague, such as the boll weevil infestation of 1922 and how this problem was finally resolved.

Closure

Review with students why some insects are considered pests and some are not. Emphasize the importance of responsible and healthy pest management.

Assessment

Use or adapt the following rubric to assess student presentations:

The student actively participated in the presentation.	0	1	2	3
The student was creative.	0	1	2	3
The student dramatized ways insects affect crops and people.	0	1	2	3
The student effectively defined the pest (its diet, life, and life cycle).	0	1	2	3
The student explained how humans manage the pest.	0	1	2	3
The student demonstrated understanding of main concepts.	0	1	2	3

Total ___/18

Where in the World?

A Lesson on Identifying Areas of Food Production on a World Map

Content

Students will use their map skills to locate and identify areas of food production around the world. Students will also make connections between the origins of foods, world biomes, and farming.

National Standards

The following standards will be addressed in the lesson:

Social Studies

The learner can examine the interactions of human beings and their physical environment, the use of land, the building of cities, and ecosystem changes in selected locales and regions.

The learner can apply knowledge of economic concepts such as supply, demand, and price to help explain events in the community and nation.

The learner can compare basic economic systems according to who determines what is produced, distributed, and consumed.

The learner can interpret, use, and distinguish various representations of the earth, such as maps, globes, and photographs.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic

Prerequisites

Students should read books in the *How Did That Get Here?* series to gain an understanding of food production around the world. *The Biography of Wheat* and *The Biography of Rice* work well with this lesson. Before proceeding with the activity, help students make comparisons between food production and climate, soil, and water conditions.

Materials

- a large map of the world and/or globe
- *How Did That Get Here?* books
- reference books on food production
- student copies of the *Where in the World?* reproducible
- board or chart paper and writing implements

Instructional Procedure

Anticipatory Set

Ask students to list their favorite foods and beverages. Write the list on the board or chart paper. Circle the foods that are fruits and vegetables. Put a box around those that contain rice or wheat. Highlight foods containing spices. Ask the class if they know where these foods are grown and produced. Explain that the origins of foods can surprise us.

Class Discussion

Discuss with students the notion that food production is dependent on environmental conditions for farming. Certain areas of the world offer the perfect conditions for different crops. Use the classroom map to show students locations of rainforests, such as Central and South America, where trees are abundant. Explain that a product like wheat does not grow well in such wet, humid climates. Wheat grows best in temperate zones that are not prone to extremes of heat or cold. Sunshine and warm temperatures are needed for the growing season along with an average of 12–15 inches of rainfall or irrigation. Use the map to point out the prairie states where wheat grows. Tell students that we can conclude that farming practices around the world are not an accident. What is grown where really depends on the area and its resources.

Objectives

The student will be able to...

- locate areas of food production in the world
- use knowledge and understanding from the *How Did That Get Here?* series to complete a map activity

Activity

Students will complete a map activity that can be done individually, with a partner, or in a small group. Distribute the *Where in the World?* reproducible, copies of the *How Did That Get Here?* books, and other reference books about food production to students.

Accommodations and Extensions

Students can draw as well as label the goods on the map. Place students in mixed-ability groups.

This activity can be expanded by creating a classroom map. Ask students to label foods on index cards and position the cards on a large wall map. Using string and push pins, each food card can be connected to the food's country of origin. This map would serve as a useful reference display while studying the different books in the series.

Closure

Explain that farmers need to know and understand the conditions of the environment to be successful at cultivating certain crops.

Assessment

Assess student understanding of the concept by checking the completed world maps for accuracy.

Answer Key:

1. Canada: mustard
2. United States: corn and wheat
3. Europe: potatoes
4. China: tea
5. Japan: silk
6. Mexico: coffee
7. Brazil: cacao
8. South America: vanilla
9. Indian Ocean: pepper
10. India: bananas
11. Indonesia: rice

Trading Cases

A Lesson on Importing and Exporting

Content

Students will gain a better understanding of the import and export process and how this process relates to the production of goods in different parts of the world. Students will also become more aware of our global economy and global interdependence.

National Standards

The following standards will be addressed in the lesson:

Social Studies

The learner can compare basic economic systems according to who determines what is produced, distributed, and consumed.

The learner can examine, interpret, and analyze physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas, and ecosystem changes.

The learner can analyze the effects of conflict, cooperation, and interdependence among groups, societies and nations.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic



Interpersonal

Prerequisites

Students should read books in the *How Did That Get Here?* series that highlight agricultural food products (e.g., *The Biography of Bananas*) and pay particular attention to how these food goods are exported and imported throughout the world. Review these terms before proceeding with the lesson.

Materials

- country/continent cards (see below for directions)
- ball of string
- scissors

Country/Continent Card Directions: Make four or five cards in advance. Fold a large piece of construction paper in half. Write the following information in bold print on each card:

1. United States
Imports: coffee, oil, tea, cars
Exports: grain, computers
2. Japan
Imports: cotton, corn, metal
Exports: rice, cars
3. Brazil
Imports: grain, textiles (cotton, silk)
Exports: cacao beans, coffee, bananas
4. Saudi Arabia
Imports: corn, rice
Exports: oil, textiles (silk)
5. Great Britain
Imports: cacao beans, bananas, computers
Exports: tea, metal

Objectives

The student will be able to...

- define the terms *import* and *export*
- work with other students to illustrate trade connections between different countries
- process the meaning of global interdependence

Instructional Procedure

Anticipatory Set

Use fruits such as bananas to introduce the idea of transporting goods to different parts of the country and world. Ask students why countries transport food goods. Explain that countries import and export foods based on needs, wants, and production.

Class Discussion

Write two headings on the board—one heading for fruits and vegetables and one heading for where they are grown. Make a chart from class answers.

Example:

Fruits and Vegetables	Where They Are Grown
bananas	Central America, South America, Africa India, China, Indonesia, Philippines
corn	U.S.A.
oranges	U.S.A., Central and South America
potatoes	U.S.A., Europe, many other countries

Explain to students that when agricultural conditions are not right (e.g., wrong type of soil or temperatures) certain fruits and vegetables cannot grow in given areas. This is a main reason why fruits and vegetables are imported (bought and transported *into* a country) or exported (sold and transported out of a country). Sometimes a fruit or vegetable is still imported because it may cost less or be easier to import than to grow.

Activity

Divide students into five groups. Give each group a country or continent card to post or display at its area. Choose a student representative from each group to read aloud what each country imports and exports. This way, the students will know what each country needs.

Have students form a large circle. Use the ball of string to connect the first trading partners. For example, Central America exports bananas to Europe. Have the students who represent Central America pass the ball of string to the group representing Europe. The Europe group then passes the ball of string to the group they export to. The trading continues with members of each group holding onto a section of the string so that eventually everyone is interconnected.

Now introduce some potential importing and exporting problems by asking students to take two steps back. Ask: *Is there tension in the string? Might the string break?* Explain that this is similar to what could happen when high taxes are introduced or the price of fuel skyrockets, making transportation costly and straining trade.

Suggest other negative impacts on trade. Ask: *What if there is a war between two countries or even within a country?* Use the scissors to cut the strings between the countries at war to emphasize that trading stops. *What if there is a disaster and certain food crops are destroyed?* Ask trading partners to take several steps closer together to show scarcity of supply. Invite students to present another problem and suggest the outcome.

Accommodations and Extensions

Review the lesson again for students who did not grasp the main concepts during the activity.

As an extension, students can research embargoes. They can define the term and illustrate it for the class using examples from history.

Closure

Write *global interdependence* on the board. Ask students to hypothesize what this means using their knowledge from the activity. Conclude that whatever the case may be, everyone in the world is affected somehow.

Assessment

Observe student participation during the activity to assess students' understanding of the concept. Create a simple checklist to record the following: understands vocabulary, shows awareness of interdependence, and provides verbal examples of situations that could impact trade.

What's in Your Cup?

A Lesson on Exploring the Global Coffee Trade

Content

Students will examine the concept of *fair trade*, research facts about the cultivation and trade of coffee, and create original presentations.

National Standards

The following standards will be addressed in the lesson:

Science

The student can develop abilities necessary to do scientific inquiry.

Social Studies

The learner can use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs, and maps to generate, manipulate, and interpret information.

The learner can recognize and give examples of the tensions between wants and needs of individuals and groups, and concepts such as fairness, equity, and justice.

The learner can give and explain examples of ways that economic systems structure choices about how goods and services are to be produced and distributed.

The learner can use economic concepts to help explain historical and current developments and issues in local, national, or global contexts.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic



Interpersonal



Verbal-Linguistic

Prerequisites

Students should read *The Biography of Coffee*, which highlights the history, cultivation, processing, and trading of coffee produced throughout the world. Students will also work cooperatively to illustrate concepts and may need to conduct some additional research at the library or on the Internet.

Materials

- assortment of coffee beans and ground coffee with different colors, strengths, and flavors
- physical map of the world
- *What's in Your Cup?* reproducible
- student copies of the *Coffee Research* reproducible
- drawing paper
- poster board
- colored pencils
- markers or crayons
- reference materials on coffee production and trading

Instructional Procedure

Anticipatory Set

Explain that coffee is the second largest U.S. import after oil and that the U.S. consumes one-fifth of the world's coffee, making it the largest consumer in the world. U.S. consumers often do not realize that workers in the coffee industry work extremely hard for very little pay. *The Biography of Coffee*, p. 30, explains that *fair trade*, "a movement that ensures laborers receive fair wages" by guaranteeing "that coffee was cultivated in safe and healthy working conditions," is a good solution to this problem.

Objectives

The student will be able to...

- research the effects of coffee on a variety of topics, from health to economics
- explain the process of coffee production
- work in teams to explore the complex global coffee trade
- understand *fair trade*

Class Discussion

Create a list on the board of different types of coffee, and allow students to smell and touch samples of coffee. Be sure to display different types of coffee beans (roasted, unroasted, espresso, etc.) and different textures, such as fine and coarse grounds. You may also choose to have brewed coffee in the classroom for students to smell. Distribute the *What's in Your Cup?* reproducible and fill in the chart on the board. Brainstorm answers to the questions with the class.

Divide students into research teams. Distribute copies of the *Coffee Research* reproducible. Students should use the page to take notes while researching one of the following topics:

Group 1: Identify the top ten coffee growing countries in the world. Identify them on a world map and include details regarding the climate conditions of each country and any problems they face in growing their coffee crops.

Group 2: Identify the roles played in the coffee trade by each of the following: farmers, coffee mills, traders, export companies, import companies, roasters, distributors, retailers, and consumers. How is the price of coffee affected by weather and other conditions?

Group 3: Research and identify the effects of caffeine on the human body. How does coffee act as a stimulant? How does it help digestion? Is decaffeinated coffee healthier than regular coffee?

Group 4: Research the steps involved in growing, harvesting, washing, roasting, grinding, and brewing coffee. How does processing affect the flavor of coffee? How can the flavor be changed?

Group 5: Explore the concept of *fair trade* as it applies to coffee and the benefits this method holds for small farmers and consumers. Why are large coffee producers opposed to this concept?

Each group will create a presentation in which its members share the results of their learning (e.g., diorama, pamphlet, skit, commercial, poster, or story).

Accommodations and Extensions

Have English language learners dictate their thoughts to the group while another student writes down the information.

As an extension, have students research and write a summary of a major coffee chain and how this company has changed the coffee drinking habits of Americans. Encourage students to work together to create an advertisement for fairly traded coffee on a large sheet of construction paper, chart paper, or poster board.

Closure

Emphasize the importance of equitable standards for the labor force in this industry and conclude that we can make a difference by making careful choices as consumers.

Assessment

Review the *Coffee Research* reproducible completed by each group. Check for accuracy and appropriate synthesis of information.

An Island Home

An Adventure in Planning for the Development of a Natural Environment

Content

Students will act as owners and developers of a lush, 40 square mile tropical island. Groups of students will select the type and extent of development and determine the risks their actions pose for the island and its ecosystem.

National Standards

The following standards will be addressed in the lesson:

Language Arts

Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purposes and audience.

Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

Science

Students should develop the abilities necessary to do scientific inquiry.

Students should develop an understanding of organisms and environments.

Students should develop an understanding of populations, resources, and environments.

Students should develop an understanding of changes in environments.

Social Studies

The learner can examine the interaction of human beings and their physical environment, the use of land, building of cities, and ecosystem changes in selected locales and regions.

The learner can propose, compare, and evaluate alternative uses of land and resources in communities, regions, nations, and the world.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic



Interpersonal



Verbal-Linguistic

Prerequisites

Students should read books in the *How Did That Get Here?* series that highlight agricultural food produced in tropical rainforests. Students should pay particular attention to how these areas of vegetation are used and cared for throughout the world. Students will work cooperatively to illustrate concepts and may need to conduct some research in groups in the library or on the Internet.

Materials

- world map or globe
- graph/grid paper
- drawing and writing paper
- poster boards (optional)
- colored pencils, markers, or crayons
- reference materials on rainforests
- use of the library or Internet

Instructional Procedure

Anticipatory Set

Inform students that they have received an amazing award—a tropical island of their own! This is their opportunity to create a great island home. However, they have many responsibilities. They must create jobs for the people who already inhabit the island. The inhabitants live in thatch-roofed huts and eat fish, fruit, and nuts. Students must preserve natural habitats and ensure there will be enough food for everyone, but they also must develop a good environment for business. Their island is covered by unspoiled rainforest, an ecosystem in danger all over the world. Encourage them to consider their actions carefully.

Class Discussion

Guide students in brainstorming and decision-making for their island. Introduce some problems that could result if the wrong decisions are made (e.g., soil erosion, deforestation, destruction of ecosystems, and overpopulation of the island). Discuss the possible effects of severe weather or other adverse conditions such as pest infestations.

Objectives

The student will be able to...

- visualize the best solutions for the use of the land on a tropical island
- define the following terms: *land use, management, development, and conservation*
- work with other students to reach consensus for the best uses of the land
- conceive realistic and beneficial plans for a fictional piece of land

Activity

Divide students into five interest groups. Assign each group to work on one of the plans from the chart:

Interest Group	Outcome Achieved
Group 1: Use land to produce income.	Business development
Group 2: Protect natural habitats.	Preservation of species
Group 3: Use land for recreational activities.	Outlets for recreation
Group 4: Protect the soil and water.	Conservation
Group 5: Use land to produce a crop.	Food supply

In preparation for group work, discuss the ways students could present their development plans (e.g., a scale map of the island on graph paper, a physical map using drawing paper, a written plan detailing crop production, a brochure advertising the island, a group report about the efforts to protect the environment).

Distribute the *An Island Home* reproducible. Each interest group will complete a project/presentation that answers the questions on the reproducible.

Accommodations and Extensions

Make sure to place students in mixed-ability groups.

As an extension, have students research the idea of trading a product or crop with a neighboring island or review what laws may exist regarding the clearing of tropical rainforests for cultivation or other uses.

Closure

Each group will present its plan to the class. After all the presentations have been given, the students will decide on the best plan for the island by voting. Ask each interest group to restate the specific solutions that they proposed to counter the risks presented by their development plans in order to refresh the voters' minds.

Help students understand that we all play a part in taking care of the environment and should appreciate, conserve, and protect our natural resources.

Assessment

Use the *An Island Home* reproducible to check for student understanding of the concepts presented in the lesson and completeness.

The Little Book of Chocolate

A Lesson on the Story of a Chocolate Bar from Tree to Store Shelf

Content

Students will explore the steps required to produce a chocolate bar and create a book that will serve as a summary. Students will also become familiar with the conditions needed to grow cacao beans and further understand the importance of the tropical rainforest biome.

National Standards

The following standards will be addressed in the lesson:

Language Arts

Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

Science

The student can develop abilities necessary to do scientific inquiry.

The student can develop an understanding of organisms and environments.

The student should develop an understanding of types of resources.

Social Studies

The learner can give and explain examples of ways that economic systems structure choices about how goods and services are produced and distributed.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Spatial



Bodily-Kinesthetic



Interpersonal



Verbal-Linguistic



Logical-Mathematical

Prerequisites

Students should read *The Biography of Chocolate*, which highlights the cultivation of a cacao tree and the production of chocolate, and pay particular attention to how cacao trees are planted, grown, harvested, and used throughout the world. Review these concepts before proceeding with the lesson.

Materials

- *The Biography of Chocolate* book
- plain white paper
- colored pencils, markers, and/or crayons
- a variety of chocolate bars for tasting
- access to the Internet and school library

Instructional Procedure

Anticipatory Set

Explain that biomes are large areas that have the same climate conditions, plant life, and animal life. There are a number of distinct biomes in the world. One of them is a tropical rainforest where cacao trees grow. Cacao trees have specific requirements to survive. Plants thrive naturally in different biomes, but growing conditions and requirements can be affected by weather and human activity.

Class Discussion

Hold a general discussion regarding the differences between tropical and temperate zones (biomes). Be sure to include differences in climate, plant life, animal life, and crop production. Help students explore what is needed for a cacao tree to survive, focusing on the conditions necessary for growing the crop. Students should understand that cacao trees will only grow in the tropics where the weather is warm and wet.

Help students brainstorm where a chocolate bar comes from. Record on the board ideas regarding the origin of its ingredients, production/manufacturing sites, sources of transportation, and stores that sell chocolate products.

Objectives

The student will be able to...

- understand that the tropical rainforest biome offers ideal growing conditions for a cacao tree
- summarize the cultivation process of cacao and the production process of a chocolate bar
- work independently or with a partner to create a book

Activity

Have each student work independently or with a partner to create a book about chocolate. Direct students to follow the diagram on *The Little Book of Chocolate* reproducible to fold the paper appropriately. Have students write short, informative sentences on each page of their book to summarize the steps in the production of chocolate. Consult *The Biography of Chocolate* for details regarding the process. Students can also research additional information on the Internet. The following Web sites are good places to start:

The Sweet Science of Chocolate:

<http://www.exploratorium.edu/chocolate>

Hershey's Factory Tour:

http://www.hersheys.com/discover/tour_video.asp

Have students share their books with the class.

Accommodations and Extensions

Provide students with key words or specific resources to use to research information.

As an extension, students can compare and contrast the environmental differences between temperate forests and tropical rainforests through examining the conditions necessary for growth of a cacao tree versus growth of a pine tree. One group could create a 3-D model or a poster of a cacao tree, including chocolate pods, the surrounding forest, and evidence of human and animal activities. Labels of the growing conditions such as climate, rain, sun and pollinators, should be placed around the tree. Another group could create a 3-D model or a poster of a pine tree including the seed cones, surrounding plant life, evidence of animal and human activities as well as place labels for the growing conditions around the tree. Students can present their models to the class, explaining how each tree depends on the conditions created by their biome.

Closure

Review all the steps taken to produce chocolate. Have students sign up to bring one or two of the chocolate items to share with the class. Be aware of students who have allergies to chocolate, and provide alternatives for these students. Have students compare the ingredients found in each chocolate product by reading the label and determining where each treat was produced.

Assessment

Assess each student's book for accuracy and appropriate synthesis of information.

Let's Weigh It Out

A Lesson on Weights and Measures

Content

Students will compare sizes and quantities of certain products to gain a better understanding of the importance of measurements.

National Standards

The following standards will be addressed in the lesson:

Math

Students should develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers.

Science

Students should develop abilities necessary to do scientific inquiry.

Social Studies

The learner can work independently and cooperatively to accomplish goals.

Multiple Intelligences

The following intelligences will be activated throughout the lesson:



Logical-Mathematical



Spatial



Bodily-Kinesthetic



Interpersonal



Verbal-Linguistic

Prerequisites

Students should read various books in the *How Did That Get Here?* series (e.g., *The Biography of Spices*, *The Biography of Tea*, *The Biography of Tomatoes*, *The Biography of Vanilla*, *The Biography of Wool*) to attain background knowledge of goods and how they are packaged and sold. Understanding this basic information will be helpful to students as they compare quantities, weights, and measures. Review proper usage of a classroom scale before proceeding with the lesson.

Materials

- varying amounts of certain goods, such as bananas, chocolate, coffee, corn kernels, cotton, potatoes, rice, spices, sugar, tea, tomatoes, vanilla, wheat/flour, wool yarn, and rubber (such as from an eraser)
- three or more classroom scales for student use
- student copies of the *Let's Weigh It Out* reproducible

Instructional Procedure

Anticipatory Set

Ask: *Can you imagine buying sugar that didn't come in a premeasured sack? How would you know how much you have and how much to pay for it? What about bananas? What if you bought bananas individually?* Explain to students that the size and weight of goods is important in shipping and trading. People working in the shipping industry need to have a sense of how big and how heavy goods are in order to figure out the quantity that can fit in a container. This information helps them determine the amount of space needed and the best and most efficient mode of transportation.

Classroom Discussion

Define *weight* as a measure of how light or how heavy something is. Review with students the most commonly used units for weight (ounces, pounds, and tons) and their abbreviations (oz, lb, and T). Tell students that they will be weighing different items to complete the activity.

Objectives

The student will be able to...

- deduct accurate weights with classroom scales
- calculate and compare quantities

Activity

Assign students to small groups. Distribute the *Let's Weigh It Out* reproducible to each group. Have students take turns weighing and recording the weight of each item you have gathered. After students have recorded their data, reconvene as a whole group to discuss the students' findings. Have students compare their data. Share the correct weights of the items with students. If time allows, create a bar graph to show the various weights of the objects.

Accommodations and Extensions

Check the accuracy of the weight of the first object students weigh. If incorrect, give students proper feedback.

As an extension, some students can research how goods were weighed and measured in the past, such as in ancient Egypt, and present a report to the class. Others can look for other objects to weigh in the classroom and make comparison charts.

Closure

Review the importance of weights and measures with students. Brainstorm other situations where weights and measurements are essential.

Assessment

Assess students' *Let's Weigh It Out* reproducibles for accuracy and completeness.

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My Life as a Plant

Directions: Answer the questions to help you write your story.

1. How did I begin or how am I planted?

2. Where am I grown and why am I grown here?

3. What do I look like?

4. How am I harvested?

5. How am I transported?

6. What nutrients do I offer?

7. What problems could I cause?

8. How long do I stay fresh and how am I stored?

9. How am I prepared or cooked?

What a Pest!

Presentation Example

Interview with a Boll Weevil

Characters:

Reporter: Georgia Peach

Farmer: Wyatt Harvest

Boll Weevil: Snouty

Reporter: Good evening Viewers, and welcome to the 5 o'clock news. This is Georgia Peach reporting live from Farmer Harvest's field. We have a private interview with Snouty, the boll weevil, that you won't want to miss. Thanks for joining us, Snouty. So, tell us, what brings you to this cotton field?

Snouty: Well, an insect like me has to eat, you know, and these cotton plants are so delicious! My mother laid all her eggs on a flower bud here, and once I hatched, this is where I stayed.

Reporter: But Snouty, when you eat the fibers inside the boll of cotton, you destroy the plant. That's not very nice.

Snouty: Now, Georgia, I don't mean any harm. I'm just a little insect trying to survive in this great big world.

Reporter: Hmmm. That's not how Farmer Wyatt Harvest feels! He's having a very hard time with you and your family. He's here today to give you his side of the story. Go ahead, Wyatt. What are your thoughts?

Farmer: Glad you asked, Georgia. I'm simply fed up with Snouty and his gang. My cotton plants are dying out by the day, and soon the entire crop will be destroyed. If Snouty doesn't stop eating, I'll have to do something serious!

Snouty: Wait just a minute, Farmer Harvest. I can explain! I had no idea I was destroying your plants. I thought I was just eating the inside of the boll and the rest of the plant was fine.

Farmer: That's just it, Snouty: when you eat the seed pod, you ruin the cotton. I can't use it any more.

Snouty: Gee, Farmer Harvest, I feel horrible! Maybe I could talk to my brothers and sisters and we could just nibble on the leaves or something.

Farmer: Sounds like a plan to me, Snouty!

Reporter: And there you have it, Folks! Snouty the Boll Weevil and Wyatt Harvest have worked it all out on national television. Isn't that just peachy?

Where in the World?

Directions: Use reference books to learn where the following are produced: pepper, mustard, vanilla, coffee, rice, silk, cacao, corn and wheat, tea, potatoes, and bananas. Place each good in the correct box. Use each good once.

1. Canada

2. United States

3. Europe

4. China

5. Japan

6. Mexico

7. Brazil

8. South America

9. Indian Ocean

10. India

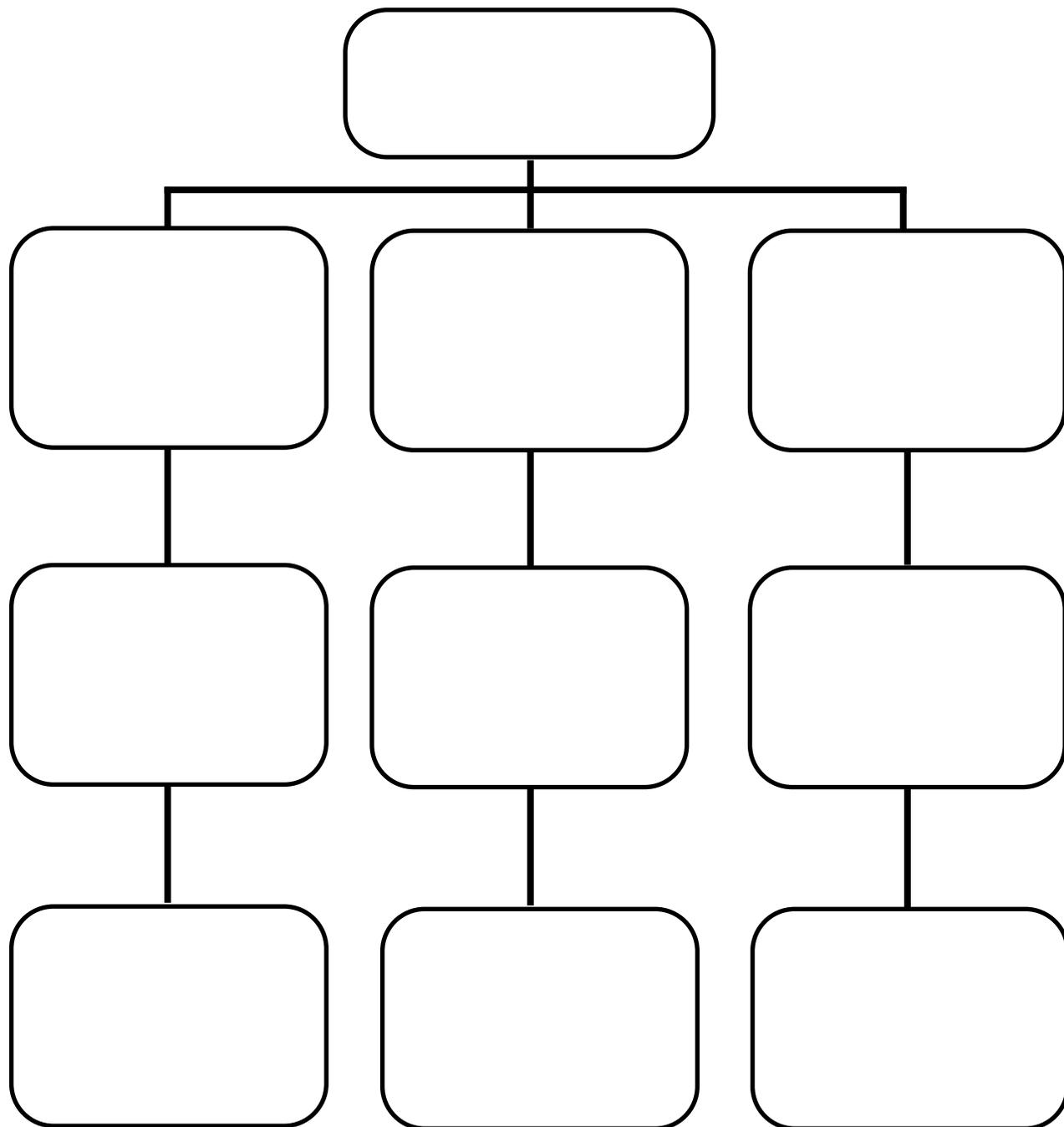
11. Indonesia

What's in Your Cup?

Coffee Questions	Coffee Answers
Where is coffee grown?	
How do coffee plants grow?	
How is coffee harvested?	
How is coffee processed?	

Coffee Research

Directions: Use the chart below to record the information you collect from your research.



An Island Home

Directions: Make sure you and your group do the following in your presentation:

- Focus on the assignment your group was given
- Explain how you will use the land
- Identify the effects your plan will have on the land
- Explain the risks involved
- Tell us the benefits of your plan
- Tell us the setbacks of your plan

Give this sheet to your teacher before you begin your presentation.

Teacher's Island Evaluator Tool

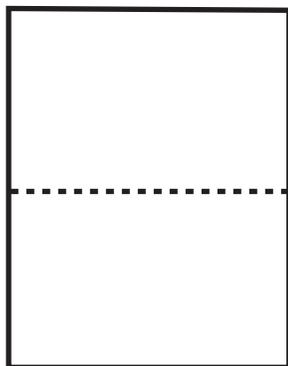
Did the student...	YES	NO
focus on the assignment?	_____	_____
explain how he or she wants to use the land?	_____	_____
identify the plan's effects on the land?	_____	_____
explain the risks involved?	_____	_____
tell us the benefits of the plan?	_____	_____
tell us the setbacks of the plan?	_____	_____

Totals: _____

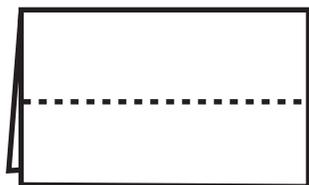
The Little Book of Chocolate

Directions: Follow the steps outlined on this page to make a little book of your own. Write "The Little Book of Chocolate" on the front cover. Then put the following headings on the other pages (one heading per page): Beans, Roasting, Winnowing, Melangeuring, Conching, Tempering, Molding, and Packaging. Illustrate and explain each step using simple pictures and sentences.

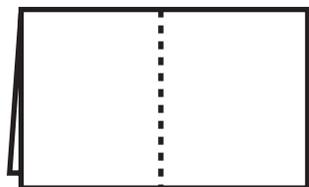
1. Fold a sheet of paper in half width wise.



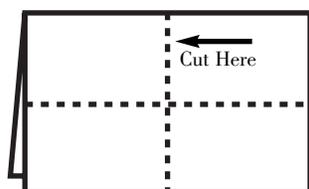
2. Fold it in half again in the same direction.



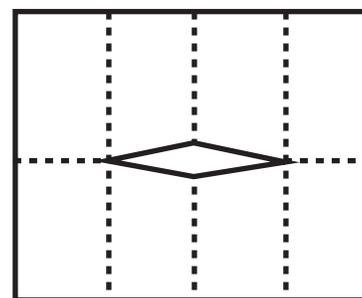
3. Fold this long narrow strip in half in the opposite direction.



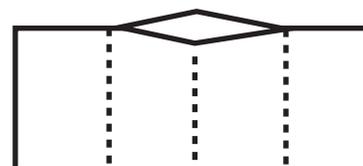
4. Open up the paper to the Step 2 position, and cut halfway down the vertical fold.



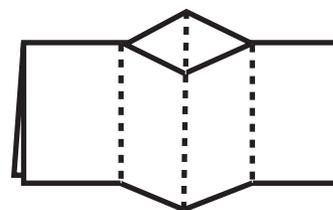
5. Open up the paper and turn it horizontally. There should be a hole in the center of the paper where you made the cut.



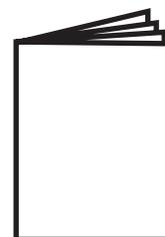
6. Fold the paper in half lengthwise.



7. Push in on the ends of the paper so the slit opens up. Push until the center panels meet.



8. Fold the four pages into a book and crease the edges.



Let's Weigh It Out

Directions: Record the weight of each item in the chart below. Be as accurate as possible. Then answer the following questions using math and logic.

Item	Weight
bananas	
chocolate	
coffee	
corn kernels	
potatoes	
rice	
rubber erasers	
salt and pepper	
sugar	
tea	
tomatoes	
vanilla	
wheat/flour	
wool yarn	

1. Which item weighs the most?

2. Which item weighs the least?

3. If you owned a trucking company, which item do you think you could fit the most of into a standard truck and why?

4. Which item might be the most challenging to put into a container and why?

5. What would take up more space: a ton of tea or a ton of potatoes?