



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1999 Volume IV: Detective Fiction: Its Use as Literature and as History

Chocolate and Ice Cream Across the Curriculum

Curriculum Unit 99.04.05
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Introduction

Learning across the curriculum is an interactive way to allow students to construct meaning through a variety of problem solving experiences. The use of literature and other resources such as hands on projects and experiments provide students the opportunity to both construct meaning and knowledge by building connections between subjects. Literature provides educational value for content area learning. The literature selection that will be used in my unit is *The Chocolate Ice Cream Sundae Mystery* by Gertrude Chandler Warner. This story is part of Warner's *Box Car Children* series. The characters of the series are four orphaned children, Henry, Jessie, Violet and Benny Alden who live in an abandoned boxcar. In the *Chocolate Ice Cream Sundae Mystery*, the children are working in the oldest ice cream parlor in the town of Greenfield. There's a new owner and things are going well until chocolate ice cream, sundae glasses and whipping cream begin to disappear. It's up to the Alden children to find out who is trying to ruin the ice cream parlor.

This series is written in a puzzle-solving format. The series provides students with clues and situations that students must determine their relationship to the mystery. Such skills as cause and effect, making inferences and sequencing are necessary to solve the mystery, however, these same skills are vital for success in every academic area. This series, especially this book, will provide students opportunity to explore the detective mystery genre and apply their skills across the curriculum. This series is very appropriate for academically diverse classrooms.

I am a special education teacher presently teaching in a sixth grade inclusionary setting at Fair Haven Middle School. The inclusion model at Fair Haven is made up of two regular elementary education teachers and one special education teacher. The special education population I serve has learning disabled, mentally retarded and social, emotional and disturbed students within the classroom setting. The ability range of the regular education students I teach range from below average to gifted. I team-teach with two regular education teachers. Our team consists of 30 students, 11 receive special education services. I am responsible for modifying regular curriculum as well as addressing goals and objectives set forth in each special education student's individual educational plan. I hold a Masters of Science in elementary education.

This unit divided into five sections. In the first section a synopsis of the story is provided. Also, biographical information about the Gertrude Chandler Warner is presented. Warner's popular series is a reflection of her childhood and love of teaching. This information will provide both teachers and students insight as to how her

wonderful stories came about. The second section tells the story of chocolate. Chocolate is pleasure food that is nearly desired by all. Chocolate is not just a desired food but a craved one. It is important to explore the historical, social and scientific aspects of chocolate in order to realize the significance this incredible food in our culture. The third section looks at the story of ice cream. Though ice cream's history is not as rich as that of chocolate, however, this food shares the same irresistible qualities, especially for Americans. Incorporated into the unit is trivia on both chocolate and ice cream that will provide teachers and students a tasty look of these two delicious treats. The fourth section provides the objectives for the unit in each content area. Lastly, lesson plans for language arts, math, science, social studies are presented. Activity sheets are included in this section.

This unit incorporates several approaches that will take this delicious theme across the curriculum. Students will be reading the book *The Chocolate Sundae Mystery* while the unit is being taught. It is important that students read the mystery at the same time as the unit is being taught. The skills needed to solve the mystery, cause and effect, making inferences and sequencing will be applied throughout the unit. First, a whole language approach will be used to involve students in all forms of communication. Communication skills such as reading, writing, observing, listening, speaking and illustration will be a part of each lesson. Communication skills will be integrated into each lesson. This approach allows language skills to grow when stimulated by interest in the topic.

Second, thematic planning is a useful tool for implementing an integrated whole language approach. Thematic planning allows students to practice and apply skills in meaningful context. Students tend to learn and retain more. Thematic units build on students' prior knowledge and interests by focusing on topics that are relevant to their lives. Students build knowledge relationships and authentic learning takes place. Thematic study supports students in a variety of interactive and collaborative ways. It is essential in a thematic study to incorporate corresponding literature. Literature provides a cohesive, in depth study of a theme.

Third, students need to develop social skills as well as academic and content skills. This is an area of development that is vital to student success. Students must be able to work cooperatively in groups in order to function in society. This unit will incorporate one lesson in a content area that will use cooperative learning.

Finally, journal writing is an excellent opportunity for students to respond to the unit. Journal activities need to incorporate all subject areas. Journal writing should not be restricted to the language arts. Responses should reflect each content area involved in the unit. Each lesson in my unit will have a corresponding journal entry. The cumulative journal provides an excellent means of documenting the writing process.

The lessons for this unit either use chocolate or ice cream as a basis. There will be six lessons in the unit. The first lesson, language arts, will be a cooperative story creation involving missing chocolate. This is an oral language activity that allows students to create stories based on a set of story components. This activity will be done in cooperative groups. This activity is a wonderful way to bring out the detective skills in students. The second lesson that is introduced will be math. This activity will provide students with the following skills: predicting, recording data, graphing. The third lesson, science explores the concepts of volume and weight in relation to ice cream. The fourth lesson, also a science lesson, introduces students basic fingerprinting techniques. This lesson is designed to incorporate the detective fiction aspect into the unit. The final lesson, social studies, students will construct a class time line of the history of ice cream.

Section I

Synopsis of The Chocolate Sundae Mystery

The Chocolate Sundae Mystery is from the famous Boxcar Children series by Gertrude Chandler Warner. The Alden children are four orphans who live with their grandfather in the town of Greenfield. In the first book, The Boxcar Children, the children live in an abandoned boxcar, until they go to live with their wealthy grandfather. Their grandfather has the boxcar put in his backyard for the children's enjoyment. Their time in the boxcar provides them with everlasting lessons that are carried through each book. Henry, the oldest, provides guidance and support for his younger siblings in every book. Jesse, the eldest sister, is the caretaker of the family. Violet, named after Warner's favorite flower, is writer and artist of the family. Benny is the proverbial baby of the family, always seeming to get into mischief. Watch, the family dog, accompanies the Aldens in every adventure. The Alden children experience many adventures throughout this sixty book series. In this story, as in all of the wonderful stories, the Alden children are presented with a mystery that they solve through cooperation and use of detective skills.

The story takes in the fictional town of Greenfield. There is a very old ice cream parlor in town known as the Shoppe. The store has just been recently sold and the new Mr. Brown, undergoes some problems. He must hire all new employees. He offers the Alden children a job. They accept their new positions and begin working immediately. Each one of the children helps in their own unique way. Henry helps Brian, another employee, with making ice cream and syrups. Jessie assists Simone, a young woman from France working in Greenfield for the summer. Violet helps with making sandwiches and serving customers. Benny helps his siblings and eats as much ice cream as he can.

All is not well in Greenfield when it comes to ice cream. The Alden children are once again confronted with a mystery no one can solve. Ice cream is disappearing from the Shoppe, glasses are missing and food is mysteriously spoiling. Also, the front window to the Shoppe is broken and it appears to have happened from inside the store. The children are presented with various suspects and they masterfully weed each out. Mrs. Saunders owns an ice cream truck that has been competing with the Shoppe. The children heard Mrs. Saunders telling customers that her ice cream was better. Simone has twice been out of work the day after something has happened. She was also spotted talking very quietly to a young man. Violet watched Simone and the young man exchange a very secretive note. Brian, the other boy working in the store, often leaves the store early without an explanation. Lastly, a customer who became belligerent with Simone when she served him the wrong sandwich becomes a suspect. The children discover that he once worked for the old owner and was fired.

The Aldens set out to solve this mystery and save the Shoppe. Mr. Brown is thinking of closing the store. The children decide to investigate their first suspect, Mrs. Saunders by following her around town for the day and early evening. She does nothing suspicious and she is eliminated as a suspect. They learn that Mr. Brown had given Simone for those two days off weeks before anything began happening at the Shoppe. Also the boy Simone is always talking with his her boyfriend. The children learn that he has since gotten another job and does not live in Greenfield any longer. This leaves Brian as the only suspect. The children devise a plan to hide in the broom closet and wait for the intruders.

The children carry out their plan and are surprised by their discovery. Brian and his friends were coming to the store each night after the store closed. Brian friends lived on the outside of town and were poor. Brian was

letting them in the store each night to eat. When the children discover Brian and his friends, Brian admits to all the troubles the store has been having and agrees to talk to Mr. Brown. He explains that he has been feeding his friends after the Shoppe closed because of their financial situation. He also tells the children that the window was broken when he was trying to clean up one night. He slipped on a wet floor and the broom handle went through the window. Mr. Brown agrees to let Brian work for a month to work off the damages and food he had taken, and each day send his leftover food to Brian's unfortunate friends. The story ends with a party at the Shoppe and another mystery solved.

Gertrude Chandler Warner

Gertrude Chandler Warner was born in Putnam, Connecticut on April 16, 1890 and lived there until her death in 1979. She was the middle child of Judge Edgar Warner and Jane Warner. The Warners' house was directly across the street from a railroad station. In the early 20th century, Putnam was a major train stop for many lines. From her house, Warner could see into the train cars. Here she saw the interior of a caboose, with a little stove, table and dishes used by the railroad workers. These images stuck in her mind and became the basis of for her *Boxcar Children* series.

Encouraged by her mother, Warner read and wrote constantly. She kept a journal and produced books for her family. At age nine, she wrote her first book, *Golliwogg at the Zoo*. She copied the title from a popular book of the time, Florence Upton's *The Golliwogg at the Sea-Side*. Warner illustrated her book with watercolors and presented it to her beloved grandfather for Christmas. Each year she wrote a book for each family member as a Christmas gift.

In 1916 Warner published her first book, *The House of Delight*. This wonderful story recapped the many hours she and her sister had spent playing with their dollhouse. She dedicated the book to her grandfather, calling him her "best playmate."

The early 1900's brought many changes to the Warner family. Her older sister Frances had graduated from college and was teaching high school. Her brother John had graduated from Worcester Polytechnic Institute and was studies in Paris for the next two years. Though a spirited young woman with great promise, poor health prevented her from finishing high school. Due to a shortage of teachers during World War I, she was hired as a first grade teacher at the Israel Putnam School. She held this position for over thirty years. Although she never married or had children of her own, she thought of her students as her children. It was in teaching that she found her calling.

Gertrude was recognized and honored for her teaching methods. She would make fancy hand blown eggs with each student, celebrate birthdays and draw silhouettes of each child she taught. She would play the piano for a boys' club called the Pages of King Arthur. While in her early years of teaching she wrote a book called *Star Stories For Little Folks*. Her book was a success because it was an astronomy book that was easy to understand.

Warner continued to write for adult audiences. Two essays published by the *Ladies Home Journal* brought her continued success. Her first published article reflected on her experiences as an elementary school teacher. She wrote about a drawer she kept full of children's treasures, the kind of treasures a teacher would collect. Her second article, "The Return of A,B,C" tells how she introduced phonics instead of letter names to teach children to read.

Warner continued to write and publish but her masterpiece came in 1936. The publication of the first *Boxcar*

Children brought her acclaim but not without controversy. Librarians protested her book because they thought the characters were having too good a time without parents. Children then and still love her tales of the orphaned Aldens and their adventures.

Gertrude Chandler Warner was a popular and creative teacher whose love of children, reading and writing, was never hampered by ill health. Warner championed those children who were not natural readers. She developed a style that was accessible to all and provided hope and encouragement. She published the last book of the original Boxcar Children when she was eighty-six. Although she died in 1979, the Boxcar Children series is still being written in the tradition and style she created. Summing up her life is best done by the words on her grave marker, "She opens her mouth with wisdom and the teaching of kindness in on her tongue." (Ellsworth, 1997)

Section II Chocolate

Chocolate-"Food of the Gods"

The mythology of chocolate begins centuries before the discovery of the New World. Inhabitants of Central America cultivated the cacao bean and used it as a form of currency. Indians believed it to be of divine origin. Chocolate derives its name from the Greek word theobroma, which literally means "Food of the Gods." Indians made a thick beverage by pounding roasted cocoa beans with maize and capsicum peppers. Quetzalcoatl, the supreme god of the Aztecs and Toltecs gave the seeds of the cacao tree to his grateful people. His people were so grateful they created a drink called Xocolatl. This drink was believed to be an aphrodisiac and to provide strength and vigor. Its was thought such a divine concoction it was only served in gold cups. Tribute to the Aztec emperors was made with cocoa beans. When Cortez defeated Montezuma in 1519 large quantities of cocoa beans were found in the palace.

The aristocracy embraced this irresistible beverage. It was Cortez who introduced chocolate to Europe in the 16th century. The Spaniards found the Aztec version of this delicacy too bitter. By adding sugar and vanilla to dried roasted beans, the Spaniards created a delicious drink that was acclaimed throughout Europe. Cocoa beverage became popular in Italy and France in the early 17th century. It reigned as the fashionable drink of the Court of France. Chocolate houses joined the coffee houses, but cocoa was very expensive. It was the drink of the wealthy. Chocolate drinking spread to Great Britain in 1657 and the first of many famous English Chocolate houses opened.

The hand methods used by small shops to manufacture chocolate eventually gave way to mass production. The advent of the perfected steam engine hastened the cocoa grinding process. By 1730, the price of chocolate had dropped substantially, making chocolate available to all. In 1828, a Dutch manufacture van Houten invented a cocoa press. This invention expressed much of the fat from the bean making it palatable and digestible. The expressed fat was sold as cocoa butter. While fermented beans roasted, water and acetic acid was pored over the beans, cracking the shell. The beans were then ground into a powder that was mixed with sugar. From then on, drinking chocolate had more of the smooth consistency and pleasing flavor that we know today. The 19th century brought two more revolutionary developments in the history of chocolate. In 1847, an English company introduced the first solid eating chocolate. The development of fondant chocolate, a smooth and creamy variety replaced the coarse grained chocolate of the past. The second development happened in 1876 in Vevey, Switzerland. Daniel Peter, a local chocolate merchant, devised a way of adding

milk to the chocolate creating what we now know as milk chocolate.

Today, chocolate still holds an important place in our culture. It is a culinary delight for adults and a sometimes forbidden fruit for children. Chocolate is given as gifts and we center holidays around it. This delicious treat, once a "Food of the Gods" is now a treasured and accessible treat for all.

Chocolate- "The Feel Good Food"

Chocolate contains more than 300 known chemicals. (Coe, 1996) Scientists have been working on isolating specific chemicals and chemical combinations that can explain the pleasurable sensation chocolate provides. Caffeine is the most known chemical found in chocolate. While the caffeine in chocolate is small, theobromine, a weak stimulant is also present. Scientists believe that perhaps the combination of these stimulants and others may be responsible for the "boost" that chocolate eater experience. Phenylenethylamine is also found in chocolate. This chemical occurs naturally in the brain and is related to amphetamines. The combination of these stimulants increases the activity of brain chemicals, neurotransmitters that enable the body to pay attention and be alert.

Chocolate Craving

Stimulants in chocolate contribute to a temporary sense of well being. Other chemicals and theories may explain why we crave it. People often describe their need to eat chocolate as a "craving." A controversial study done by the Neuroscience Institute of San Diego, California claims that "chocolate contains pharmacologically active substances that have the same effect on the brain as marijuana and that these chemicals may be responsible for certain drug-induced psychoses associated with chocolate cravings" (Rozin, 1991). Studies have shown that chocolate is the single most craved food in the United States. (Rozin)

Further research has focused on two other neurotransmitters, serotonin and endorphins. Serotonin helps people relax and feel calm. It is believed that low levels of serotonin can lead to cravings for sweets and starches. Foods such as chocolate may boost the amount of serotonin in the brain. Also, some researchers believe that serotonin is related to premenstrual syndrome (PMS) and this may explain cravings for chocolate in women. Endorphins levels are affected by dietary fat. Researchers suggest that eating high fat containing food like chocolate can increase the body's endorphins and provide a lift in a person's mood.

The controversy over the value of chocolate continues. Chocolate is high in essential nutrients such as iron, calcium, potassium and magnesium. It contains vitamins A,B,C as well. However, its addictive potential has some scientists concerned. Adam Drewnowski, a nutritionist at the University of Michigan, has been working with other scientists to develop drugs that would block these neurotransmitters, thus controlling chocolate cravings. Drewnowski tested forty-one women, chocolate bingers and normal eaters. Half the participants receive the drug naloxone, a drug which is used to treat heroin overdoses. The rest of the participant received a placebo of salt water. Drewnowski reported that the naloxone treated patients ate substantially less. Their chocolate consumption dropped in favor of lower fat foods. Dr. Katherine Halmi, an eating disorder specialist at Cornell University warns that although these results may be promising, the side effects of the drug may outweigh its benefits.

Chocolate Myths

It is important for adults and children to know the scientific truths about chocolate. Children are often denied this treat because of the myths that surround it. It has been said that chocolate can cause tooth decay and acne and that it has no nutritional value. Most of the bad effects of eating chocolate have been overstated or

are false. For example, chocolate is not high in caffeine. A typical 1.4-ounce chocolate bar has the equivalent amount of caffeine found in one cup of decaffeinated coffee. (Coe,1996) Chocolate has not been proven to cause cavities or tooth decay. Dentists agree that the cavity- causing potential of food is not necessarily related to sugar content, but rather to how often a food is eaten, the sequence of foods eaten and the amount of time the food remains in the mouth. (Greene, 1989)

Two studies one by the Pennsylvania School of Medicine and one by the U.S. Naval Academy showed that eating chocolate did not produce any significant changes in the acne conditions of the participants (Damerow, 1991). These results were further backed by research that show that acne was not linked to diet (Damerow). Chocolate often has been linked with hyperactivity especially in children. Research has shown that sugar does not cause uncontrolled behavior in children (Glinsman, 1986). Both the 1988 Surgeon General's Report on Sugar and Health and the Food and Drug Administration support these findings.

Chocolate "American" Facts

The average American ate 11.7 pounds of chocolate in 1997. That is a total of more than three billion pounds.
The retail chocolate industry in the United States is estimated at a

worth of \$12.5 billion per year.

Americans spend \$1,105 million each year on Valentine's Day candy. It is the fourth largest confectionery holiday after Halloween, Christmas and Easter.

American men say that they would rather receive chocolate than flowers on Valentine's Day. Sixty-eight percent of men age 50 and older say they would prefer chocolate rather than flowers.

The first "chocolate box" was introduced by Richard Cadbury in 1868, when he decorated a candy box with a painting of his younger daughter holding a kitten in her arms. Cadbury also invented the first Valentine's Day candy box.

Chocolate manufactures use 40% of the world's almonds, 20% of the world's peanuts and 8% of the world's sugar. About 3.5 million pounds of whole milk is used each day to make milk chocolate.

Section III Ice Cream

The History of Ice Cream

The first recorded reference to the term we know as ice cream was made in 1744 by Maryland's Governor William Bladen in a letter he had written. He wrote, "fine ice cream...with...strawberries and milk." (Dickson) This is fitting since Americans are the world's largest consumers of this frozen confection. The history of ice cream can be traced to the Roman Empire, China and India. Ice cream was introduced in England in the 17th century and came to America in the 18th century. The history of ice cream may not be historical that of chocolate, however it was also a treat that's early beginnings were reserved for nobility.

Mother of American Ice Cream, Nancy Johnson

Nancy Johnson, a Philadelphia housewife was responsible for bringing ice cream into all American homes. Johnson invented the hand cranked ice cream churn. Until her invention, making ice cream was difficult job. To make ice cream one had to combine a mixture of mixing cream, sugar, eggs, salt and vanilla in a tin bowl, then "hand agitate" it with a wooden spoon, constantly scraping the sides for ice. The process took hours and at any time big chunks of ice that would form could ruin a batch. Because of the time and labor involved ice cream was a treat for families that had servants.

Nancy Johnson's invention broke the class barrier that surrounded ice cream. She streamlined the process by putting the mixture in a large tin with a removable lid. She adapted an S-shaped dasher that scraped the sides preventing ice crystals to form. Johnson patented her invention in 1843, however, she lacked the funds to manufacture and market her invention. In 1845 she sold the patent for \$200 to the Williams & Company. In 1946 the company listed the item in their catalog and ice cream soon became an accessible treat to all Americans. At \$3 each, Johnson's ice cream churn was inexpensive enough for the middle class to afford. From 1847 to 1877 there were over 70 improvements made on the original churn. All these new "freezers" claimed to make ice cream faster. By 1878 ice cream was being shipped all over the country and was stored in ice cellars for months.

Time Line of the History of Ice Cream

1559 With the discovery that ice and salt can cause freezing, ice cream first appears in Italy.

1744 Maryland's Governor William Bladen writes a friend telling him of this delicious frozen concoction he tasted while abroad in Europe.

1782 Ice cream was first served at a Philadelphia party given by the French envoy in honor of the newly formed country.

1790 According to the records of a New York merchant, President Washington spent about \$200 for ice cream that summer. Washington had two pewter pots made for his ice cream enjoyment.

1845 The first hand operated ice cream freezer was invented by Nancy Johnson. This invention allowed Americans to enjoy ice cream in their own homes.

1851 The first wholesale ice cream business was founded by Baltimore milk Jacob Fussell. Fussell is faced with the problem of erratic demand and is forced to sell his ice cream for half the price of his competitors.

1874 The ice cream soda was invented. The profession became known as a "soda jerk."

1890 Due to religious criticism that this "sinfully" creation should not be served on Sundays, ice cream merchants responded by leaving out the carbonated water in a ice cream soda and thus invented the ice cream "Sunday." The spelling was later change to "sundae" to avoid any connection to holy day.

1904 The ice cream cone was introduced at the St. Louis World's Fair by a Syrian immigrant pastry maker named Ernest A. Hamwi. Hamwi sells his wafer like pastry at the fairground serving them with sugar and other sweets. When the ice cream stand runs out of dishes, Hamwi rolls his pastry into a cone shape and the ice cream cone is born.

1904 Italian immigrant Italo Marchiony is issued a patent for the ice cream cone mold. Marchiony claims that he had been making ice cream cones since 1896.

Originally called the "I-Scream-Bar" shop owner Chris Nelson created this wonderful treat. When Douglas Ressenenden came into Nelson's store and Asked for a ice cream sandwich, Nelson made him
1921 one. But the boy realized that he did not have enough money for the ice cream and a chocolate bar, so he opted for the chocolate. This gave Nelson the idea to combine the two treats and what we now know as the Eskimo Pie was born.

1924 Americans consume an average of 6.8 pounds of ice cream each per year. Considering that the average intake of cheese was 4.5 pounds, ice cream had established itself in the American diet. In less than 3 years the rate of ice cream consumption jumps to nine quarts annually per person.

1929 Ice Cream street vendors were known as the "Hokey Pokey Men" and they were soon replaced by large dairy corporations.

1930 Dry ice (solid carbon dioxide) is introduced to the commercial market for the purpose of keeping ice cream frozen.

1934 The first chocolate covered ice cream on a stick was introduced.

1946 With the end of dairy rationing due to World War II, Americans began consuming more than 20 quarts of ice cream per person that year.

1940- The ice cream industry grows and remains a constant through the 1970's.

1970 The traditional ice cream parlor begins to disappear with the advent of Prepackaged ice cream sold in supermarkets.

1988- In response to American's obsession with diets, Eskimo Pie introduced the

1991 first reduced fat ice cream bar sweetened with aspartame, a sugar substitute.

American Ice Cream Facts

Although Americans are eating more vegetables and cutting back on fattening foods such as red meat and eggs, a bowl of ice cream has not left the staple of most Americans diet.

Americans consume a yearly average of 23.2 quarts of ice cream, ice milk, sherbet, ices and other commercially made frozen dairy products.

The Northern Central States have the highest per capita consumption of ice cream at 4.17 quarts. The top three ice cream eating cities are: Portland, Oregon; St. Louis, Missouri; and Seattle, Washington.

- More ice cream is sold on Sunday than any other day of the week.

- Ice cream consumption is the highest during the months of July and August. July is National Ice Cream Month.

- Children ages two through 12 and adult over age 45, eat more ice cream than any other age groups.

- The average number of licks to polish off a single ice cream cone is 50.

- 98 percent of all American households purchase ice cream.

Source: Internet <http://www.makeicecream.com/sendicecream/contriv.html>

Section IV Lesson Plans

Lesson 1: Language Arts

- Students will write original alliterations
- Students will use prior knowledge to gain meaning from the lesson
- Students will use journal writing as a means of exploring ideas encountered during an activity.

Procedure:

1. Students may work in partners or alone.
2. Have students choose a letter from the alphabet.
3. Encourage students to use resources such as a dictionary or thesaurus.
4. Have students brain storm words that begin with that letter.
5. Have students write each word in the appropriate category (noun, verbs, adjectives) on the activity sheet.
6. Students will choose words from category and write an original ice cream alliteration.

Journal Entry:

Describe how you eat an ice cream cone.

Lesson 2: Math

- Students will collect and organize data to answer a question or test a hypothesis by comparing sets of data.
- Students will display data in graphs, tables and charts.

Materials:

Small packages of multi-colored chocolate candies
Activity sheet

Procedure:

1. Give each student a package of candy and an activity sheet.
2. Have the student make their predictions.
3. Have students create a bar graph of their predictions
4. Have the students open their package of their candy and record their data on the activity sheet.
5. Have students create a bar graph based on their actual data.
6. Display students' graphs.

Journal Entry:

Look at the number of candies each of your classmates had in their packages. Why do you think that all the packages did not have the same amount of candy in each one?

Lesson 3: Science

- Students will develop their observation techniques.
- Students will form inferences from observations.
- Students will measure volume and weight in standard and metric units.
- Students will compare volume and weight.
- Students will recognize definitions based on observations.

Scientific Concept: Sand is a dense material. This means that many very small particles are tightly packed into each "cup." Cotton balls are not a dense material. By applying pressure they can be forced together giving the cup greater weight.

Materials:

Clean empty carton from ice cream
Sand and cotton balls
Standard or metric measuring cups and scale

Procedure:

1. Divide the class into pairs or small groups.
2. Read the first paragraph of the activity sheet with the class.
3. Explain the definitions of volume and weight that are on the activity sheet.
4. Have students do the first experiment for volume on the activity sheet.
5. Have the students do the second experiment for weight on the activity sheet.

Journal Entry: What would happen if ice cream was sold by weight?

Lesson 4: Science How to lift and classify fingerprints

Materials:

Talcum powder or graphite powder
Wide clear tape
A soft feather
Latex gloves one pair per student
Clean items from which to lift fingerprints (one item for each child)
Magnifying glasses
Activity sheet

Procedure:

1. Have each student choose an item to lift their fingerprints from. Using gloves the teacher will distribute the items.
2. Explain that if an item is light colored or clear like a glass jar graphite powder is used. If the item is a dark colored object then talcum powder is used. Distribute the appropriate powders to students
3. Using their right hand, have the students pick up their item.
4. Instruct the students to then put on their gloves.

5. Have the students follow the directions on the activity sheet for lifting and classifying their fingerprints.

Journal Entry:

How could the Box Car Children use this experiment to solve their mystery?

Lesson 5: Social Studies Inventions and Innovations in the History of Ice Cream

- Students will gain understanding of the importance of chronology in history.
- Students will use various print resources.
- Students will use technological resources in their research.

Materials:

Large banner paper
Reference books on ice cream
Markers, crayons

Procedure:

1. Divide the class into small groups.
2. Divide the banner paper into ten equal segments that represent centuries from 1700 to 2000.
3. Have each group choose a topic they wish to research. Use topics provided on the teacher resource sheet.
4. As a class have students research and illustrate their topics.

Language Arts

Alliteration

With a partner, choose a letter of the alphabet. Brainstorm with your partner words that begin with that letter. You may use any resources in the room. Put the words in the correct "cone." Then choose words from your list to write an ice cream tongue twister.

Your Ice Cream tongue twister _____

Creating Silly Ice Cream Sayings

Choose a noun and an adjective that begin with the same letter or sound as the word in bold print.

1. a carton of _____
2. a cone of _____
3. a bowl of _____
4. a scoop of _____
5. a spoon of _____

Science

Measuring Ice Cream

When it comes to ice cream, the heavier the better. The U.S. government requires ice cream to weigh at least 4.5 pounds (2kg) per gallon. More expensive and richer ice creams tend weigh more because they contain more milk solids and butterfat than lesser expensive brands. Ice cream is sold by the measure of volume, not weight.

Volume: Volume is the capacity of a specific container. In the U.S. volume is measured in cups, pints, quarts and gallons. When using the metric system, volume is measured in liters.

Weight: Weight is the heaviness of an object. In the U.S. it is measured in ounces or pounds. When using the metric system it is measured in grams.

Experiment 1 Volume

1. Fill each carton with water.
2. Pour the water into another container of the same size.

Did it fit into the second container? _____

3. Measure how much it took to fill the carton.

Standard: _____ Metric _____

Is it the same as it is printed on the front of the carton? _____

Experiment 2 Weight

1. Fill one of the cartons with sand and the other with cotton balls.

2. Lift each carton.

3. Weigh each carton.

Standard _____ Metric _____

4. Using cups, measure the amount of sand and the amount of cotton balls in each carton.

Are the amounts the same? _____

Science

How to Lift Finger Prints

Directions:

1. Shake a very small amount of talcum or graphite powder next to each fingerprint.

2. Lightly dust the powder back and forth over the finger prints with the feather.

3. Brush softly and lightly until all the prints are clear.

4. Blow lightly across the print to remove the excess powder.

5. One a time, place a piece of tape over each print. Gently smooth the tape over the print.

6. Pick the tape up carefully by the corner, lifting the fingerprint with it.

7. Place the tape on black paper if talcum powder was used, white paper for graphite powder.

8. Place each print of the Fingerprint Classification Card below.
9. Using the examples of the Eight Types of Pattern complete the Fingerprint Classification Card.

Social Studies

Teacher Resource Activity Sheet

Inventions and Innovations in the History of Ice Cream

Cut into strips and have each group choose a topic

1700 The first record of ice cream in America is a letter written by a guest of the Governor of Maryland William Bladen describing a dessert of "...fine ice cream which with the strawberries and milk eat most deliciously."

1790 George Washington spends \$200 for ice cream during the summer.

1828 Street vendors in New York City begin selling ice cream.

1846 Nancy Johnson invents an ice cream freezer.

1851 Jacob Fussell opens the first ice cream factory.

1881 Robert Green invents the ice cream soda.

1881 The ice cream sundae is invented because some people felt that sodas should not be eaten on Sunday.

1900 About this time the ice cream sandwich, banana split and float appear. There are no records who truly invented these creations.

1904 The ice cream cone becomes a popular treat at the St. Louis World Fair.

1920 The Eskimo Pie was introduced.

1921 The Good Humor Ice Cream sucker adds a stick to a chocolate covered bar. Soon ice cream was being sold everywhere like this.

1922 Frank Epperson accidentally invents the Popsicle. He left a spoon in a glass of lemonade outdoors in the freezing weather.

Notes

Coe, Sophie D. *The True History of Chocolate*. New York: Thames and Hudson, 1996.

Dameror, Gail. *Ice Cream: The Whole Scoop*. New York: Glenbridge Publishing, 1991.

Ellsworth, Mary Ellen. *Gertrude Chandler Warner and the Box Car Children*. Illinois: Albert Whitman & Company, 1997. Fuller, Linda. *Chocolate Fads, Folklore and Fantasies: 1,000+ Chunks of Chocolate Information*. Illinois: Harrington Park Publishing, 1996. Greene JC. "Preventive dentistry: Dental caries." *Jama*. 1989;262:3459-63. Glinsmann, WH. "The phenomenology of food cravings." *Appetite*. 1990; 15:231-246. Rozin, P. "Chocolate craving and liking." *Appetite*. 1991;17:199-212.

The Surgeon General's Report on Nutrition and Health. Washington DC: Public Health Service: 1988, U.S. Department of Health and Human Services.

Teacher Bibliography

Bailleux, Nathalie. *The Book of Chocolate*. Abbeville Press, Inc., 1996.

This book is filled with interesting facts, figures along with some "chocolate" fiction. Through beautiful photographs the history of chocolate is traced. Wonderful recipes are provided as well.

Bell, Nancy. *Biggie and the Ficasseed Fat Man*. Dune Books, 1998.

This is the third book in a series of the life of grandmother Biggie Weatherford. Biggie takes her grandson J.R. to the opening of Job Crossing's, Texas' newest restaurant, Fresh as a Daisy Chicken Restaurant. The owner, Firman Birdsonis is found under a table covered in gravy and garnished with a tomato and parsley. The story gets more interesting when J.R.'s other grandparents come into town a throw a twist in the relationship between Biggie and her grandson. This is an enjoyable book that is built around "down home" humor and delicious food.

Bloom, Carole. *All About Chocolate: The Ultimate Resource to the Worlds Favorite Food*. New York: MacMillian, 1998.

This book is a mini-encyclopedia of chocolate history, trivia and recipes. The book is presented in the form of a dictionary containing A-Z listings of chocolate facts. This book is more than just a cookbook but an excellent resource.

Churchill, Jill. *Silence of the Hams*. Avon Press, 1996.

This book is the seventh installment of the Jane Jeffry Mystery Series. Jane Jeffry is a single mom who takes time off from her domestic chores to solve murder mysteries. In this book, her son Mike has taken a job at a local deli. Soon after, a unpopular lawyer is found dead under a pile of hams in the storeroom. Along with her best friend Shelly, these two women solve this murder in a delightfully funny manner.

Coble, Charles. Earth Science. New Jersey: Prentice Hall, Inc., 1984.

This is a sixth grade textbook that provides clear and concise definitions for students and excellent demonstration for teachers.

Coe, Sophie, Michael D. Coe. The True History of Chocolate. New York: Thames and Hudson, 1996.

The Coes are two anthropologists that delve into the history of chocolate with passion. They provide most interesting facts such as the ancient Maya used unsweetened chocolate as currency. This is an excellent source for anyone interested in the "Food of the Gods."

Damerow, Gail. Ice Cream!: The Whole Scoop. New Jersey: Glenbridge Publishing Ltd., 1998.

This is a complete book on ice cream and frozen desserts. This book is filled with wonderful information-historical, factual, nutritional and scientific. This book proves that a cookbook can be more than a listing of recipes.

Funderburg, Anne Cooper. Chocolate, Strawberry and Vanilla: A History of American Ice Cream. Bowling Green State University, 1996.

This book takes detail how the "elite treat" of Europe underwent transformation in America. Funderburg shows how the history of ice cream also becomes an important part of American culture.

"Flyer Chocolate Letter." <http://www.chocolateodyssey.com>. May 1990, April 1999.

This site is presented in the form of a newsletter. Here one can find an online bookstore, information about how to contribute to the newsletter, chocolate history and quizzes and lots of great recipes.

Harrison, John. "150 Years of Homemade Ice Cream in America." <http://www.Dreyers.com>., May 1999.

This is an enjoyable article that chronicles the innovations in the history of ice cream in America. From the enterprising invention of Nancy Johnson to today's modern factories this site is an excellent reference.

"Ice Cream Consumption." <http://www.makeicecream.com/> April 1999.

This is a wonderful site for facts and trivia, recipes and ice cream history. This site is easy to navigate and provides great links to other ice cream sites.

King, Peter. Death al Dente. New York: St. Martin Press, 1999.

This book is the fourth installment in this culinary mystery series. This un-named Gourmet Detective has been hired to travel to Italy and choose the country's best chef. The Gourmet Detective must solve the mystery of an agricultural magnate that he has dinner with several times. In between stampeding buffalo, a kamikaze airplane, killer monk, extramarital affairs and greedy business deals, the Gourmet Detective solves the perfect murder and chooses the perfect chef.

Myers, Tamar. *Just Plain Picled to Death: A Pennsylvania Dutch Mystery With Recipes*. Signet Books, 1997.

This book is one in this series that explores the culture of the Pennsylvania Dutch country. Magdalena Yoder, the main character of the series is getting married. The cook preparing the wedding feast finds a dead body in a barrel of sauerkraut. The body turns out to be the bridegroom's cousin who has been missing for years. Magdalena is determined to find the killer is before she marries into this family. This book also provides great recipes. This book is both educational and entertaining.

Pence, Joanne. *Cooking Up Trouble*. Harper Mass Market Paperback Books, 1998.

Chef Angie Amalfi is hired to assist the owner of a new bed and breakfast in Northern California. She goes to Hill Haven not just for the employment to further her romance with San Francisco homicide detective Paava Smith. The investors in this venture are an aging hippy with his beautiful sister, a clueless heiress and a self made guru. Angie must deal with the owner, the investors, a woman after her boyfriend and a missing person.

Roche, Hannah. *My Dad's a Wizard! (Science Made Simple)*. DeAgodtini Editions, 1996.

This is an excellent resource for the elementary science teacher. All experiments can easily be done in the classroom or a home with common materials. The humorous artwork, the child friendly recipes make this book a winner.

Temple, Lou Jane. *Bread on Arrival*. New York: St. Martin Press, 1989.

Lou Jane Temple is a real life chef who has cooked up a wonderful mystery. Her heroine, Heaven Lee, is a Kansas City chef and is smart woman. She has nerves of steel that match her culinary skills. In this book Heaven is taking on the art of bread making. When one of her associates wind up dead in the dough, she becomes involved in another murder mystery. This book also provides delicious bread recipes.

Teubner, Christian. *The Chocolate Bible: The Definitive Sourcebook*. New York: Penguin Studio, 1997.

This is the "bible" of chocolate. This book covers everything from the origins of chocolate to recipes. Anything one would want to know about chocolate can be found here.

Young, Allen. *The Chocolate Tree: A Natural History of Cacao*. Smithsonian Institution Press, 1994.

This book traces the history of cacao, how it as transformed into a cultivated crop and its ecological connections with the rain forest. This is an engaging scholarly piece of work that is worthwhile.

Student Bibliography

Adoff, Arnold. *Chocolate Dreams*. Lothrop, Lee and Shepard Books, 1989.

This book takes the reader into a chocolate fantasy world. Children will be delighted through the poetic prose, whimsical rhyme and three-dimensional illustrations. This book is a great choice for reading aloud.

Alder, David. *Cam Jensen and the Chocolate Fudge Mystery*. New York: Penguin Books, 1993.

This book is one of the Cam Jensen Adventure Series. Cam and her faithful companion Eric encounter another mystery when they try to raise money for the local library. Cam, known for her photographic memory, stumbles upon a mystery behind the door of the house next door to Eric's. A wonderful choice for young mystery readers.

Ammon, Richard. *The Kids' Book of Chocolate*. New York: Atheneum Press, 1987.

This is an adorable reference for children. This book provides children with a history of chocolate, a detailed discussion of the processing of cacao into chocolate products, suggestions for places to visit, recipes, jokes and poems.

Barry, Miranda. *The Chocolate Bar Bust*. New York: Batnam Books, 1995.

This book is from the Ghostwriter Series. The Ghostwriter team must rescue their kidnapped friend Hector. Hector wanted to win a scholarship to sports camp by selling candy bars, but he gets caught up in a scam to rob Brooklyn's senior citizens with phony water bills. Through the help of a mysterious stranger the Ghostwriter team rescues their friend and clears his name.

"Ben & Jerry's." <http://www.benjerry.com>, June 1999.

This is the official site for this Vermont company. This is a great site for children. Whether a child is writing a report or just wants to have fun, this is a site that is a great treat!

"Bomb Pop." <http://www.bombpop.com/>, June 1999.

Children will love this site (and so will adults!) Kids can read the cool treat's fun facts, play games, join a scavenger hunt, and print drawings to color.

Boyton, Sandra. *Chocolate: The Consuming Passion*. Workman Publishing, 1982.

This is a wonderful guide into the world of chocolate. Boyton uses whimsical characters and humorous text to bring the story of chocolate alive. This delightful book will become a favorite to anyone who loves chocolate.

"Cremo's World of Ice Creams." <http://www.icecreamo.com/html/cremoani.htm>, June 1999.

Children can view an interactive time line of ice cream history.

Dineen, Jacqueline. *Chocolate (Foods We Eat)*. Lerner Publications, 1991.

This is a great little book that discusses the role of chocolate in history, where it comes from and how it is processed and prepared for eating.

"Dreyers Ice Cream." <http://www.dreyers.com>, June 1999.

Children will learn the history of ice cream through this interactive site. Through the use of familiar games such as tic-tac-toe, children will learn the cold hard facts of ice cream.

Ellsworth, Mary Ellen. *Gertrude Chandler Warner and The Box Car Children*. Illinois: Albert, Whitman & Company, 1997.

This is a wonderful book about the author of the beloved Box Car Children Series. Children will love the illustrations and will come to appreciate Warner even more.

Ellsworth captures Warner passion for teaching. Children who love the Box Car Children will love this biography.

"Eskimo Pie." <http://www.eskimopie.com/whatsnew.html>, June 1999.

Children can read the history of the original chocolate covered ice cream bar, created in 1921. Kids can play games, enter contests and submit requests online.

Forsyth, Adrian. *How Monkeys Make Chocolate: Foods and Medicines from the Rainforests*. Owl Communications, 1995.

The book explains the relationship of the rainforests with chocolate and medicines. Canadian conservation biologist Adrian Forsyth writes about what he has seen and found in the rainforests around the world. This is an excellent resource for upper elementary students. This book provides large size pictures with detailed captions and text.

"Good Humor/Breyer's." <http://www.goodhumor.com>, June 1999.

Children can read about the history of American's favorite treats such as Popsicle, Toasted Almond Bars and Klondike Bars. Children will love the games and the printable puzzles. This site also has very good links to other related sites.

Greenberg, Elliot. *Ben & Jerry: Ice Cream for Everyone!* Blackbirch Marketing, 1994.

Anyone who loves Ben & Jerry ice cream will find this book delightful. This book is about how two friends took their passion for ice cream and turned into the business of their dreams. They started their business in an abandoned gas station. Their goal was to use their wealth to improve the world. This book is not only a biography, but it shows how cooperation and teamwork are important for success.

Hurwitz, Johanna. *Aldo Ice Cream*. New York: Viking Press, 1989.

Aldo is working through the summer to try to earn enough money to buy an ice cream machine for his sister's birthday. He discovers the pleasure of helping senior citizens and the satisfaction of earning his own money.

Lexau, Joan. *Stripped Ice Cream*. New York: Scholastic Press, 1997.

Becky knows that her family is too poor to buy her favorite ice cream for her birthday. Her brothers and sisters have a surprise in store for her on her big day.

Keller, Stella. *Ice Cream*. New York: Stech Vaughn, 1990.

This is a history of ice cream for beginning readers. This book traces the treat from ices eaten by Emperor Nero to modern day ice cream factories.

Knight, Bertram. *From Cow to Ice Cream*. Children's Press, 1997.

This book uses minimal text and large photographs to describe the basic steps in making ice cream. Although the photographs are in color or very detailed, this book provides the young reader with the process of involved in taking raw materials and turning into a delicious treat.

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