

Fractions

| Year | Development  | Grade             | Overview   |
|------|--|-------------------|--|
| 2010 | <b>Marathon Markers (Comparing and Ordering Fractionis)</b>  | <b>Grades 3-4</b> | This three day unit is a culminating activity to engage students in ordering fractions, plotting fractions on a number line, and comparing two fractions with like and unlike denominators. The lesson provides an opportunity for students to develop fraction sense as they determine if fractions are closest to or equivalent to 0, $\frac{1}{2}$ , and 1. Additionally, students order fractions from least to greatest, divide a number line into equal parts, and students determine how to apply comparing fractions to real life situations |
| 2010 | <b>Plotting Whole Numbers and Fractions on a Number Line</b> | <b>Grade 3</b>    | This lesson introduces plotting and labeling points on a number line. Students will first plot whole numbers and then fractions on number lines. It is expected that students are familiar with fractions up to fourths, number lines, and the following vocabulary: <i>whole numbers, difference, pattern, rule, fraction, numerator, denominator, equal parts.</i>   |
| 2008 | <a href="#">Fraction Action</a>                              | <b>Grades 2-3</b> | Adding and subtracting fractions is a vital skill for real world applications. In this unit, students will add and subtract fractions with like denominators. Students will use a variety of hands- on experiments to identify and explain their answers.  |
| 2008 | <a href="#">What Fraction Am I?</a>                          | <b>Grades 3-4</b> | Students will experience fun with fractions in a Standards based hands-on unit. Students will identify fractions as parts of a whole, identify fraction relationships using a number line, and gain a working understanding of comparing fractions. Through a variety of formal and informal assessments, students will demonstrate an ability to identify and compare proper fractions in written, verbal, and game play activities.  |
| 2003 | <a href="#">Are You My Equal?</a>                            | <b>Grades 2-3</b> | This four-day lesson plan will explore the mathematical concept of identifying equivalent fractions and using this knowledge to compare proper fractions. The students will utilize a variety of manipulatives to explore the relationships of fractions with denominators of values up to 12. At the end of the unit, the students will play the game "Are You My Equal?" to demonstrate their knowledge.   |
| 2003 | <a href="#">Circle Graphs Using Fractions and Percents</a>   | <b>Grades 4-5</b> | The students will use their understanding of equivalent fractions, percentages, benchmarks, data collection and analysis, and art in order to create a unique circle graph. This comprehensive development plan will help students make connections between fractions and percentages in order to guide their understanding of how to create, read and interpret circle graphs.  |
| 2002 | <a href="#">Family Sports Day</a>                            | <b>Grades 2-4</b> | In this unit, the students will demonstrate their knowledge of fractions, patterns, addition and subtraction. They will use logic and reasoning skills to solve problems as they work to plan a family sports day.   |

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| 2002 | <a href="#">Field Trip Frenzy</a>        | <b>Grades 4-5</b> | Students will analyze and compare travel information for four different cities based on their historical significance to the American Revolution and the establishment of the United States Government. The students will use this information to choose the most economical field trip. In their final assessment, the students will write a proposal to the PTA informing them of the final field trip destination.                                    |
| 2002 | <a href="#">Fractions for You and Me</a> | <b>Grades 2-3</b> | Throughout this unit, students will explore the themes of fractions and families. Students will discover how fractions, like families, represent parts of a whole. Through a literature-based curriculum and kinesthetic activities, students will listen to stories and answer key questions concerning fraction-related concepts. They will participate in many kinesthetic and tactile activities, including the production of fraction family homes. |
| 2002 | <a href="#">Fruity Fractilicious</a>     | <b>Grades 4-6</b> | Students will apply their knowledge of measuring, problem solving, and teamwork to design a new and better bouncing ball. They will work in small groups and utilize their skills to create a size for maximum bouncing and fun. They will graph the rebound bounce of their ball and compare the results with the rebound bounce of other balls.  |
| 2002 | <a href="#">Harvey's Pencil Box</a>      | <b>Grades 3-4</b> | In this unit, students will be able to add and subtract simple fractions and mixed numbers with common denominators. By using the contents of a pencil box, students will use and apply these concepts.  |
| 2002 | <a href="#">Kids 'R Kings Katering</a>   | <b>Grades 4-5</b> | The purpose of this unit is to help students use fractions and decimals in the real life context of a catering service. Students will select menus and purchase food, plan space and serving responsibilities, and prepare recipes. As a final assessment, students will develop a party plan based on the specific needs of a client.   |
| 2002 | <a href="#">Mailbox Mystery</a>          | <b>Grades 2-3</b> | The students will use problem-solving strategies to solve a mystery based upon the book, Even Steven and Odd Todd, by Kathryn Cristaldi. They will assist two fictional characters in solving clues about even and odd numbers, place value, and number comparisons. They will also create their own clues for a number mystery by applying these skills.  |

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| 2002 | <a href="#">Mathematical Monarchs</a> | <b>Grade 2</b>    | Through the study of Monarch butterflies, students will be able to identify examples of symmetry and patterning. In addition, students will be able to demonstrate their ability to analyze and interpret data from a bar graph as well as create a circle graph from a given set of data including all necessary graph features. At the end of the unit, students will be able to apply this knowledge to create a life-like model of a Monarch butterfly and write a letter including facts about the Monarch that will accompany their models to Mexico.                   |
| 2002 | <a href="#">Movin' On!</a>            | <b>Grades 2-3</b> | Students will gather information about Brazil to help a “classmate” learn about the country to which his family is moving. They will perform some activities as they collect all the information. Some tasks will include plotting using coordinates, estimating and measuring distances in inches and converting to miles, interpreting and constructing bar graphs, logical reasoning, comparing rainfall and temperature using data, and writing an informational paragraph comparing Manaus, Brazil and Baltimore, Maryland using all the information gathered.           |
| 2002 | <a href="#">Multiple Bar Works</a>    | <b>Grades 3-5</b> | <p>In this unit, students are participants in the SweetPea Candy Contest. Students are challenged to create a new candy bar and persuade the company president that their bar should be selected as the winner. To accomplish this, students complete a variety of tasks. The assigned tasks focus on the following skills:</p> <ul style="list-style-type: none"> <li>-- Problem solving</li> <li>-- Data collection and analysis</li> <li>-- Converting and comparing fractions, decimals, and percentages</li> <li>-- Written communication using math language</li> </ul> |
| 2002 | <a href="#">Wacky Weather</a>         | <b>Grades 4-5</b> | Students will explore U.S. hurricanes and droughts in order to analyze and represent data in various ways. Collect, organize and analyze data to construct bar graphs, circle graphs, and to find fractions of a set. Compare extreme weather episodes, using data and fractions of sets. The students will investigate mathematical trends and present their findings to other students.   |
| 2001 | <a href="#">Counting Crocodiles</a>   | <b>Grades 2-3</b> | This math unit is a literature-based unit for grades 2 and 3. It includes an emphasis on number patterns and relationships, addition, repeated addition, multiplication, if taught, measurement in metric units and problem solving.  |

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| 2001 | <a href="#">Flying Through Fractions!</a>           | <b>Grades 3-4</b> | In this unit, students will be able to take a whole and divide it into fractional parts and equivalent fractions. Students will prepare for a kite contest. They will work with fractions of shapes and fractions of sets to recognize equivalent fractions. In the culminating activity, they will combine unlike fractional parts to complete a whole and explain their thinking.  |
| 2001 | <a href="#">Horsing Around with Horseshoe Crabs</a> | <b>Grades 4-5</b> | Students will use a variety of reading for understanding, research, and mathematical skills to create a brochure illustrating the need for horseshoe crab conservation and preservation in Maryland's Chesapeake Bay area. This unit uses an integration of math and science.  |
| 2001 | <a href="#">Inching Into Fractions</a>              | <b>Grades 3</b>   | Students will be introduced to fractions as they analyze, compare, manipulate and create fractions using concrete materials, symbols and drawings.   |
| 2001 | <a href="#">Maniac Musicians</a>                    | <b>Grades 3-5</b> | Through the use of musical notes, students will recognize and apply the use of the addition of fractions with unlike denominators in a real-life situation.  |
| 2001 | <a href="#">Multiplication Matters</a>              | <b>Grades 3-4</b> | This unit focuses on the development of concepts for multiplication. Students will develop concepts through the use of literature, manipulatives, and centers. Students will discover how to organize items into an array and translate into a multiplication number sentence, understanding the connection to addition. Finally, the students will use their acquired knowledge to communicate their understanding of multiplication through a friendly letter. Students will write to explain a mistake made by, "Mr. Confused" demonstrating their understanding. |
| 2001 | <a href="#">Pizza Party</a>                         | <b>Grade 3</b>    | Students will identify and compare fractions. They will identify and write equivalent fractions. Students will gather data to create a graph that shows choices made in planning a pizza party for their class.  |
| 2001 | <a href="#">Rings Around Decimals</a>               | <b>Grades 5-6</b> | This unit focuses on the recognition of fractions and decimals. Students participate in classroom Olympic events and compare results using fractions and decimals. The culminating activity provides opportunities for the "judges" to orally present final results and awards.  |
| 2001 | <a href="#">The Sweet Tooth Factory</a>             | <b>Grades 2-3</b> | The students involved in this task will go into The Sweet Tooth Factory. While in the factory, the students will help the workers with various fraction tasks. They will help one worker identify fractions, then help another by cutting things into fair shares and then compare fractions with the last worker. In doing these things, the students will be using a variety of strategies (cooperative groups, literature, etc. ) to gain a better understanding of fractions as a whole, a part of a set, fair shares, and ordering and comparing fractions.     |

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| 2000 | <a href="#">A Do Something Day</a>             | <b>Grades 3-4</b>                            | Students will take a trip around their community. They will help community workers solve problems involving equivalent fractions and fractional sets. They will visit a baker at the bakery, a pet shop owner, and the zookeeper. The students will complete a zoo activity using their knowledge of equivalent fractions and parts of a set.   |
| 2000 | <a href="#">Berry Fun Cooking</a>              | <b>Grades 2-3,<br/>Special<br/>Education</b> | Using literature, students will gain an understanding of fractional parts of a whole, fair shares, and comparing fractions as related to measurement. With the use of card games, pattern blocks, and other hands-on activities, students will explore these concepts. Students will demonstrate knowledge of these concepts through a final cooking project involving measurement and equal distribution of strawberry shortcakes. This unit will promote a basic foundation and understanding of how fractions can be used in real-life situations. |
| 2000 | <a href="#">Design a Flag</a>                  | <b>Grades 4-5</b>                            | Students will apply knowledge of fractions to design a flag. They will divide a given area into equivalent fractional parts. They will use an 11 x 11 geoboard to develop their flag designs.   |
| 2000 | <a href="#">Fishing for Fractions</a>          | <b>Grade 2</b>                               | This unit involves sorting and classifying shapes, identifying and representing common fractional parts for $\frac{1}{4}$ , $\frac{1}{3}$ , $\frac{1}{2}$ , and developing an understanding of fractions as parts of a unit whole. Card games and scenarios will be utilized to engage students in learning. Students read <i>The Adventure of Fernando Fourth</i> and go on an in-class-fishing trip to try to catch Fernando. The unit will end with a writing piece assessing student knowledge of fractional parts.                               |
| 2000 | <a href="#">Fraction Story</a>                 | <b>Grades 3-5,<br/>Special<br/>Education</b> | Students will be introduced to fractions as they analyze, manipulate, and create fractions using a variety of shapes. In addition, students will create a short story about fractions as a performance-based assessment.  |
| 2000 | <a href="#">Fun with Food and Fractions</a>    | <b>Grades K-1</b>                            | In this unit, the students will use food and geometric shapes in a variety of activities to introduce and compare fractions. They will demonstrate their understanding of the fractions: $\frac{1}{2}$ , $\frac{1}{3}$ , and $\frac{1}{4}$ by identifying, comparing, and representing these numbers using reasoning, oral communication, and problem-solving strategies.   |
| 2000 | <a href="#">Hurricane Harry's School Store</a> | <b>Grades 4-6</b>                            | This unit includes various tasks to help students develop a business plan to open a school store. The estimated profits from the store will be donated to hurricane relief and to the PTA. These lessons will concentrate on estimation, multiplication, and addition of decimals, data analysis, and the application of area. Finally, the students will write a letter of persuasion to the principal so that he/she will fund the start up costs of the school store.  |

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| 2000 | <a href="#">Magic Mosaics</a>                 | <b>Grades 3-5</b> | In this unit, the students will demonstrate a fundamental knowledge of graphing and analyzing classroom data, manipulating equivalent fractions, and investigating probability outcomes. After completing several activities, the students will design a patterned mosaic tile and write a friendly letter to inform an administrator to select their product.  |
| 2000 | <a href="#">Qwazy Quilts</a>                  | <b>Grades 1-3</b> | The students will identify and create repeating patterns using primary shapes and colors. They will gather data and create a bar graph representing the choices they made when creating their patterns. The students will write about their pattern and graph.  |
| 1999 | <a href="#">A Fraction of the Rain Forest</a> | <b>Grades 3-4</b> | In this unit, students will be able to compute basic fractions, complete equivalent fractions, and find parts of a whole. Aspects of the rain forest that will be explored are the animals, plants, people, and products of the rain forest. The students will be expected to produce a bar graph, an accurate indigenous plant, and a rain forest quilt.   |
| 1999 | <a href="#">Fishing Derby Ad</a>              | <b>Grades 5-6</b> | This learning unit involves comparing fractions with unlike denominators. Students will be required to perform various activities using pattern blocks, fraction bars, fraction circles, and paper folding to acquire a solid background in analyzing fractional values. The culminating activity will require students to use this information in determining what ad size to purchase in their local newspaper and write a brief report to their class informing them of the ad size purchased and their reasoning behind their decision. |
| 1999 | <a href="#">Fraction Camp</a>                 | <b>Grade 5</b>    | Students will be engaged in activities using manipulatives to complete tasks involving fractions and decimals. They will be incorporating decimals, in the form of money, during a mock-shopping trip. The students will be able to make equivalent fractions and use fractions when designing a map and flag.  |
| 1999 | <a href="#">Go for the Badge!</a>             | <b>Grades 4-5</b> | In this learning unit, students will complete tasks involving fractions and decimals to earn badges in the last phase of a coed scout program. The activities include estimating and measuring distances in a long jump for the P.E. Badge, converting recipes and cooking for the Culinary Badge, and creating a badge using pattern blocks. The unit will end with a performance assessment. In this assessment, students will convert fractions to decimals, use data from a table to construct a graph, and add/multiply decimals.      |

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| 1999 | <a href="#">Party On!</a>                     | <b>Grades 3-4</b> | Students will plan a pizza party for twelve children. They will organize, interpret, analyze, display, and manipulate data that reflects a real-life situation. In addition, the students will construct and identify fractional representations. Finally, the students will use these skills to complete a performance-based assessment and order form.  |
| 1999 | <a href="#">Scrumptious Snack Facts</a>       | <b>Grade 5</b>    | Students will be involved in comparing the nutritional values of their favorite snacks. The process will include finding fractional parts, changing fractions to decimals, and converting decimals to percents. The students will determine the most nutritional snack in a classroom survey and write a letter to commend the company that manufactured it.  |
| 1999 | <a href="#">Super Serapes</a>                 | <b>Grades 3-5</b> | This unit is a summative assessment of polygons, transformations, patterns, area, perimeter, and fractions. The children will be engaged in the creation of a serape (Mexican shawl) where they will design a pattern using transformations of polygons. The children will measure the polygons, and the serapes will be used to find fractional relationships.   |
| 1999 | <a href="#">Unfair M&amp;M's</a>              | <b>Grades 4-5</b> | Students will explore a real-life application of fractions and percents by collecting and interpreting data to compare the color distribution in M&M's candies. Students will use a variety of graphs, charts and technology to write a persuasive letter to the M&M factory to change their candy color distribution.  |
| 1998 | <a href="#">Crazy Quilts</a>                  | <b>Grade 5</b>    | Students will travel back to the pre-Civil War period to discover how a young African-American girl used creativity, math, and geography skills to gain her freedom. Students will create a quilt using fractions, decimals, percents, and geometry.  |
| 1998 | <a href="#">Fractional Pizza with Pizzazz</a> | <b>Grades 3-4</b> | This learning unit involves dividing the "whole" into equivalent fractional parts, using as many different fractional combinations as possible. The students will be involved in several activities such as building pizzas, making fractional strips, and "trading" pizza pieces. The students also will apply previously acquired skills such as computation, data gathering, and multiplication. Come whet your appetite and explore the exciting world of fractions through pizzas. CIAO! |
| 1998 | <a href="#">Half Baked!</a>                   | <b>Grades 3-5</b> | This unit focuses on the real-life application of fractions, decimals, and percents by having students explore nutrition through a Healthy Bake Sale. The unit also may be used as a performance task to assess the students' understanding of these skills.  |



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| 1998 | <a href="#">Life Without Chocolate?</a>   | Grade 3    | Students will research the rain forest and discover the destruction and its impact on the loss of cocoa. They will be asked to help conserve the rain forest by making chocolate chip cookie bars and by designing packages to sell to consumers.   |
| 1998 | <a href="#">Name That Tune!</a>           | Grades 3-5 | In this unit, the students will be able to take a whole and divide it into fractional parts, equivalent fractions, and compare fractions. Also, students will design and construct a musical score using fractions.   |
| 1998 | <a href="#">Quest for a Quilt</a>         | Grades 4-5 | Our class has decided to make a quilt that will be sold during the November PTO in order to earn money for a predetermined purchase. Students will estimate the size of the quilt, demonstrate an understanding of part/whole relationships through original designs of quilt blocks, and cooperatively assemble the quilt blocks in a symmetrical manner. They also will be involved in dialogue, problem solving, mathematical reasoning, and assimilation to build consensus. They will write a friendly letter to a class that wishes to make a patchwork quilt, explaining the procedure and mathematical skills utilized. |
| 1998 | <a href="#">The Fraction Food Fantasy</a> | Grades 3-4 | The students will plan a luncheon for the teachers in honor of Teacher Appreciation Week. Different groups of students will be given a recipe, and they will be responsible for increasing the recipe for the luncheon.   |
| 1998 | <a href="#">To Soup from Garden</a>       | Grades 3-5 | This unit involves parts of a whole and equivalent fractions. Students will construct meaning of fractions through various activities and games. They will organize a vegetable garden. As a culminating activity, they will change a vegetable soup recipe to serve a larger or smaller amount of people and will actually make the soup.  |
| 1998 | <a href="#">Twisted Time</a>              | Grades 4-5 | Students will be involved in calculating time of a reading contest between four classes. They will discover that there are many ways to express time using equivalent measures. This unit will encompass the skills of time, fractions, decimals, and estimation.   |
| 1998 | <a href="#">Which Box Is Best?</a>        | Grades 4-5 | Students are trying to raise money for a field trip to a new jelly bean factory. They will use fractions, volume, reasoning, and their knowledge of money to determine which size box of jelly beans they will sell during their fundraiser.  |
| 1997 | <a href="#">A Trip to the Zoo!</a>        | Grades 3-5 | The students travel on an imaginary trip to the zoo. They become immersed into a kingdom of mathematics! Fractions, decimals, and percentages dominant their travels. Come explore these challenging activities that will captivate your audience's needs while finding a love for math.  |



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| 1997 | <a href="#">Go for the Gallon</a>                       | <b>Grades 3-4</b> | This unit develops standard liquid measure as fractional parts of a gallon with a series of activities and games.   |
| 1997 | <a href="#">On the Tracks to Fractionville!</a>         | <b>Grades 3-4</b> | This learning unit involves dividing the “whole” into fractional parts and dividing a set of a “whole” into fractional parts. The students will be participating in a train designing contest. They also will be engaged in applying previously learned concepts in computations, money, gathering, and organizing data.  |
| 1997 | <a href="#">With Every Beat of My Heart</a>             | <b>Grades 4-5</b> | The teacher will discuss with the students the importance of identifying the fat content in their food. The teacher also will discuss the dangers of an excessively high fat diet. The students will take the responsibility for identifying high fat foods and substituting low fat foods for them.  |
| 1996 | <a href="#">Animal Crackers on Parade</a>               | <b>Grades 1-3</b> | In this unit, the students will use animal crackers in a variety of activities. They will use patterning, measuring, sorting, equivalent fractions, graphing, and probability. Teachers may select part or all of this activity which may take five activity times.   |
| 1996 | <a href="#">Bon Voyage!</a>                             | <b>Grades 5</b>   | Students plan a trip to Florida to visit a relative. They pack a suitcase based on the total weight of its contents and determine the fractional part of given items based on the total quantity of items. They then plan their trip itinerary based on fractions of available time. Finally, they order decimals while judging a swim meet. The extension activity connects these skills to an in-class contest. |
| 1996 | <a href="#">Fractions....Roll'em, Roll'em, Roll'em!</a> | <b>Grades 3-6</b> | The teacher will discuss with the students how a "whole" can be divided into fractional parts. The students will design fractional strips to equal a "whole". Using a number cube, students will roll the number cube until their "whole" strip is covered.   |
| 1996 | <a href="#">Sweet Math</a>                              | <b>Grade 5</b>    | The activities in this unit will expose students to a practical application of gathering data, developing and interpreting graphs, exploring pattern relationships, and using computation to show number relationships. Students will apply problem solving knowledge to real-world situations. The focus will be on computing equivalent fractions, decimals, and percentages.                                   |
| 1995 | <a href="#">A Taste of Fractions</a>                    | <b>Grade 3</b>    | These activities integrate the use of fractions with preparing food from another country. Students will be using charts, bar and circle graphs, and number lines to illustrate fractional parts of the whole. The students will prepare tacos according to their preferences and write about the tacos using fraction terms. The taco recipe may be modified by using package seasonings for the actual cooking.  |

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| 1995 | <a href="#">Fine Dining in the Fourth Grade</a> | <b>Grades 4-5</b> | Students will create a classroom restaurant serving 24 students a meal, which will include an appetizer, main course, dessert, and beverage. Geometry skills will be used to plan and build the restaurant within the classroom. Common fraction skills will be demonstrated by planning and preparing a meal to “sell” to classmates. Decimal fraction skills will be used to establish cost and profit for the production of the meal. |
| 1995 | <a href="#">Fraction Action</a>                 | <b>Grades 5</b>   | Students will rename mixed numbers and improper fractions using basketball as a theme. They will also put fractions and mixed numbers in simplest form. They will use counters, fraction circles, and small basketball hoops to accomplish these tasks.  |
| 1995 | <a href="#">Fractional Dough</a>                | <b>Grades 4-5</b> | This lesson engages students in a hands-on activity while building on prior math skills. It is a way of motivating students to be involved in math in a non-threatening environment. Students will manipulate fractions while making three different types of dough. They will collect, analyze, and interpret data to determine the preferred type of dough. They will also discover the use of fractions within their collected data.  |
| 1995 | <a href="#">Oktoberfest</a>                     | <b>Grades 3-4</b> | Your school is having a celebration. Students will apply knowledge of geometric figures and fractional parts in assigning sections of a given space for various Oktoberfest activities.  |
| 1995 | <a href="#">Real-World Fractions!</a>           | <b>Grades 5-6</b> | This unit integrates consumer education and real-life situations with study of fractions. The activities in this unit are designed to reinforce equivalency in fractions and their relationship to decimals and percents. Upon conclusion of this unit, students should be able to apply their knowledge of fractions to the real world.   |
| 1995 | <a href="#">Trail Mix</a>                       | <b>Grades 4-5</b> | This activity integrates fractions and measurement with the real-life application involved in creating a recipe and adapting it to meet the needs of the students. The students will survey individual preferences, then graph the collected data. Students will then perform mathematical computations in order to derive the measurements for their recipe. Throughout the unit, they will keep a journal with anecdotal records.      |