

# ***Sunshine State Standards - Math Florida***

## **Correlation of AIMS Activities**

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### ***AIMS Activities supporting Mathematics Standards for K-8 and Aligned by Grade Level Expectations***

This document provides suggestions for aligning AIMS activities with Sunshine State Standards. The Standards are listed by grade level cluster: K-2, 3-5, 6-8. Under each Standard, specific activities are suggested for each benchmark. The activities have further been aligned with Grade Level Expectations which were recently published by the State of Florida. The grade level or levels for which the activity most closely matches the defined expectations are listed in the document. If no grade level is indicated, the activity supports the Standard/Benchmark but does not specifically address a defined Grade Level Expectation.

*Florida Curriculum Framework  
Summary of Strands and Standards for Mathematics*

**A. Number Sense, Concepts and Operations**

1. The student understands the different ways numbers are represented and used in the real world.
2. The student understands number systems.
3. The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.
4. The student uses estimation in problem solving and computation.
5. The student understands and applies theories related to numbers.

**B. Measurement**

1. The student measures quantities in the real world and uses the measures to solve problems.
2. The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).
3. The student estimates measurements in real-world problem situations.
4. The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations.

**C. Geometry and Spatial Sense**

1. The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.
2. The student visualizes and illustrates ways in which shapes can be combined, subdivided and changed.
3. The student uses coordinate geometry to locate objects in both two and three dimensions and to describe objects algebraically.

**D. Algebraic Thinking**

1. The student describes, analyzes, and generalizes a wide variety of patterns, relations and functions.
2. The student uses expressions, equations, inequalities, graphs and formulas to represent and interpret situations.

**E. Data Analysis and Probability**

1. The student understands and uses the tools of data analysis for managing information.
2. The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.
3. The student uses statistical methods to make inferences and valid arguments about real-world situations.

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**A. Number Sense, Concepts, and Operations**

**Standard 1: The student understands the different ways numbers are represented and used in the real world. The student:**

**MA.A.1.1.1**

- associates verbal names, written word names, and standard numerals with the whole numbers less than 1000.

- K-2 “The Jar That Likes to Keep You Guessing”, Primarily Bears  
*The student will use a jar of small objects to build skills in estimation, counting strategies, and place value.*
- K “Pockets”, Magazine Volume 10 # 2  
*The student will practice counting skills using 1-to-1 correspondence.*
- K-2 “Going Nuts”, Fall Into Math and Science  
*The student will use nuts to count, classify and construct a graph.*
- K-2 “Valentine Count”, Glide Into Winter  
*The student will discover what color valentine candy is found more often than any other in a standard bag of valentine candy.*
- 1,2 “Cookies for All”, Magazine Volume 8 # 1  
*The student will practice fair sharing.*
- 1 “Counting on One Hundred”, Magazine Volume 8 # 7  
*The student will perform various activities in his/her quest for 100.*
- 1,2 “Raisin Fun”, Magazine Volume 6 # 2  
*The student will explore math and science process skills by counting and recording data from examining miniature boxes of two brands of raisins.*
- 2 “A Pumpkin with Class”, Magazine Volume 6 # 3  
*The student will count pumpkin seeds and group them in sets of hundreds, tens, and ones.*

**MA.A.1.1.2**

- understands the relative size of whole numbers between 0 and 1000.

- 1 “Counting on One Hundred”, Magazine Volume 8 # 7  
*The student will perform various activities in his/her quest for 100.*
- K-2 “The Jar That Likes to Keep You Guessing”, Primarily Bears  
*The student will use a jar of small objects to build skills in estimation, counting strategies and place value.*
- 1,2 “Fish Spinners (A Fish Story)”, Magazine Volume 8 # 6  
*The student will use a number line to assist in understanding greater than, less than, more, and less.*
- K “Pockets”, Magazine Vol. 10 # 2  
*The student will practice counting skills using 1-to-1 correspondence.*
- K,1 “An Eyeful of Color”, Fall Into Math and Science  
*The student will discover which eye color is most frequently found in the classroom by creating a class graph.*
- 1,2 “You Can Count on Us”, Fall Into Math and Science  
*The student will discover whether there are more boys or girls in the classroom.*
- 2 “A Pumpkin with Class”, Magazine Volume 6 # 3  
*The student will count pumpkin seeds and group them in sets of hundreds, tens, and ones.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades PreK-2**

- 2 “A Pumpkin Cover Up”, Magazine Volume 8 # 3  
*The student will explore estimation, grouping and area using a point of reference as he/she counts a large number.*
- K-2 “Math with M&M’s Candies”, Primarily Bears  
*The student will estimate the number of M&M candies and complete activities of addition and subtraction.*

### **MA.A.1.1.3**

- uses objects to represent whole numbers or commonly used fractions and relates these numbers to real-world situations.

- 1,2 “All Around the Apple”, Magazine Volume 5 # 2  
*The student will use the apple to explore measurement and fractional parts.*
- K,1 “Look At Me Now”, Cycles of Knowing and Growing  
*The student will investigate changes in their growth.*
- K-2 “The Jar That Likes to Keep You Guessing”, Primarily Bears  
*The student will use a jar of small objects to build skills in estimation, counting strategies and place value.*
- 1,2 “Cookies For All”, Magazine Volume 9 # 2  
*The student will practice skills of fair sharing.*
- K-2 “Quick Quilts, Part 1 and 2”, Magazine Volume 7 # 8  
*The student will use problem solving skills to design a seasonal/holiday related quilt square by using a specific amount of money to purchase items to decorate the square.*

### **MA.A.1.1.4**

- understands that whole numbers can be represented in a variety of equivalent forms.

- K-2 “Math with M&M Candies”, Primarily Bears  
*The student will estimate the number of M&M candies and perform activities of addition and subtraction.*
- 1,2 “Teddy Bears and Oranges”, Primarily Bears  
*The student will use a non-standard unit of measure to count, weigh and compare.*
- 1,2 “Harriet’s Halloween Treats”, Magazine Volume 4 # 3  
*The student will classify Halloween treats and apply problem solving strategies to a variety of situations.*
- 2 “McGregor’s Garden”, Magazine Volume 10 # 9  
*The student will use positional and ordinal descriptions to plant a garden. Counting and whole number addition and subtraction will be used.*
- K-2 “The Joy of Jelly Beans”, Primarily Bears  
*The student will use jelly beans to estimate, compare and graph.*
- K “A Bus for Us”, Magazine Volume 9 # 1  
*The student will explore counting and math relationship vocabulary from a story about a bus ride.*
- 2 “Teddy Bear Clubs Go Weighing”, Primarily Bears  
*The student will generate number sentences using data collected from massing a variety of objects.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**Standard 2: The student understands number systems. The student:**

**MA.A.2.1.1**

- understands and applies the concepts of counting (by 2's, 3's, 5's, 10's, 25's, 50's), grouping, and place value with whole numbers between 0 and 100.

- 1,2 "Raisin Fun", Magazine Volume 6 # 2  
*The student will explore math and science process skills by counting and recording data from examining miniature boxes of two brands of raisins.*
- 1 "Bear Shares", Magazine Volume 7 # 1  
*The student will discover properties of division through a manipulative approach.*
- 2 "A Pumpkin Cover Up", Magazine Volume 8 # 3  
*The student will use manipulatives to explore large numbers and group them into sets of fives and tens.*
- K "Goober Peas", Glide into Winter with Math and Science  
*The student will learn about goober peas (peanuts) and decide how many nuts are inside.*
- 2 "A Pumpkin with Class", Magazine Volume 6 # 3  
*The student will measure the mass of ten, twenty and thirty seeds and then use that pattern to predict the mass for greater numbers of seeds.*

**M.A.A.2.1.2**

- Uses number patterns and the relationships among counting, grouping, and place value strategies to demonstrate an understanding of the whole number systems.

- 2 "A Pumpkin Cover Up", Magazine Volume 8 # 3  
*The student will explore, estimate and group large numbers.*
- K-2 "The Jar That Likes to Keep You Guessing", Primarily Bears  
*The student will use a jar of small objects to build skills in estimation, counting strategies and place value.*
- 1,2 "Spread Your Wings", Bats Incredible  
*The student will estimate and measure the wing spans of microbats and megabats using non-standard and standard units.*
- 1 "Counting on One Hundred", Magazine Volume 8 # 7  
*The student will perform various activities in his/her quest for 100.*
- K "Pets are Part of the Picture (My Favorite Pet)", Magazine Volume 5 # 10  
*The student will draw pictures of favorite pets and use them to construct a graph of favorite pets.*
- 1 "Raisin Fun", Magazine Volume 6 # 2  
*The student will explore math and science process skills by counting and recording data from examining miniature boxes of two brands of raisins.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**Standard 3: The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving. The student:**

**MA.A.3.1.1**

- understands and explains the effects of addition and subtraction whole numbers, including the inverse (opposite) relationship of the two operations.

- 1,2 “Math with M&M Candies”, Primarily Bears  
*The student will estimate the number of M&M candies and perform activities of addition and subtraction.*
- 1,2 “Teddy Bears and Oranges”, Primarily Bears  
*The student will use a non-standard unit of measure to count, weigh and compare.*
- K “Pockets”, Magazine Vol. 10 # 2  
*The student will practice counting skills using 1-to-1 correspondence.*
- 1,2 “The Joy of Jelly Beans”, Primarily Bears  
*The student will use jelly beans to estimate, compare and graph.*
- K “A Pig’s Tale”, Magazine Volume 7 # 10  
*The student will understand the relationship between numerals, counting and number of objects.*

**MA.A.3.1.2**

- selects the appropriate operation to solve specific problems involving addition and subtraction of whole numbers.

- K “A Pig’s Tale”, Magazine Volume 7 #10  
*The student will understand the relationship between numerals, counting and number of objects.*
- K “A Bus for Us”, Magazine Volume 9 # 1  
*The student will explore counting and math relationship vocabulary from a story about a bus ride.*
- 2 “McGregor’s Garden”, Magazine Volume 10 # 9  
*The student will use positional and ordinal descriptions. Counting and whole number operations will be practiced.*

**MA.A.3.1.3**

- adds and subtracts whole numbers to solve real-world problems, using appropriate methods of computing, such as objects, mental mathematics, paper and pencil, and calculator.

- K,1 “Matching Tops and Bottoms”, Magazine Volume 10 # 8  
*The student will join two smaller groups to form one larger group of objects.*
- K-2 “Quick Quilts, Part 2”, Magazine Volume 7 # 8  
*The student will use problem solving skills to design a seasonal/holiday related quilt square by using a specified amount of money to purchase items to decorate the square.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**Standard 4: The student uses estimation in problem solving and computation.**  
**The student:**

**MA.A.4.1.1**

- provides and justifies estimates for real-world quantities.

- K-2 “The Jar That Likes to Keep You Guessing”, Primarily Bears  
*The student will use a jar of small objects to build skills in estimation, counting strategies and place value.*
- 1,2 “Seed Sort”, Primarily Plants  
*The student will estimate, count and sort seeds and find the likeness and difference of many seeds.*
- 1,2 “Fold to Hold”, under Construction  
*The student will discover how a variety of containers are designed. The student will estimate and test the capacity of each container.*
- 1,2 “Let Me Count the Ways”, Primarily Bears  
*The student will estimate, and explore measurement using non-standard units.*
- K,1 “Gummy Bears”, Primarily Bears  
*The student will use Gummy Bears to estimate, count, classify and construct a graph.*

**Standard 5: The student understands and applies theories related to numbers.**  
**The student:**

**MA.A.5.1.1**

- classifies and models numbers as even or odd.

**B. Measurement**

**Standard 1: The student measures quantities in the real world and uses the measures to solve problems. The student:**

**MA.B.1.1.1**

- uses and describes basic measurement concepts, including length, weight, digital and analog time, temperature and capacity.
- K,1 “How Tall Are You?”, Fall into Math and Science  
*The student will learn how to determine his/her own height.*
- 1,2 “Polar Bear Pie”, Glide into Winter with Math and Science  
*The student will predict how long it will take the Eskimo Pie to melt and use the clock to measure time.*
- 1,2 “Melt an Ice Cube”, Primarily Physics  
*The student will determine ways in which to rapidly melt an ice cube and ways in which to prevent ice from melting and use the clock to measure time.*
- K “Feet Findings”, Spring into Math and Science  
*The student will use non-standard units to measure distance.*
- K,1 “Look At Me Now”, Cycles of Knowing and Growing  
*The student will investigate changes in their growth.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades PreK-2**

- K,1 “Washers and Dryers”, Magazine Volume 8 # 2  
*The student will observe and measure changes in peeled apple slices as the fruit is exposed to air over a period of time.*
- K,1 “Mitts for Kits”, Under Construction  
*The student will use various sizes of mittens to determine the length of a clothesline.*
- 1,2 “Spread Your Wings”, Bats Incredible  
*The student will estimate and measure the wing spans of a microbat and megabat.*
- 1,2 “Massing About With Bats”, Magazine Volume 10 # 3  
*The student will find objects equal to the mass of microbats and megabats.*
- 1 “All Around the Apple”, Magazine Volume 5 # 2  
*The student will use the apple to explore measurement and fractional parts.*
- 1,2 “Drying on the Line”, Magazine Volume 9 # 7  
*The student will observe the difference in evaporation (drying) times of wet paper clothes in various conditions.*
- 1,2 “Talk About Time”, Magazine Volume 11 # 1  
*The student will position the hands of an analog clock to correspond to various times of the day.*

#### **MA.B.1.1.2**

- uses standard customary and metric (centimeter, inch) and non-standard units, such as links or blocks, in measuring real quantities.

- K,1 “How Tall Are You ?”, Fall Into Math and Science  
*The student will learn how to determine his/her own height..*
- 1,2 “Spread Your Wings”, Bats Incredible  
*The student will estimate and measure the wing spans of a microbat and a megabat.*
- K “Feet Findings”, Spring into Math and Science  
*The student will use non-standard units to measure distance.*
- 1 “All Around the Apple”, Magazine Volume 5 # 2  
*The student will use the apple to explore measurement and fractional parts.*
- K,1 “Mitts for Kits”, Under Construction  
*The student will use various sizes of mittens to determine the length of a clothesline.*
- K,1 “Wrap Around Ruler”, Magazine Volume 11 # 10  
*The student will use a non-customary ruler made of 12 straw sections.*

**Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary). The student:**

#### **MA.B.2.1.1**

- uses direct (measured) and indirect (not measured) comparisons to order objects according to some measurable characteristics (length, width).

- K “Sizing Up Bears”, Under Construction  
*The student will understand that size is a relative concept.*
- 1 “A Weigh We Go”, Fall Into Math and Science  
*The student will discover his/her own weight.*
- K “Rows of Bows”, Magazine Volume 11 # 6  
*The student will begin to understand conservation of length.*
- K,1 “Balance Bazaar”, Magazine Volume 11 # 5  
*The student will compare masses and order objects from lightest to heaviest.*

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**MA.B.2.1.2**

- understands the need for a uniform unit of measure to communicate in real-world situations.

- K “The Queen’s Bed”, Magazine Volume 13 # 6  
*The student will measure using non-standard units to establish a need for standard units of measure.*
- 1,2 “Spread Your Wings”, Bats Incredible  
*The student will estimate and measure the wing spans of a microbat and a megabat.*
- K “Feet Findings”, Spring into Math and Science  
*The student will use non-standard units to measure distance.*
- K,1 “Busy with Buses”, Magazine Volume 10 # 6  
*The student will learn about measurement by investigating school buses.*

**Standard 3: The student estimates measurements in real-world problem situations. The student:**

**MA.B.3.1.1**

- using a variety of strategies, estimates lengths, widths, time intervals, and money and compares them to actual measurements.

- K,1 “Let Me Count the Ways”, Primarily Bears  
*The student will estimate and measure various objects in non-standard units and compare the masses.*
- 2 “A Seed Grows”, Primarily Plants  
*The student will predict and measure root and stem growth.*
- 1 “A Fit Mitten”, Magazine Volume 5 # 6  
*The student will estimate compare the volume of various mittens using concrete materials as he/she explores the concepts of volume and place value.*
- 1,2 “Seed Sort”, Primarily Plants  
*The student will count, sort and use seeds to measure.*
- 1 “Fit for a Bear”, Under Construction  
*The student will select a unit of measure and make comparisons of personal measurements and those of stuffed animals.*

**Standard 4: The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations. The student:**

**MA.B.4.1.1.**

- selects and uses an object to serve as a unit of measure, such as a paper clip, eraser, or marble.

- K “Feet Findings”, Spring Into Math and Science  
*The student will use non-standard units to measure distance.*
- 1,2 “Spread Your Wings”, Bats Incredible  
*The student will estimate and measure the wingspans of a microbat and a megabat.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades PreK-2**

- 1,2 “Fit for a Bear”, Under Construction  
*The student will select a unit of measure and make comparisons of personal measurements and those of stuffed animals.*
- 2 “Getting the Hang of It”, Magazine Volume 11 # 2  
*The student will make a balance from a clothes hanger to measure equalities and inequalities.*
- selects and uses appropriate instruments such as scales, rulers, clocks, and technology to measure within customary or metric systems.
- 2 “Getting the Hang of It”, Magazine Volume 11 # 2  
*The student will use a balance made from a clothes hanger to determine equalities and inequalities.*
- 2 “Shapes on the Move”, Magazine Volume 12 # 3  
*The student will observe and measure how shapes affect the way things move by using geometric solids and real world objects.*
- 1,2 “Just a Minute”, Magazine Volume 10 # 10  
*The student will make a timer, which will measure a minute.*

### **C. Geometry and Spatial Sense**

**Standard 1: The student describes, draws, identifies, and analyzes two- and three-dimensional shapes. The student:**

#### **MA.C.1.1.1**

- understands and describes the characteristics of basic two- and three-dimensional shapes.

- K “You Drive Me Crackers”, Fall Into Math and Science  
*The student will sort and classify four kinds of crackers by shape.*
- K “Shape Up”, Fall Into Math and Science  
*The student will predict where shapes belong according to their attributes.*
- K,1 “Shape Search”, Sense-able Science  
*The student will identify shapes by using only the sense of touch to feel sandpaper cut-outs which have been mounted on a set of cards.*
- K,1 “Busy with Buses”, Magazine Volume 10 # 6  
*The student will use numbers, measurement and geometry to learn about their school buses.*
- K “Shape Takers”, Magazine Volume 11 # 3  
*The student will compare and contrast geometric shapes of different orientations, sizes and types.*

**Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided and changed. The student:**

#### **MA.C.2.1.1.**

- understands basic concepts of spatial relationships, symmetry, and reflections.

- K-2 “Quick Quilts”, Magazine Volume 7 # 8  
*The student will discover a relationship between triangles and squares..*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades PreK-2**

- K,1 “Home Free”, Sense-able Science  
*The student will learn that the sense of sight orients a person to the environment and allows interactions with surroundings.*
- 2 “Mirrors Reflect”, Primarily Physics  
*The student will use mirrors to study symmetry and show that light travels in a straight line.*
- 1,2 “Wings ‘n’ Webs”, Critters  
*The student will demonstrate an understanding of symmetry using external differences in the bodies of insects and spiders.*

#### **MA.C.2.1.2**

- uses objects to perform geometric transformations, including flips, slides, and turns.

- K-2 “Quick Quilts”, Magazine Volume 7 # 8  
*The student will discover a relationship between triangles and squares.*
- 1,2 “Taking Turns with Triangles”, Magazine Volume 9 # 5  
*The student will find patterns by rotating a single pattern.*
- K-2 “Pop Out Patterns”, Magazine Volume 9 # 10  
*The student will discover patterns by rotating a single pattern.*
- 2 “Addresses for Bears”, Primarily Bears  
*The student will use symmetry and patterns to solve logic patterns.*
- 2 “Teddy Bears in a Parade (Teddy Bear Marching Bands)”, Primarily Bears  
*The student will use symmetry and patterns to solve logic patterns.*
- 1,2 “Kool-Aid Chromatography”, Magazine Volume 3 # 5  
*The student will explore symmetry using snowflakes cut from coffee filters.*

**Standard 3: The student uses coordinate geometry to locate objects in both two and three-dimensions and to describe objects algebraically. The student:**

#### **MA.C.3.1.1**

- uses real-life experiences and physical materials to describe, classify, compare and sort geometric figures, including squares, rectangles, triangles, circles, cubes, rectangular solids, spheres, pyramids, cylinders, and prisms, according to the number of faces, edges, bases and corners.

- K-2 “Quick Quilts”, Magazine Volume 7 # 8  
*The student will discover a relationship between triangles and squares.*
- K “Shape Search”, Sense-able Science  
*The student will identify shapes by using only the sense of touch to feel sand paper cut-outs which have been mounted on a set of cards.*
- K,1 “You Drive Me Crackers”, Fall Into Math and Science  
*The student will sort and classify four kinds of crackers by shape.*
- K “Shape Takers”, Magazine Volume 11 # 3  
*The student will compare and contrast geometric shapes of different orientations, sizes and types.*

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**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**MA.C.3.1.2**

- plots and identifies positive whole numbers on a number line.

2 “Hide and Seek”, Bats Incredible  
*The student will play a game using a number line.*

**D. Algebraic Thinking**

**Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions. The student:**

**MA.D.1.1.1**

- describes a wide variety of classification schemes and patterns related to physical characteristics and sensory attributes, such as rhythm, sound, shapes, colors, numbers, similar objects, and similar events.

K “Apples A-Peel to Me”, Fall into Math and Science  
*The student will sort different varieties of apples and graph a favorite kind.*

K “Sherlock Combs the Yard”, Magazine Volume # 10  
*The student will collect objects which share common attributes.*

1,2 “Picking Apart Patterns”, Magazine Volume 8 # 5  
*The student will construct, describe and group patterns.*

K “Gingerbread Kids”, Magazine Volume 6 # 5  
*The student will use measurement and observe attributes to help them sort and graph, while making both paper and gingerbread cookies.*

K “Shape Up”, Fall Into Math and Science  
*The student will predict where shapes belong according to their attributes..*

K “Shape Search”, Sense-able Science  
*The student will identify shapes by feeling sandpaper cut outs which have been mounted on a set of cards, using only the sense of touch.*

K-2 “My Rock”, Primarily Earth  
*The student will describe various properties of rocks by making careful observations.*

1,2 “Rock Groups”, Primarily Earth  
*The student will observe the physical properties of rocks and group them according to certain attributes.*

1,2 “Sort Three”, Magazine Volume 11 # 9  
*The student will compare cards which contain different shapes, designs and numbers.*

K,1 “Peeking at Patterns”, Sensible Science  
*The student will look for patterns inside and outside the classroom.*

**MA.D.1.1.2**

- recognizes, extends, generalizes, and creates a wide variety of patterns and relationships using symbols and objects.

K-2 “Quick Quilts”, Magazine Volume 7 # 8  
*The student will discover a relationship between triangles and squares.*

2 “Eager Weavers”, Magazine Volume 8 # 4  
*The student will construct patterns and discover additional patterns/designs which emerge through the art of weaving.*

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### **AIMS Activities supporting Mathematics Standards for Grades PreK-2**

- K-2 “Pop Out Patterns”, Magazine Volume 9 # 10  
*The student will discover patterns by rotating a single pattern.*
- 2 “Quilted Bread Spreads”, Magazine Volume 11 # 5  
*The student will use bread to explore quilting patterns.*
- 1,2 “Picking Apart Patterns”, Magazine Volume 8 # 5  
*The student will construct, describe and group patterns.*
- K “Bags of Beads”, Sensible Science  
*The student will use the sense of touch to sort and arrange beads in patterns.*
- K,1 “Going Nuts”, Fall Into Math and Science  
*The student will learn about the attributes and tastes of different nuts and graph the nuts.*
- K,1 “An All Around Day”, Magazine Volume 10 # 1  
*The student will observe the pattern of daily school routine over a period of at least two weeks.*
- 2 “Teddies in a Row”, Primarily Bears  
*The student will determine what color teddy bears belong in each of the blank spaces by identifying patterns.*
- 2 “Teddy Bears in a Parade”, Primarily Bears  
*The student will determine what color teddy bears belong in each of the blank spaces by identifying patterns.*
- 2 “Who’s Not Home”, Primarily Bears  
*The student will determine what color teddy bears belong in each of the blank spaces by identifying patterns.*
- 2 “A Bicycle Built for Bears”, Primarily Bears  
*The student will use higher order thinking skills to solve logic problems.*

### **Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.**

#### **The student:**

##### **MA.D.2.1.1**

- understands that geometric symbols (  $n$ ,  $s$ ,  $l$  ) can be used to represent unknown quantities in expressions, equations, and inequalities.

##### **MA.D.2.1.2**

- uses informal methods to solve real-world problems requiring simple equations that contain one variable.

### **E. Data Analysis and Probability**

#### **Standard 1. The student understands and uses the tools of data analysis for managing information. The student:**

##### **MA.E.1.1.1**

- displays solutions to problems by generating, collecting, organizing, and analyzing data using simple graphs and charts.

- 1,2 “Heart to Heart”, Magazine Volume 11 # 7  
*The student will classify Valentine cards according to different attributes using a variety of strategies.*
- 1,2 “Thanksgiving Soup”, Magazine Volume 6 # 4  
*The student will graph the ingredients used in a class soup.*

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- K-2 “Joys of Jelly Beans”, Primarily Bears  
*The student will use jelly beans to estimate, count, compare and graph. .*
- K-2 “Pets are Part of the Picture”, Magazine Volume 5 # 10  
*The student will draw pictures of their favorite pets and use them to construct a graph.*
- K-2 “An Eyeful of Color”, Fall into Math and Science  
*The student will graph which eye color is most frequently found in the classroom..*
- K-2 “Bat Feelers (How Do You Feel About Bats ?)”, Bats Incredible  
*The student will create an opinion graph about bats.*
- K-2 “Mighty Mittens”, Glide Into Winter with Math and Science  
*The student will organize mittens by color from left to right and top to bottom.*

**MA.E.1.1.2**

- displays data in a simple model to use the concepts of range, median and mode.

- 1,2 “Raisin Fun”, Magazine Volume 6 # 2  
*The student will determine range by counting and recording data from miniature boxes of two brands of raisins.*
- 1,2 “The Tub that Spilleth Over”, Volume 8 # 6  
*The student will investigate the displacement of water and record results.*

**MA.E.1.1.3**

- analyzes real-world data by surveying a sample space and predicting the generalization onto a larger population through the use of appropriate technology, including calculators and computers.

- K-2 “An Eyeful of Color”, Fall into Math and Science  
*The student will discover which eye color is most frequently found in their classroom.*
- 2 “Mealworms on Stage”, Critters  
*The student will observe and record data for a changing population of mealworms.*

**Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics. The student:**

**MA.E.2.1.1**

- understands basic concepts of chance and probability.

- K-2 “Gimme a Gimel”, Magazine Volume 8 # 5  
*The student will play a game and identify the possible outcomes of “take all”.*
- K-2 “A Penny for Your Thoughts”, Volume 13 #5  
*The student will record penny tosses and predict outcomes.*

**MA.E.2.1.2**

- predicts which simple event is more likely, equally likely, or less likely to occur.

- K-2 “Gimme a Gimel”, Magazine Volume 8 # 5  
*The student will play a game and identify the possible outcomes of “take all”.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades PreK-2**

**Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations. The student:**

**MA.E.3.1.1**

- designs a simple experiment to answer a class question, collects appropriate information, and interprets the results using graphical displays of information, such as line graphs, pictographs, and charts.

1,2 “Raisin Fun”, Magazine Volume 8 # 5

*The student will explore math and science process skills by counting and recording data from miniature boxes of two brands of raisins.*

K,1 “A Safe Landing”, Under Construction

*The student will explore different materials and their effectiveness in absorbing the energy of a hard-boiled egg which, is dropped from a determined height.*

K “Bunches of Lunches”, Magazine Volume 5 # 2

*The student will compare lunch boxes and bags in the classroom and graph them by type and color.*

1,2 “Heart to Heart”, Magazine Volume 11 # 7

*The student will classify and graph Valentine cards according to different attributes.*

**MA.E.3.1.2**

- decides what information is appropriate and how data can be collected, displayed, and interpreted to answer relevant questions.

1,2 “Raisin Fun”, Magazine Volume 8 # 5

*The student will explore math and science process skills by counting and recording data from examining miniature boxes of two brands of raisins.*

K,1 “A Safe Landing”, Under Construction

*The student will explore different materials and their effectiveness in absorbing the energy of a hard-boiled egg which is dropped from a determined height.*

K “Bunches of Lunches”, Magazine Volume 5 # 2

*The student will compare lunch boxes and bags in the classroom and graph them by type and color.*

1,2 “Heart to Heart”, Magazine Volume 11 # 7

*The student will classify and graph Valentine cards according to different attributes.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**A. Number Sense, Concepts, and Operations**

**Standard 1: The student understands the different ways numbers are represented and used in the real world. The student:**

**MA.A.1.2.1**

- names whole numbers combining 3-digit numeration (hundreds, tens, ones) and the use of number periods, such as ones, thousands, and millions, and associates verbal names, written word names, and standard numerals with whole numbers, commonly used fractions, decimals, and percents.

- 3 “A Pumpkin Caper”, Magazine Volume 6 # 3  
*The student will count pumpkin seeds and sort them into hundreds, tens, and ones.*
- 3 “Zip, Zap, Zorp”, Magazine Volume 8 # 1  
*The student will play a game that gives practice in place value.*
- “Flip”, Magazine Volume 8 # 5  
*The student will practice place value by playing a game.*
- 3-5 “Number Sense : An Introduction”, Magazine Volume 10, # 1  
*[background information]*
- 3-5 “Number Sense: The Natural Numbers - A Brief History”, Magazine Volume 10, # 2  
*[background information]*
- 3-5 “Number Sense: Well Understood Number Meanings”, Magazine Volume 10 # 3  
*[background information]*
- 3-0 Part 1, Actions with Fractions  
*The student will model, represent, name and order fractions.*
- 5 Part 8, Actions with Fractions  
*The student will identify percents on a coordinate plane.*

**MA.A.1.2.2**

- understands the relative size of whole numbers, commonly used fractions, decimals and percents.

- 3-5 “Getting the Hang of It”, Magazine Volume 11 # 2  
*The student will use a balance made from clothes hangers to determine equalities and inequalities.*
- 3-5 “Math with M&M Candies”, Primarily Bears  
*The student will gather data on different colors of M&M’s to compare which color is greater than or less than another color.*
- 4,5 “Big Banana Peel”, Math and Science: A Solution  
*The student will determine what percentage of a banana is edible and will develop a formula relating the edible part to the total mass of the banana. The student will apply this information to develop experiments for other foods.*
- 4,5 “Rulers Line Up”, Hardhatting in a Geo-World  
*The student will use deci-units to discover the need for customary units of measure.*
- 3-0 Part 1, Actions with Fractions  
*The student will compare and order fractions.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**MA.A.1.2.3**

- understands concrete and symbolic representations of whole numbers, fractions, decimals, and percents in real-world situations.

- 3 “Matching Tops and Bottoms”, Magazine Volume 10 # 8  
*The student will use manipulatives to create different addition number sentences.*
- 3 “Jelly Belly”, Pieces and Patterns  
*The student will write fractions that represent the colors of jelly beans.*
- 3 “Cookies for All”, Magazine Volume 8 # 1  
*The student will practice fair sharing and discover fractions.*
- 5 “Clockwise Fractions”, Magazine Volume 11 # 4  
*The student will construct and compare sums of fractions with like and unlike denominators using sectors of a clock as manipulatives.*
- 3 “Bear Shares”, Magazine Volume 7, # 1  
*The student will discover the properties of division through a manipulative approach.*

**MA.A.1.2.4**

- understands that numbers can be represented in a variety of equivalent forms using whole numbers, decimals, fractions and percents.

- 3,4 “Quick Quilts, Part 2”, Magazine Volume 7 # 8  
*The student will use problem solving skills to design a seasonal/holiday related quilt square by using a specified amount of money to purchase items to decorate this square.*
- 3-5 “Going Shopping”, Magazine Volume 4 # 5  
*The student will complete an activity adding coins to purchase different school supplies.*
- 3-5 “Back to School”, Magazine Volume 4 # 5  
*The student will use problem solving to answer questions about which supplies can be purchased for a given amount of money.*
- 3-5 “Gifts Galore”, Magazine Volume 8, # 5  
*The student will find the total number and cost of gifts given in the “Twelve Days of Christmas”.*
- 4,5 “Million Dollar Dilemma”, Magazine Volume 7, # 6  
*The student will find which of two payment options is better .*
- 3-5 “Changing a Quarter ”, Magazine Volume 7 # 2  
*The student will discover all the combinations of coins that total 25¢.*
- “Patty’s Penny Puzzle”, Magazine Volume 10 # 1  
*The student will determine all the different combinations of coins that total 36 cents a person could have in their pocket.*
- 3-0 Part 1, Actions with Fractions  
*The student will model fractions.*
- 3-5 Part 2, Actions with Fractions  
*The student will model, represent and name equivalent fractions.*
- 5 Part 7, Actions with Fractions  
*The student will use a multiplication table to find equivalent fractions.*
- 5 Part 8, Actions with Fractions  
*The student will locate equivalent fractions on a coordinate plane.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**Standard 2: The student understands number systems. The student:**

**MA.A.2.2.1**

- uses place-value concepts of grouping based upon the powers of ten (thousandths, hundredths, tenths, tens, hundreds, thousands) within the decimal number system.

3-5 “Cash Combos”, Magazine Volume 11 # 9

*The student will show different ways to show the same cash values and devise a system for recording data.*

4,5 “The Abacus”, What’s Next ? Volume 3

*The student will discover how to count using the abacus, an ancient calculating machine.*

**MA.A.2.2.2**

- recognizes and compares the decimal number system to the structure of other number systems such as the Roman numeral system or bases other than ten.

“Lattice Multiplication”, Historical Connections Volume I

*The student will use a method of multiplication used by the early Hindus.*

“Russian Peasant Method of Multiplication”, Historical Connection, Volume I

*The student will use a method of multiplication used in Russia.*

“Tallying the Times Tables”, Magazine Volume 12 # 2

*The student will discover patterns in the multiplication table using frequency table data.*

“The Abacus”, What’s Next ? Volume 3

*The student will discover how to count using the abacus, an ancient calculating machine.*

**Standard 3: The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving. The student:**

**MA.A.3.2.1**

- understands and explains the effects of addition, subtraction, and multiplication on whole numbers, decimals, and fractions including mixed numbers, and the effect of division on whole numbers, including the inverse relationship of multiplication and division.

3 “Matching Tops and Bottoms”, Magazine Volume 10 # 8

*The student will use manipulatives to come up with different addition number sentences.*

3,4 “Counting on Combinations”, Magazine Volume 10 # 7

*The student will learn the commutative property of addition.*

3-5 “Area Patterns”, Magazine Volume 11, # 5

*The student will look for patterns in the multiplication table.*

3 “Bear Shares”, Magazine Volume 7, # 1

*The student will discover the properties of division through a manipulative approach.*

4,5 “Division Dominoes”, Magazine Volume 3 # 7

*The student will play a game to reinforce division skills.*

3-5 “Teddy Bears Come Ashore”, Magazine Volume 3 # 6

*The student will practice division using Teddy Bear counters.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 5 “Weight in Space”, Out of This World  
*The student will use multiplication to compute what they weigh on different planets.*
- 4,5 “Skip to My Rule”, Magazine Volume 11 # 3  
*The student will construct flower plots to develop multiplication concepts.*
- 3-5 “Building Number Sense: Pattern Power”, Magazine Volume 10, # 10  
*The student will cut rectangles out of grid paper to demonstrate multiplication.*
- 4,5 “Tinkering with Twos”, Magazine Volume 9, # 9  
*The student will practice arithmetic skills in a problem-solving setting combining five 2’s with one or more arithmetic symbols so that the resulting sentences produce the numbers one through ten..*
- 5 “Fiddling with Fours ”, Magazine Volume 8 # 4  
*The student will combine four 4’s with mathematical symbols so that the resulting number sentences produce the numbers one through ten.*
- 3-0 “The Fascinating Triangle”. Just for the Fun of It  
*The students will use patterns in addition and mental math to find multiple solutions.*
- 3-0 “Cookie Combos” , Just for the Fun of It  
*The student will use arrays and inverse operation strategies to draw place value solutions.*
- 3-0 “Two Digit Turn-Around” , Just for the Fun of It  
*The student will use subtraction to find patterns.*
- 4,5 Part 3, Actions with Fractions  
*The student will add fractions.*
- 4,5 Part 4, Actions with Fractions  
*The student will subtract fractions.*
- 4,5 Part 5, Actions with Fractions  
*The student will use egg cartons to demonstrate addition and subtraction of fractions.*
- 5 Part 6, Actions with Fractions  
*The student will demonstrate multiplication of fractions.*
- 4,5 Part 9, Actions with Fractions  
*The student will do puzzles using addition of fractions.*
- 4,5 “X-Cellent Addition”, Magazine Volume 14 #2  
*The student will use number cards and mental math to determine solutions and find patterns*
- 5 “Multiplication of Fractions: What’s Really Going On?” , Magazine Volume 14 # 3  
*The student will use three models of multiplication of fractions.*

**MA.A.3.2.2**

- selects the appropriate operation to solve specific problems involving addition, subtraction, and multiplication of whole numbers, decimals, and fractions, and division of whole numbers.

- 4,5 “Peddle the Medal”, Hardhatting in a Geo-World  
*The student will make pasta jewelry and determine the selling price by measuring the number of grams of each piece and multiplying the weight (mass) times the price.*
- 5 Galactic Games”, Out of This World  
*The student will use multiplication to determine the effects of varying gravity on different planets on athletic results.*
- 4,5 “Facing the Facts: Who Has ? Fractions”, Magazine Volume 11 # 6  
*The student will play a game adding and subtracting fractions mentally.*
- 3-5 “Facing the Facts: Who Has ? Crazy Clue”, Magazine Volume 11 # 5  
*The student will play a game adding and subtracting whole numbers.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**MA.A.3.2.3**

- adds, subtracts, and multiplies whole numbers, decimals, and fractions, including mixed numbers, and divides whole numbers to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.
- 3-5 “The Age Game”, Magazine Volume 7 # 1  
*The student will use calculators to add, subtract, multiply and discover a pattern.*
- 3-5 “A Little Cup Will Do It”, Water Precious Water  
*The student will use addition and subtraction to keep track of the amount of water used to brush their teeth.,*
- 5 “Chaotic Computing”, Math + Science : A Solution  
*The student will solve problems using the sum or difference of two whole numbers.*
- 4,5 “Facing the Facts: Who Has ? Patterns”, Magazine Vol. 11, # 6  
*The student will use mental math to add and subtract like fractions and express fractions in equivalent forms.*
- 3-5 “Connections: A Major Emphasis of the Math Curriculum”, Magazine Volume 4, # 6  
*[article about addition]*
- 3-5 “Connections: A Major Emphasis of the Math Curriculum ”, Magazine Volume 4 # 7  
*[article about subtraction]*
- 3-5 “Connections: A Major Emphasis of the Math Curriculum”, Magazine Volume 4 # 8  
*[article about multiplication]*
- 4 “Napier’s Rods”, Historical Connections, Volume 1  
*The student will explore multiplication facts.*
- 5 “Russian Peasant Method of Multiplication”, Magazine Volume 2, # 10  
*The student will explore alternate methods of multiplication.*
- 5 “Lattice Multiplication”, Magazine Volume 7 # 2  
*The student will learn a method of multiplication used by the early Hindus that uses a lattice where addition is performed diagonally.*
- 3-5 “Connections: Focus on Division of Whole Numbers”, Magazine Volume 4 # 10  
*[article about division]*
- 3-0 “Calendar Capers”, Just for the Fun of It  
*The student will use calendars to find patterns.*
- 3-0 “Deals on Wheels”, Just for the Fun of It  
*The student will use pictures to display multiple solutions for problem-solving.*

**Standard 4: The student uses estimation in problem solving and computation.**  
**The student:**

**MA.A.4.2.1**

- uses and justifies different estimation strategies in a real-world problem situation and determines the reasonableness of results of calculations in a given problem situation.
- 3-5 “Teddy Bears Love to Swim”, Magazine Volume 3 # 9  
*The student will explore fair shares with remainders and averaging.*
- 3-4 “Bridge It”, Hardhatting in a Geo-World  
*The student will construct bridges and measure the mass they will support.*
- 3-5 “A Close Call”, Magazine Volume 6 # 1  
*The student will determine methods of estimation.*
- 3-5 “The Jar That Likes to Keep You Guessing”, Primarily Bears  
*The student will use estimation to determine amounts.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 4 “Meter Readers”, Magazine Volume 8 # 7  
*The student will read a home electric meter to determine how much electricity is used.*
- 5 “Mini-Metric Olympics”, Magazine Volume 3 # 3  
*The student will use standard and non-standard units to estimate and measure in competition.*
- 3-5 “Sky High”, Hardhatting in a Geo-World  
*The student will estimate the height of cooperatively constructed structures.*
- 4,5 “Pillars of Strength”, Hardhatting in a Geo-World  
*The student will explore how height, diameter and thickness affect the strength of a paper tube, then build a paper tube that will support a person.*
- 4,5 “Thanks for Your Support”, Hardhatting in a Geo-World  
*The student will build a structure that will support 400 grams at least 25 cm above the base.*

**Standard 5: The student understands and applies theories related to numbers.  
The student:**

### **MA.A.5.2.1**

- understands and applies basic number theory concepts, including primes, composites, factors and multiples.

- 4,5 “Primes & Squares”, Historical Connections Volume I  
*The student will discover that certain odd primes can be expressed as the sum of exactly two perfect squares.*
- 5 “Prime Number Machine”, Historical Connections Volume I  
*The student will investigate formulas and procedures that will generate primes.*
- 5 “The Proof is in the Pudding”, Historical Connections Volume I  
*The student will apply basic number theory by problem solving..*
- 5 “Finding Primes Using the Sieve of Erastosthenes”, Historical Connections, Volume 3  
*The student will apply basic number theory by problem solving.*
- 4,5 “Number Tricks”, Historical Connections, Volume I  
*The student will perform number “tricks” and computation practice.*
- 5 Part 8, Actions with Fractions  
*The student will find the least common multiple on a coordinate plane.*

## **B. Measurement**

**Standard 1: The student measures quantities in the real world and uses the measures to solve problems. The student:**

### **MA.B.1.2.1**

- uses concrete and graphic models to develop procedures for solving problems related to measurement including length, weight, time, temperature, perimeter, area, volume, and angle.

- 3-5 “Are You a Square?”, Hardhatting in a Geo-World  
*The student will compare height and arm span , and examine and interpret class data.*
- 5 “Weight Watchers”, Math + Science : A Solution  
*The student will estimate and measure mass.*
- 5 “Sun Watchers”, Pieces and Patterns  
*The student will use the angle of the shadows cast by a meter stick to learn about the time of day and then apply that information to construct a sundial watch.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 5 “Me and My Shadow”, Pieces and Patterns  
*The student will measure the lengths of their shadow at different times of day to determine when a shadow casts its longest and shortest image.*
- 3,4 “The Pumpkin Caper”, Overhead and Under Foot  
*The student will make predictions and collect data from pumpkins.*
- 4,5 “Side by Side”, Magazine Volume 8 # 9  
*The student will explore the relationships between the perimeters and areas of unit squares.*
- 4,5 “Twenty-4 Square”, Magazine Volume 9 # 1  
*The student will explore how many different rectangles can be made using 24 squares.*
- 4,5 “From Wedges to Wangles”, Hardhatting in a Geo-World  
*The student will construct and use three-dimensional wedges to measure angles.*
- 3 “Hold the Load”, Under Construction  
*The student will explore the difference between the strengths of a beam-style bridge versus an arch-style bridge, then design both bridges and test each for load capacity using non- standard measure.*
- 3-0 “How High? How Far?” , Magazine Volume 13 #2  
*The student will measure height and jump length for a graphic display.*
- 3-0 “Leaping Frogs”, Magazine Volume 13 # 9  
*The student will create origami frogs to estimate and measure distance.*

### **MA.B.1.2.2**

- solves real-world problems involving length, weight, perimeter, area, capacity, volume, time, temperature and angles.
- 3-5 “Links to Length”, Hardhatting in a Geo-World  
*The student will be challenged to create the longest paper chain possible from limited materials and then measure the results.*
- 3-5 “Looking for a Liter”, Magazine Volume 10 # 9  
*The student will be challenged to find the dimensions of at least five cartons (rectangular prisms) that can hold one liter.*
- 3-5 “All Bottled Up”, Water Precious Water  
*The student will compare the capacities of four different bottles, predicting and observing the various volumes of water each can hold.*
- 3-5 “A Little Cup Will Do It”, Water Precious Water  
*The student will see how they can conserve large quantities of water by changing dental care habits. The student will learn how many milliliters of water are in a cup and in a gallon.*
- 3-5 “Filling Stations”, Hardhatting in a Geo-World  
*The student will compare the capacity of various containers.*
- 3-5 “Playground Geometry”, Hardhatting in a Geo-World  
*The student will measure parts of squares, circles, and rectangles on their playground.*
- 5 “Patterns, Problem Solving and Practice: Designing Efficient Storage Space”, Magazine Volume 11 # 6  
*The student will find the ratio of perimeter to area to determine the pattern.*
- 3-5 “Wreck-Tangles”, Hardhatting in a Geo-World  
*The student will discover that rectangles with equal perimeters do not necessarily have equal areas.*
- 3 “Hold the Load”, Under Construction  
*The student will explore the differences between the strengths of a beam-style bridge versus an arch-style bridge, then design both beam-style bridges and test each for load capacity using non-standard measures.*
- 4 “No Time for Homework” , Magazine Volume 13 # 1  
*The student will use time to solve real world problems.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 4,5 “Constant Areas”, Magazine Volume 13 #7  
*The student will use a multiplication chart to graph rectangles and compare areas.*
- 4 “Room for Change”, Magazine Volume 13 # 9  
*The student will measure mass as ice freezes and melts.*

**Standard 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary). The student:**

### **MA.B.2.2.1**

- uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics.

- “A Handy Timepiece”, Magazine Volume 9 # 4  
*The student will use their hands as estimation tools for determining the approximate time of day.*
- “Sun Watchers”, Pieces and Patterns  
*The student will use the angle of the shadows cast by a meter stick to learn the time of day and apply that information to construct a sundial watch.*
- 4,5 “Sizing Up Shadows”, Magazine Volume 8 # 4  
*The student will measure shadow lengths cast by dowels of various heights to establish the understanding that the length of a shadow and the height of the object have the same proportion for all objects at any given time.*
- “\$1.00 Words”, Historical Connections, Volume 1 [Germain]  
*The student will use place value to make patterns.*
- “A Mapping Expedition”, Through the Eyes of the Explorers  
*The student will construct a map from sightings recorded in Clark’s journal entries.*
- 5 “Measuring Up”, Through the Eyes of the Explorers  
*The student will use angles of elevation to determine proportion between height and distance.*
- 5 “Mini-Metric Olympics”, Magazine Volume 3 # 3  
*The student will use standard and non-standard units to estimate and measure.*
- “Paring It Down to Size”, Through the Eyes of the Explorers  
*The student will construct proportional characters and order them by size.*
- 5 “A Tube with a View”, Magazine Volume 8 # 9  
*The student will find the ratio of height to distance using a toilet paper tube range finder.*
- 5 “Weight Watchers”, Math + Science: A Solution  
*The student will estimate and determine mass of similar objects.*
- 3-5 “Rulers Line Up”, Hardhatting in a Geo-World  
*The student will use deci-units to discover the need for customary units of measure.*

### **MA.B.2.2.2**

- selects and uses appropriate standard and nonstandard units of measurement, according to type and size.

- 3-5 “Student Made Measuring Tools”, Hardhatting in a Geo-World  
*The student will make measuring tools to use in a variety of activities.*
- 3-5 “Rulers Line Up”, Hardhatting in a Geo-World  
*The student will become familiar with deci-units and discover the need for using customary units of measure,*
- 3-5 “Make Your Own Measuring Cup”, Water Precious Water  
*The student will make a measuring cup and determine how many cups it would take to equal a liter.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 3-5 “Let Me Count the Ways”, Primarily Bears  
*The student will estimate and determine mass with standard and non-standard measurement.*
- 5 “Pace Race”, Through the Eyes of the Explorers  
*The student will determine the length of their pace and calculate the number of steps needed to walk the Oregon Trail.*

**Standard 3: The student estimates measurements in real-world problem situations. The student:**

**MA.B.3.2.1**

- solves real-world problems involving estimates of measurements, including length, time, weight, temperature, money, perimeter, area, and volume.
- 5 “Mini-Metric Olympics, I and II”, Math + Science: A Solution  
*The student will become familiar with metric units by estimating and measuring.*
- 3-5 “Observe a Tree”, Budding Botanist  
*The student will become acquainted with a tree by measuring it using both customary and non-customary units of measure.*
- 3-5 “A Close Call”, Magazine Volume 6 # 1  
*The student will estimate the number of objects in a container and devise a strategy for calculating an approximation without counting each one.*
- 4,5 “Peddle the Metal”, Hardhatting in a Geo-World  
*The student will make pasta jewelry and determine the selling price by measuring the grams of each piece.*
- 4,5 “Pillars of Strength”, Hardhatting in a Geo-World  
*The student will explore how height, diameter, and thickness affect the strength of a paper tube, then build a paper tube that will support a person.*
- 4 “Slides of Reflection”, Magazine Volume 13 # 3  
*The student will use slides to measure refracted light and find angles in decimals, fractions and percents.*

**Standard 4: The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations. The student:**

**MA.B.4.2.1**

- determines which units of measurement, such as seconds, square inches, and dollars per tankful, to use with answers to real-world problems.
- “Student Made Measuring Tools”, Hardhatting in a Geo-World  
*The student will make measuring tools to use in a variety of activities.*
- “Peddle the Metal”, Hardhatting in a Geo-World  
*The student will make pasta jewelry and determine the selling price by measuring the grams of each piece.*
- 3-5 “Pleased As Punch”, Hardhatting in a Geo-World  
*The student will plan and investigate various mixes of punch, measuring according to recipes.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**MA.B.4.2.2**

- selects and uses appropriate instruments and technology, including scales, rulers, thermometers, measuring cups, protractors, and gauges to measure in real-world situations.

- 3-5 “A Close Call”, Magazine Volume 6 # 1  
*The student will estimate the number of objects in a container and devise a strategy for calculating an approximation (without counting) each one.*
- 3-5 “Common Cents for Education”, Magazine Volume 7 # 2  
*Article describes the development of a concrete model of one million.*
- 3-5 “Cups ‘n Stuff”, Hardhatting in a Geo-World  
*The student will order five different materials with equal volume but unequal mass.*
- 5 “Dealing with Density”, Magazine Volume 11 # 6  
*The student will compare volume and mass of water-filled balloons in solid and liquid state.*
- 5 “Hands on the Giant”, Jawbreakers and Heart Thumpers  
*The student will use linear measurement with ratios and proportionality..*
- 4,5 “Peddle the Metal”, Hardhatting in a Geo-World  
*The student will determine the selling price of jewelry by measuring the grams of each piece.*
- 3-5 “Playground Geometry”, Hardhatting in a Geo-World  
*The student will measure squares, circles, and rectangles on the playground.*
- 4,5 “The Point of a Compass”, Magazine Volume 11 # 6  
*The student will try two different methods of compass use to find a better way to walk a course.*
- “Rulers Line Up”, Hardhatting in a Geo-World  
*The student will use deci-units and discover the need for customary units of measure.*

**C. Geometry and Spatial Sense**

**Standard 1: The student describes, draws, identifies, and analyzes two- and three- dimensional shapes. The student:**

**MA.C.1.2.1**

- given a verbal description, draws and/or models two- and three-dimensional shapes and uses appropriate geometric vocabulary to write a description of a figure or a picture composed of geometric figures.
- 5 The Amazing Circle [entire book]  
*The student will explore the nature and relationship of geometric figures, concepts, and terminology through the physical model of a folding and unfolding.*
- 4,5 “Daffy Definitions from Geometry”, Historical Connections Volume II  
*The student will match geometric terms with definitions.*
- 3-5 “Playground Geometry”, Hardhatting in a Geo-World  
*The student will expand understanding of geometric shapes by finding and measuring squares, rectangles, and circles on the playground.*
- 5 “Trying Triangles”, Pieces and Patterns  
*The student will discover a pattern in predicting whether or not a group of numbers will construct a triangle.*
- 5 “See How They Roll”, Pieces and Patterns  
*The student will explore the probability of forming an equilateral, isosceles, and scalene or no triangle.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 5 “Probably Pythagorean”, Pieces and Patterns  
*The student will determine the probability that the resulting triangles will be acute, obtuse or right triangles by applying the Pythagorean theory.*
- 4,5 “Triangle Strategies”, Magazine Volume 3 # 6  
*The student will use probability in a game format to build scalene, isosceles and equilateral triangles.*
- 3-5 “Shaping Up”, Hardhatting in a Geo-World  
*The student will observe and draw examples of geometric shapes in nature and in objects made by people.*
- 5 “From Wedges to Wangles”, Hardhatting in a Geo-World  
*The student will construct and use 3-dimensional wedges (wangles) to measure angles found in nature and in objects made by people.*
- 3-5 “Circle Sighs”, Hardhatting in a Geo-World  
*The student will use paper clips to draw circles and to determine their radii and diameters.*
- 3-5 “Geo-Panes”, Hardhatting in a Geo-World  
*The student will identify vertices (corners), edges, and faces of a variety of shapes.*
- 3-5 “Quick Quilts”, Magazine Volume 7 # 8  
*The student will discover a relationship between triangles and squares.*
- 3 “Shape Takers”, Magazine Volume 11 # 3  
*The student will use tangrams to explore shapes.*
- 5 “Task Cards: Part 1”, Spatial Visualization  
*The student will use task cards to build models from four-view plans.*
- 4,5 “Tangrammy Squares”, Magazine Volume 10, # 2  
*The student will use tangrams to explore shapes.*
- 4,5 “3-D Line Plot”, Magazine 11 Volume # 10  
*The student will use a number line as a way to classify shapes, look for patterns of 3-D shapes, and use geometric ideas and vocabulary.*

**Standard 2: The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed. The student:**

**MA.C.2.2.1**

- understands the concepts of spatial relationships, symmetry, reflections, congruency, and similarity.
- 3-5 “Dick and Bob Are Twins”, Magazine Volume 4 # 1  
*The student will complete an activity using horizontal and vertical symmetry.*
- 3-5 “Halves and Half-Nots”, Pieces and Patterns  
*The student will use hand mirrors to discover lines of symmetry in letters of the alphabet.*
- 3-5 “Mirrors that Multiply”, Pieces and Patterns  
*The student will explore the principles of multiple images and reflections and apply them to the construction of simple kaleidoscope.*
- 5 “Nature’s Part in Art and Math”, Pieces and Patterns  
*The student will observe and identify major shapes (polygons) in natural objects and observe how they form patterns.*
- 5 “Nature of Symmetry”, Pieces and Patterns  
*The student will identify and explore three kinds of symmetry - bilateral, translational, and rotational.*
- 3 “Mirror Reflections”, Primarily Physics  
*The student will learn about symmetry using mirrors.*

# **Sunshine State Standards**

## **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 3-5 “Through the Looking Glass”, Magazine Volume 4 # 3  
*The student will use red Plexiglas to discover the position and orientation of an image reflected in a mirror.*
- 5 “An Inside Job”, Pieces and Patterns  
*The student will explore the mathematics of why certain shapes “tile” and others do not.*
- 3 “Pop Out Patterns”, Magazine Volume 9 # 10  
*The student will build a basic pattern piece that will be manipulated in different ways to form patterns that appear to be three-dimensional designs.*
- 3-5 “Quick Quilts”, Magazine Volume 7, # 8  
*The student will discover a relationship between triangles and squares.*
- 4,5 “Spatial Visualization” [entire book]  
*The student will use “Thinkcards” to build solids from four-view plans and isometric drawings. The student will reduce solids to four-view plans and isometric drawings. The student will create exploded views of the layers in a solid. The student will study maximum and minimum volumes and surface areas, analyzing isometric drawings to determine volumes, surface area, and perimeters of the footprints of solids.*
- 3-5 “Cube Construction”, Magazine Volume 10 # 2  
*The student will explore different arrangements of two, three or four individual cubes and then build the seven Soma cube puzzle pieces used to make a large cube and other interesting 3-dimensional shapes.*
- 5 “Record-Making Cubes”, Just For the Fun of It  
*The student will use spatial sense to make and record Soma cube solutions.*

### **MA.C.2.2.2**

- predicts, illustrates, and verifies which figures could result from a flip, slide or turn of a given figure.

- 3-5 “Edge to Edge”, Hardhatting in a Geo-World  
*The student will form patterns using slides of squares and discover flips, turns and reflections.*
- 3-5 “Dick and Bob Are Twins”, Magazine Volume 4 # 1  
*The student will complete an activity using horizontal and vertical symmetry.*
- 3-5 “Halves and Half-Nots”, Pieces and Patterns  
*The student will use hand mirrors to discover lines of symmetry in letters of the alphabet.*
- 3-5 “Through the Looking Glass”, Magazine Volume 4, # 3  
*The student will use red Plexiglas to discover the position and orientation of an image reflected in a glass.*
- 4,5 “Part Four: Interpreting Isometric Drawings and Exploded Views”, Spatial Visualization  
*The student will interpret isometric drawings and will draw exploded views.*
- 3-5 “The Heart Breaking Puzzle”, Magazine Volume 10 # 7  
*The student will divide a figure to make shapes.*
- 3-5 “Mobius Bands”, Hardhatting in a Geo-World  
*The student will explore the Mobius bands by observing the results of varying the number of twists and kind of cuts.*
- 3-5 “Slice Me Twice”, Hardhatting in a Geo-World  
*The student will investigate how two-circle constructions are changed into various quadrilaterals and then continue with further explorations of their own.*
- 5 “Turtle Trips and Turns”, Pieces and Patterns  
*The student will use turns and rotations to command a turtle to draw a picture.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**Standard 3: The student uses coordinate geometry to locate objects in both two and three dimensions and to describe objects algebraically. The student:**

**MA.C.3.2.1**

- represents and applies a variety of strategies and geometric properties and formulas for two- and three- dimensional shapes to solve real-world and mathematical problems.

“Once Around the Track”, Hardhatting in a Geo-World

*The student will discover the two rules that determine how the number of vertices determine a network path.*

4,5 “Net-Sense”, Hardhatting in a Geo-World

*The student will move from two-dimensional to three-dimensional objects and back using pentominoes to form open boxes.*

“Geo-Panes”, Hardhatting in a Geo-World

*The student will identify vertices (corners), edges and faces of a variety of shapes.*

3-0 “Cutting Corners”, Just for the Fun of It

*The student will find area, perimeter, and volume using grid paper.*

4,5 “Constant Perimeters”, Magazine Volume 13 # 4

*The student will determine how area changes while perimeter remains constant.*

3-0 “Recreating Rectangles”, Magazine Volume 13 # 8

*The student will use concrete materials to rearrange rectangles.*

**MA.C.3.2.2**

- identifies and plots positive ordered pairs (whole numbers ) in a rectangular coordinate system (graph).

3-5 “Plot Your Position”, Finding Your Bearings

*The student will plot boundaries of a fictitious country using latitude and longitude coordinates.*

4,5 “Plot and Swat”, Historical Connections, Volume II

*The student will plot given coordinates on a grid to discover what Descartes saw on his ceiling.*

3-5 “On A Roll”, Historical Connections, Volume III

*The student will play a game with dice and plot points on a grid.*

4,5 “Area the Easy Way”, Historical Connections, Volume III

*The student will find the area of polygons using the coordinates of the vertices.*

5 “Space Shuttle Coordinate Graph”, Magazine Volume 6, # 8

*The student will make an outline drawing of the space shuttle on graph paper by locating and connecting coordinate points.*

4,5 “Physically Featured”, Finding Your Bearings

*The student will use coordinate directions to draw physical features of a fictitious country on a map.*

4,5 “Tic-Tac-Room”, Finding Your Bearings

*The student will locate items in the classroom using a life-size coordinate grid.*

4,5 “Hurricanes”, Magazine Volume 13 # 2

*The student will track a hurricane using latitude and longitude coordinates.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**D. Algebraic Thinking**

**Standard 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations and functions. The student:**

**MA.D.1.2.1**

- describes a wide variety of patterns and relationships through models, such as manipulatives, tables, graphs, and rules using algebraic symbols.
- 3 “Taking Turns with Triangles”, Magazine Volume 9 # 5  
*The student will observe and verbalize patterns.*
- 3 “Teddy Bears Go to the Movies”, Primarily Bears  
*The student will use counters to form and repeat a pattern.*
- 3 “Who’s Not Home ?”, Primarily Bears  
*The student will complete a matrix by noting a pattern of the bears.*
- 3-5 “Bear Soccer”, and other similar activities from Primarily Bears  
*The student will complete a matrix by noting the pattern of the bears.*
- 3-5 “Advantages of a Pattern-Based Math Science Curriculum”, Magazine Volume 10 # 7  
[background information]
- 3-5 “Advantages of a Pattern-Based Math Science Curriculum”, Magazine Volume 10 # 8  
[background information]
- 3-5 “Advantages of a Pattern-Based Math Science Curriculum”, Magazine Volume 10 # 9  
[background information]
- 5 “Algebra Magic”, Historical Connections Volume 3  
*The student will see how algebra solves the mystery card tricks.*
- “A Bicycle Built for Bears”, Primarily Bears  
*The student will use teddy bear counters to solve logic problems.*
- 4,5 “Calendar Capers”, Just for the Fun of It  
*The student will use a calendar to find number relationships.*
- 3-5 “Teddy Bear Marching Bands”, Primarily Bears  
*The student will use teddy bear counters to complete patterns.*
- “Teddy Bear Totem Poles”, Primarily Bears  
*The student will use teddy bear counters to solve logic problems.*
- 3-5 “Teddy Bears Go Hiking”, Primarily Bears  
*The student will use teddy bear counters or other objects to repeat patterns.*
- 3-5 “Teddy Bears Go Sledding”, Primarily Bears  
*The student will explore pattern arrangements of teddy bear counters.*
- 4,5 “What Symmetry !”, What’s Next ? Volume 3  
*The student will determine all the lines of symmetry for various regular polygons, find patterns among the polygons, and generalize a rule.*
- 4,5 “Multiple Maze”, What’s Next ? Volume 3  
*The student will discover many patterns and make generalizations using a table.*
- 4,5 “Three’s a Charm !”, What’s Next ? Volume 3  
*The student will discover various patterns and make generalizations using algebraic symbols.*
- 4,5 “Table Tally”, What’s Next ? Volume 3  
*The student will discover various number patterns and make generalizations using algebraic symbols.*
- 4,5 “Bear Resolutions”, Magazine Volume 11 # 6  
*The student will use logical reasoning to complete a grid.*
- 3-0 “Teddy Bears on Parade”, Primarily Bears  
*The student will use teddy bear counters to complete a pattern.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**MA.D.1.12.2**

- generalizes a pattern, relation, or function to explain how a change in one quantity results in a change in another.

- 5 “Mathematics: A Search for Patterns (Finding Net Worth)”, Magazine Volume 10 # 8  
*The student will find the pattern of positive and negative numbers on a number line.*
- 3-5 “The Hundred Number Challenge”, Magazine Volume 7 # 2  
*The student will participate in cooperative groups and determine the sum of numbers from one to one hundred.*
- 3-5 “I’ve Got Your Number”, Magazine Volume 9 # 3  
*The student will use problem solving strategies to determine a given number.*
- 4,5 “Paper Pinchers”, Magazine Volume 9 # 1  
*The student will fold squares in various ways and determine how the areas are related to each other and generalize a pattern.*
- 4,5 “Tablet Teaser”, Magazine Volume 10 # 10  
*The student will determine and complete the pattern in an addition chart.*
- 4,5 “You’re All Mine, 999”, What’s Next ? Volume 3  
*The student will discover various number patterns and make generalizations using algebraic symbols.*

**Standard 2: The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations. The student:**

**MA.D.2.2.1**

- represents a given simple problem situation using diagrams, models and symbolic expressions translated from verbal phrases, or verbal phrases translated from symbolic expressions, etc. .

- 4,5 “Mathematics: The Search for Patterns (Making Connections)”, Magazine Volume 10 # 1  
*The student will explore the relationship between the length, area, and width of rectangles.*
- 4,5 “Mathematics: The Search for Patterns (Making More Connections)”, Magazine Volume 10 # 2  
*The student will explore the relationship between the length, area, and width of rectangles.*
- 4,5 “Paper Pinchers”, Magazine Volume 9 # 1  
*The student will fold squares in various ways and determine how the areas are related to each other and generalize a pattern.*

**MA.D.2.2.2**

- uses informal methods, such as physical models and graphs, to solve real-world problems involving equations and inequalities.

- 4,5 “Clock Arithmetic”, Historical Connections, Volume 2  
*The student will use a clock to complete an addition table.*
- 3-5 “Counting on Calendars”, Magazine Volume 11 # 6  
*The student will use calendars to locate numerical patterns.*
- 3-5 “Total Count-Ability”, Just for the Fun of It  
*The student will solve a problem based on a poem.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**E. Data Analysis and Probability**

**Standard 1: The student understands and uses the tools of data analysis for managing information.**

**MA.E.1.2.1**

- solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts.

- 3-5 “Cat Scan”, Magazine Volume 7 # 7  
*The student will gain experience in the construction and use of bar graphs, circle graphs, binary tree diagrams, and Venn diagrams.*
- 3,4 “Gummy Bears”, Primarily Bears  
*The student will use Gummy Bears to count, classify and construct a graph.*
- 3,4 “Fish Clips”, Mostly Magnets  
*The student will use the magnet activity to collect data and construct a bar graph.*
- 3 “Watching the Weather”, Primarily Earth  
*The student will observe and record the weather conditions over a long period of time including checking newspaper weather graphs and pictures.*
- 3-5 “Are You a Square?”, Overhead and Underfoot  
*The student will gather, record, and interpret data dealing with height and arm span.*
- 3-5 “Math with M&M Candies”, Primarily Bears  
*The student will use M&M’s to estimate, count, compare and graph.*
- 3-5 “The Joy of Jelly Beans”, Primarily Bears  
*The student will use jelly beans to estimate, count, compare and graph.*
- 4,5 “Big Banana Peel”, Math + Science : A Solution  
*The student will determine what percentage of a banana is edible and will develop a formula relating the edible part to the total mass of the banana.*
- 4,5 “Who’s Right?”, Magazine Volume 5 # 4  
*The student will gather data to construct a dichotomous key, Venn diagram, bar and circle graph.*
- 4,5 “Worldwide Highs”, Magazine Volume 11 # 5  
*The student will track the high temperatures of a city for a week, post the daily information on a large world map and use a line graph to plot the temperatures.*
- 5 “Hurricane”, Magazine Volume 13, # 2  
*The student will create a double line graph to compare wind speed and pressure.*
- 3,4 “Ring Around the Posies”, Magazine Volume 14 # 1  
*The student will display data on a pictograph.*

**MA.E.1.2.2**

- determines range, mean, median and mode from sets of data.
- 5 “Are You Mean?”, From Head to Toe  
*The student will estimate the measurement of different body parts and perform actual measurement.*
- 3-5 “Are You an Average Joe?”, Jawbreakers and Heart Thumpers  
*The student will find the size of the average person in the class and make personal comparisons that average.*
- 4,5 “The Penny Sort and Nickel Dates”, Math + Science : A Solution  
*The student will classify pennies and nickels by minting dates, determine medians and modes, construct real, representational and abstract bar graphs, and interpret results.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 5 “It’s Bean Fun”, Math + Science : A Solution  
*The student will explore the concepts of sampling and ratios using colored beans in jars.*
- 4,5 “The Marbelous Rolls”, Magazine Volume 8, # 1  
*The student will discover the effect of uniform acceleration of marbles rolled down an inclined plane on the distance they roll on a carpet.*
- 5 “Rally Round the Room ”, Pieces and Patterns  
*The student will explore concepts of friction, kinetic energy and distance using range, median, and mode.*
- 5 “Arm Yourself”, From Head to Toe  
*The student will compare the muscle strength of their arms and shoulders to that of their peers.*
- 3-5 “Compression Session”, Jawbreakers and Heart Thumpers  
*The student will measure and compare morning height and afternoon height and will determine a weekly average.*
- 4,5 “Big Banana Peel”, Math + Science : A Solution  
*The student will determine what percentage of a banana is edible and develop a formula relating the edible part to the total mass of the banana.*
- 3,4 “Speculating About Spuds”, Magazine Volume 13 # 8  
*The student will find the mean average using potato measurements of length and mass.*
- 3-0 “Lots of Temperature Plots”, Magazine Volume 13 # 4  
*The student will identify mean average of temperatures from a set of data.*
- 3-0 “How High? How Far?” , Magazine Volume 13 # 2  
*The student will identify median of graphed data of height and jump length.*

#### **MA.E.1.2.3**

- analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers.
- 4,5 “What’s in the Bag?”, Math + Science: A Solution  
*The student will use a jar of small objects to build skills in estimation, counting strategies, and place value.*
- 3-5 “How Many Teddy Bears in the Woods”, Magazine Volume 4 # 5  
*The student will calculate population size and use calculators to make a data collection sheet.*
- 4,5 “Weather Watch”, Magazine Volume 10 # 2  
*The student will gather hourly weather information from radio, television, or computer, and observe weather patterns in a particular location.*
- 4,5 “World Wide Highs”, Magazine Volume 11 # 5  
*The student will track the high temperature of a city for a week, post the daily information on a large world map using a color-coded key, and observe the temperature patterns of the city.*
- 4,5 “Head Hunters”, Magazine Volume 9, # 10  
*The student will determine if there is a correlation between a person’s height to head circumference. Students will take measurements of the class members and analyze the data with a scatter plot and averaging.*
- 4,5 “Weight In Space ”, Out of This World  
*The student will determine their weight on the Moon and other planets using a BASIC program (Planetarium on Computer).*
- 4,5 “Big Banana Peel”, Math + Science : A Solution  
*The student will determine what percentage of a banana is edible and develop a formula relating the edible part to the total mass of the banana.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 5 “Color Samples”, Magazine Volume 11 # 8  
*The student will gather data for eight to ten bags of M&M candies, make graphic displays, and determine measures of central tendency for the samples.*

**Standard 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics. The student:**

**MA.E.2.2.1**

- uses models, such as tree diagrams, to display possible outcomes and to predict events.
- 4,5 “Unique U”, Math + Science : A Solution  
*The student will participate in a class sorting activity using attributes to sort each student into a unique group.*
- 4,5 “Sorting All Sorts”, Math + Science : A Solution  
*The student will sort a set of objects using binary classification.*
- 4,5 “Creature Features”, Math + Science : A Solution  
*The student will sort a set of objects using binary classification.*
- 4,5 “On Your Own Two Feet”, Math + Science : A Solution  
*The student will sort a set of objects using binary classification.*
- 4,5 “It’s A Shoe In”, Math + Science : A Solution  
*The student will sort a set of objects using binary classification.*
- 3-5 “Cat Scan”, Magazine Volume 7 # 7  
*The student will gain experience in the construction and use of bar graphs, circle graphs, binary tree diagrams, and Venn diagrams.*
- 4,5 “It’s Bean Fun”, Math + Science : A Solution  
*The student will explore the concepts of sampling and ratios using colored beans in jars.*
- 4,5 “Head Hunters”, Magazine Volume 9 # 10  
*The student will determine if there is a correlation between a person’s height to head circumference. The student will take measurements of the class members and analyze the data with a scatter plot and averaging.*
- 4,5 “Scissors, Rock, or Paper”, Magazine Volume 3 # 5  
*The student will explore probability of an event occurring as a ratio in fraction form by playing a game.*
- 3-5 “By Golly, By Gum”, Jawbreakers and Heart Thumpers  
*The student will discover the ratio of sugar in gum before and after chewing.*
- 4,5 “Traits Combo”, Magazine Volume 6 # 10  
*The student will collect and analyze data on similarities and differences in their physical appearance.*
- 4,5 “Big Banana Peel”, Math + Science : A Solution  
*The student will determine what percentage of a banana is edible and develop a formula relating the edible part to the total mass of the banana. The student will apply that knowledge to develop experiments for other foods.*
- 4,5 “Spinning Sums”, Just for the Fun of It  
*The student will use spinners to determine possible combinations.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 3-5**

**MA.E.2.2.2**

- predicts the likelihood of simple events occurring.

- 3-5 “Teddy Bears Playing in the Den”, Primarily Bears  
*The student will investigate random samples to determine how they can be used to make predictions about the nature of the population. The student will then use the information to construct a pie graph. .*
- 4,5 “Scissors, Rock or Paper”, Magazine Volume 3 # 5  
*The student will explore probability by playing a game.*
- 3 “Gimme a Gimel”, Magazine Volume 8 # 5  
*The student will play a dreidel game and identify the possible outcomes.*
- 3-5 “Spinning Sums”, Just for the Fun of It  
*The student will determine the probability of specific sums when adding the numbers from each of two 0-9 spinners.*
- 5 “See How They Roll”, Pieces and Patterns  
*The student will discover the probability of rolling three dice so that a given type of triangle will result.*
- 4,5 “Flip for It ”, What’s Next ? - Volume 2  
*The student will look at probability patterns that emerge when tossing coins.*
- 4,5 “Pascal Wins the World Series”, What’s Next ? - Volume 1  
*The student will use probability to discover how many different patterns of losses could occur during the World Series.*
- 4,5 “Sum Will Sum Won’t”, What’s Next? - Volume 1  
*The student will determine which sum has the greatest chance of occurring when you toss a continually increasing number of dice.*
- 3-5 “Ahlewis”, Magazine Volume 4 # 10  
*The student will learn and play an early California Native American game in order to make predictions about events, gather data, and arrive at experimental results.*
- 4,5 “The Two Cube Problem”, Magazine Volume 13 # 6  
*The student will use 2 cubes to determine multiple outcomes and probability.*
- 3-5 “Challenging Consecutives”, Magazine Volume 13 # 10  
*The student will determine possible combinations and outcomes using patterns.*
- 3-0 “Dueling Dice” , Magazine Volume 14 # 3  
*The student will construct dice and do simple probability experiments.*

**Standard 3: The student uses statistical methods to make inferences and valid arguments about real-world situations. The student:**

**MA.E.3.2.1**

- designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs.

- 3-5 “Are You A Square?”, Overhead and Underfoot  
*The student will gather, record and interpret data dealing with height and arm span.*
- 3-5 “Sharing Birthdays”, Magazine Volume 8 # 5  
*The student will explore the probability of sharing a birthday with another person in the class.*
- 4,5 “The Penny Sort and Nickel Dates”, Math + Science: A Solution  
*The student will classify pennies and nickels by minting dates, determine medians and modes, construct real, representational and abstract bar graphs, and interpret results.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades 3-5**

- 4,5 “Big Banana Peel”, Math + Science: A Solution  
*The student will determine what percentage of a banana is edible and develop a formula relating the edible part to the total mass of the banana. The student will apply that knowledge to develop experiments for other foods.*
- 4,5 “Rubber Band Shoot”, Math + Science: A Solution  
*The student will explore a cause-and-effect relationship with rubber bands. After graphing the data, the student will develop a formula using data that relates distance traveled to the amount of stretch.*
- 4,5 “A Definite Maybe ”, Magazine Volume 3 # 4  
*The student will explore the English language to discover words that range from “no change” to “certainty” on a mathematical probability scale.*
- 4,5 “Traits Combo”, Magazine Volume 6 # 10  
*The student will collect and analyze data on similarities and differences in physical appearance.*
- 4,5 “Scissors, Rock or Paper”, Magazine Volume 3 # 5  
*The student will explore probability by playing a game.*
- 4,5 “The Marbelous Rolls”, Magazine Volume 8, # 1  
*The student will discover the effect of uniform acceleration of marbles rolled down an inclined plane on the distance they roll on a carpet.*
- 5 “Rally Round the Room ”, Pieces and Patterns  
*The student will explore concepts of friction, kinetic energy and distance using range, median, and mode.*
- 5 “Practically Predictable”, Pieces and Patterns  
*The student will form and test a prediction and graph the results.*
- 3-5 “Sky High”, Hardhatting in a Geo-World  
*The student will estimate the height of cooperatively constructed structures and will use statistical methods for comparison.*

#### **MA.E.3.2.2**

- uses statistical data about life situations to make predictions and justifies reasoning.
- 4,5 “Big Banana Peel”, Math + Science : A Solution  
*The student will determine what percentage of a banana is edible and develop a formula relating the edible part to the total mass of the banana. The student will apply that knowledge to develop experiments for other foods.*
- 3-5 “Are You A Square?”, Overhead and Underfoot  
*The student will gather, record and interpret data dealing with height and arm span.*
- 3-5 “Sharing Birthdays”, Magazine Volume 8 # 5  
*The student will explore the probability of sharing a birthday with another person in the class.*
- 3-5 “The Disease X Crisis”, Magazine Volume 4 # 10  
*The student will use a simulation to compare blood profiles obtained by random sampling and will make diagnoses by comparing these to predetermined profiles from the general population.*
- 4,5 “The Disease X Dilemma”, Magazine Volume 5 # 1  
*The student will use a simulation to compare blood profiles obtained by random sampling, and will make diagnoses by comparing these to predetermined profiles from the general population.*
- 4,5 “Slides and Jumps”, Just for the Fun of It  
*The student will use solutions to a puzzle to find patterns and justify generalizations.*
- 5 “Hurricanes”, Magazine Volume 13 # 2  
*The student will predict the path of a hurricane on a coordinate map.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 6-8**

**A. Number Sense, Concepts, and Operations**

**STANDARD 1:**The student understands the different ways numbers are represented and used in the real world. The student:

**MA.A.1.3.1**

- associates verbal names, written word names, and standard numerals with integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.

- 6-8 “The Big Banana Peel”, Math + Science : A Solution  
*The student will identify the ratio of the edible parts of a banana to its total mass, then calculate the percent edible.*
- 6 “Jelly Bellys”, Pieces and Patterns  
*The student will set up circle fractions and ratios to determine the distribution of colors in a bag of jellybeans.*
- 7 “Sizing Up Shadows”, Through the Eyes of the Explorers  
*The student will set up ratios of an object’s height to its shadow length to determine height without direct measurement.*
- 6-8 “Oranges for the Most Part”, Magazine Volume 10 # 5  
*The student will convert fractions to decimals to percents in order to calculate the edible parts of the orange.*
- 6-8 “From Fractions to Decimals”, What’s Next ? Volume 2  
*The student will use division to find equivalent fractions.*

**MA.A.1.3.2**

- understands the relative sizes of integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios.

- 6,8 “Tunnel Vision”, Through the Eyes of the Explorers  
*The student will set up ratios to determine height of an unknown object.*
- 6-8 “Making Cents of Percents”, Magazine Volume 11 # 10  
*The student will determine the percent of pennies in circulation that were minted last year.*
- 6-8 “Shrink Art”, Magazine Volume 11 # 10  
*The student will set up proportions to determine how much an item will shrink when heated using proportions, ratios, and decimal fractions.*
- 6-8 “Percent Bands”, Magazine Volume 12 #6  
*The student will use an elastic band to determine percents while comparing objects of different lengths.*

**MA.A.1.3.3**

- understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations.

- 6-8 “Growing Designs”, Magazine Volume 12 # 1  
*The student will enlarge design on graph paper then study the coordinates to create scale drawings.*
- 6-8 “Doin’ Dots”, Magazine Volume 10 # 10  
*The student will apply the concept of scaling to enlarge a picture on a mural.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades 6-8**

- 6-8 “Patterns in Equivalent Fractions”, Magazine Volume 10 # 10  
*The student will identify equivalent fractions on a coordinate plane.*
- 6-8 “Building Blocks”, Magazine Volume 12 #7  
*The student will use base ten blocks to fill rectangular regions then determine the area of the region.*
- 6-8 “That’s Sum Face”, Magazine Volume 12 # 7  
*The student will work with a mathematical microworld, a simple system with well defined rules that govern it, to explore many patterns and mathematical properties.*

#### **MA.A.1.3.4**

- understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, and absolute value.

- 6-8 “Patterns in Equivalent Fractions”, Magazine Volume 10 # 10  
*The student will identify equivalent fractions in equivalent forms.*
- 6,7 “The Parade of Triplets”, Magazine Volume 11 # 10  
*The student will graph numerator and denominator in fractions to determine decimal/percent value.*
- 6,7 “Oranges for the Most Part”, Magazine Volume 10 # 5  
*The student will convert fractions to decimals then to percents.*
- 6,7 “Decimal Predictions”, What’s Next ? Volume 3  
*The student will divide fractions to create decimals.*
- 6,7 “From Fractions to Decimals”, What’s Next ? Volume 2  
*The student will divide numerators by denominators to determine equivalent fractions.*

### **STANDARD 2: The student understands number systems. The student:**

#### **MA.A.2.3.1**

- understands and uses exponential and scientific notation.

- 7,8 “The Chessboard Covered with Wheat”, Historical Connections, Volume III  
*The student will explore exponential notation.*
- 7,8 “The Binomial Theorem”, What’s Next ? Volume III  
*The student will explore expanding binomials.*
- 7,8 “Paper Punching Patterns”, Historical Connections, Volume II  
*The student will investigate patterns by punching holes in folded paper.*

#### **MA.A.2.3.2**

- understands the structure of number systems other than the decimal number system.

- 8 “Sorting Cards”, Magazine Volume 11 # 5  
*The student will explore the binary system.*
- 8 “Teddy Bear Magic Cards”, Magazine Volume 8 # 8  
*The student will learn the secret to a card trick that’s based upon the binary number system.*
- 8 “Teddy Bears Take a Stand”, Magazine Volume 8 # 8  
*The student will explore the binary number system.*
- 7 “The Abacus”, What’s Next ? Volume 3  
*The student will use the abacus to represent numbers.*
- 8 “Teddy Bear Magic Cards”, Magazine Volume 8 # 8  
*The student will work with the binary number system.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 6-8**

**STANDARD 3:**The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving. The student:

**MA.A.3.3.1**

- understands and explains the effects of addition, subtraction, multiplication, and division on whole numbers, fractions, including mixed numbers, and decimals, including the inverse relationships of positive and negative numbers.

- 7,8 “Finding Net Worth”, Magazine Volume 10 # 8  
*The student will use positive and negative integers to balance assets using a number line.*
- 6-8 “From Fractions to Decimals”, What’s Next ? Volume 3  
*The student will change fractions to decimals by dividing.*
- 6-8 “Clockwise Fractions”, Magazine Volume 11 # 4  
*The student will order and compare fractions.*
- 6-8 “Patterns in Equivalent Fractions”, Magazine Volume 10 # 2  
*The student will compare and order fractions.*
- 6-8 “Building Blocks”, Magazine Volume 12 # 7  
*The student will use base ten blocks to fill rectangular regions, then determine the area of the regions.*

**MA.A.3.3.2**

- selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the appropriate application of the algebraic order of operations.

- 6-8 “Snack Attack”, Fun with Foods  
*The student will measure quantities of food to make comparisons of cost.*
- 6-8 “Save-a-Watt”, Popping with Power  
*The student will collect, record, and graph data in order to calculate energy usage and electricity cost.*
- 6 “Peddle the Metal”, Hardhatting in a Geo-World  
*The student will make jewelry and determine selling price.*
- 6-8 “Paper Caper”, Fun with Foods  
*The student will investigate and calculate absorption capacities of various brands of paper towels.*
- 6-8 “People ‘Plosion”, Finding Your Bearings  
*The student will explore population data and make projections on further growth.*
- 6-8 “Orange’s Life Jacket”, Floaters and Sinkers  
*The student will find the density of peeled and unpeeled oranges and relate the ratios to buoyancy.*

**MA.A.3.3.3**

- adds, subtracts, multiples, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 6-8**

**STANDARD 4:**The student uses estimation in problem solving and computation. The student:

**MA.A.4.3.1**

- uses estimation strategies to predict results and to check the reasonableness of results.

6-8 “Lighten Up/Which is Better?”, Popping with Power

*The student will predict and then calculate home wattage usage.*

6-8 “Count Me In”, Finding Your Bearings

*The student will use the concept of random sampling to predict population.*

6-8 “Census Takers”, Critters

*The student will conduct random sampling to find insect populations.*

**STANDARD 5:**The student understands and applies theories related to numbers. The student:

**MA.A.5.3.1**

- uses concepts about numbers, including primes, factors, and multiples, to build number sequences.

**B. Measurement**

**STANDARD 1:**The student measures quantities in the real world and uses the measures to solve problems. The student:

**MA.B.1.3.1**

- uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two-and three-dimensional shapes, including rectangular solids and cylinders.

6,7 “The Geoboard: A Versatile Manipulative”, Magazine Volume 3 # 1

6,7 “Area and Perimeter on the Geoboard”, Magazine Volume 3 # 2

6,7 “Area Formulas on the Geoboard”, Magazine Volume 3 # 3

*[A series of articles on using the geoboard to give meaning to various area formulas.]*

6,7 “Area Patterns”, Magazine Volume 11 # 5

*The student will determine area by covering different regions with congruent square tiles that represent a defined measurement unit, a process known as tiling.*

6,7 “Area and Perimeter Patterns”, Magazine Volume 12 # 8

*The student will construct half-perimeter and area tables and then examine the relationship between the two.*

7,8 “Building Boxes”, Magazine Volume 9 # 2

*The student will construct as many different-sized boxes (rectangular prisms) as they can with a total surface area of 24 square units or less.*

6,7 “Can You Believe It?”, Magazine Volume 2 # 8

*The student will predict and compare the relationships between the circumference and heights of various cans.*

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- 6 “Circle Sighs”, Hardhatting in a Geo-World  
*The student will use paper clips to draw circles determining their radii and diameters.*
- 6,7 “Exploring the Amazing Circle 7”, The Amazing Circle  
*The student will compare the area of an equilateral triangle to the area of a circular region.*
- 6,7 “Exploring the Amazing Circle 8”, The Amazing Circle  
*The student will compare the area of a circle inscribed in an equilateral triangle to the area of the circle outside the triangle.*
- 6,7 “Exploring the Amazing Circle 9”, The Amazing Circle  
*The student will compare the area of an equilateral triangle to the area of a right triangle.*
- 6,7 “Exploring the Amazing Circle 11”, The Amazing Circle  
*The student will compare the areas of a small equilateral triangle, a large equilateral triangle and a trapezoid.*
- 6,7 “Exploring the Concept of Area Measurement, Parts 1 & 2”, Magazine Volume 4 #s 8 & 9  
*[Two articles that investigate selecting the unit for area measurement and increasing understanding of area by reducing the number of formulas we use to find area.]*
- 6,7 “Finding Pi”, Historical Connections, Volume II  
*The student will determine the average ratio of the circumference to the diameter of a variety of circles.*
- 6,7 “Heron’s Formula”, Magazine Volume 7 # 3  
*The student will use a Greek mathematician formula to find the area of a triangle without knowing the height*
- 7,8 “Luggage Limit”, Magazine Volume 9 # 8  
*The student is given a challenging problem to determine the capacity of luggage.*
- 6,7 “Picks, Polygons, & Perimeters: The Puzzle” & “Picks, Polygons, & Perimeters: The Problem”, Magazine Volume 12 # 8  
*The student will use 12 flat toothpicks to form the perimeters of shapes that enclose areas of five square units.*
- 6,7 “Practically Pi”, Math + Science : A Solution  
*The student will understand that “pi” is a constant relationship between the circumference and the diameter of any given circle.*
- 7,8 “Problems to Pour Over”, Magazine Volume 10 # 1  
*[These are story problems that challenge the reader to measure out an exact amount of liquid using only unmarked containers.]*
- 8 “The Earth and the Wire Belt”, Historical Connections, Volume III  
*The student will use simple algebra and geometry to determine the relationship of the earth’s radius to its circumference.*
- 6,7 “Thinking About Circumference and Diameter”, Magazine Volume 4 # 9  
*[An article that describes two activities that point out limitations in thinking about the relationship between circumference and diameter.]*
- 8 “Tin Can Space”, Floaters and Sinkers  
*The student will estimate, calculate, and measure the volume of six different cans.*
- 6,7 “Wreck-Tangles”, Hardhatting in a Geo-World  
*The student will discover that rectangles with equal perimeters do not necessarily have equal area. They may also find that length times width equals area for the rectangles they tested.*
- 6,7 “Fencing Squares”, Magazine Volume 13 # 6  
*The student will determine the perimeters and areas of different size squares then determine the cost of fencing per square meter for each square.*

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**AIMS Activities supporting Mathematics Standards for Grades 6-8**

**MA.B.1.3.2**

- uses concrete and graphic models to derive formulas for finding rates, distance, time, and angle measures.

- 6 “From Wedges to Wangles”, Hardhatting in a Geo-World  
*The student will construct and use three-dimensional wedges (wangles) to measure angles found in nature and in objects made by people.*
- 7,8 “How Long Does It Take to Say Hello?”, Out of This World  
*The student will compute the time it would take for a message to reach the moon and the planets.*
- 7,8 “Rallying Around”, Finding Your Bearings  
*The student will use a U.S. road map to measure and compare distance between five randomly-selected cities while participating in a road rally simulation.*
- 7,8 “Time Trials”, Magazine Volume 11 # 2  
*The student measures the speed of a battery-powered vehicle to develop an understanding of speed.*
- 6 “Waxed Wangles”, Hardhatting in a Geo-World  
*The student will fold a non-customary protractor and use it to construct a clock and measure angles formed by the clock’s hand.*
- 6-8 “Sun Tracks I”, Magazine Volume 13 # 6  
*The student will measure the sun’s angular height over a particular day using a protractor and relate this to the directness of the sun’s rays. Data from different times of year will be compared.*
- 6-8 “Sun Tracks I”, Magazine Volume 13 # 7  
*The student will compare the 24-hour path of the sun at several latitudes, during different seasons and will use line graphs to display the data.*

**MA.B.1.3.3**

- understands and describes how the change of a figure in such dimensions as length, width, height, and radius affects its other measurements such as perimeter, area, surface area, and volume.

- 6-8 “Area Patterns”, Magazine Volume 11 # 5  
*The student will determine area by covering different regions with congruent square tiles that represent a defined measurement unit, a process known as tiling. The student will change widths and heights to determine different areas.*
- 6 “Pillars of Strength”, Hardhatting in a Geo-World  
*The student will explore how height, diameter, and thickness affect the strength of a paper tube. They will then build a paper tube that will support a person.*
- 6-8 “The Perimeter Area Ratio”, Magazine Volume 11 # 6  
*The student will examine the ratio of perimeter to area as they examine squares of different sizes.*
- 6-8 “Constant Areas”, Magazine Volume 13 # 7  
*The student will explore the concept of area, look for patterns on a multiplication chart, graph rectangles that have the same area but different lengths and widths.*
- 6-8 “Recreating Rectangles” and “Rectangular Recreations” Magazine Volume 13 # 8  
*The student will create rectangles from given puzzle pieces then examine the mathematics present by looking at the perimeter and area of the rectangles.*

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**MA.B.1.3.4**

- constructs, interprets, and uses scale drawings such as those based on number lines and maps to solve real-world problems.

6,7 “A Whale of a Scale”, Magazine Volume 11 # 10

*The student will determine how many kid-lengths it would take to be the length of various whales. They will measure and mark the lengths of these whales in kid-lengths. They will then make scale drawings of the whales using a standard scale and compare the whales.*

6-8 “A Mapping Expedition”, Through the Eyes of the Explorers

*The student will construct a map of the mouth of the Columbia River using angle measure, proportional reasoning and scale drawings.*

6-8 “Honey, I Shrunk the ...”, Through the Eyes of the Explorers

*The student will draw a map of the classroom or another room to the scale of a toy action figure.*

6-8 “Outlandish Mapping”, Through the Eyes of the Explorers

*The student will map a large area using linear and angular measurement, geometry, proportional reasoning, and scale drawings.*

6-8 “Doing Dots”. Magazine Volume 10 # 10

*The student will scale a picture to larger graph paper.*

6-8 “Picturing Projections” Magazine Volume 13 # 8

*The student will study a drawing made with lines of perspective in which they will discover a proportional relationship for making enlargements.*

**STANDARD 2: The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary). The student:**

**MA.B.2.3.1**

- uses direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units.

6,7 “A Pace Race”, Magazine Volume 8 # 5

*The student will determine the length of their pace by converting within the customary system of measurement and use it to calculate how many steps they would need to take to travel the Oregon Trail.*

7,8 “Paring It Down to Size”, Through the Eyes of the Explorers

*The student will construct similar proportional characters and arrange them so they are the same apparent size. From their observations, the student will develop a concept of proportionality making it possible to make indirect measurements.*

7,8 “Sizing Up Shadows”, Magazine Volume 8 # 4

*The student will measure shadow lengths cast by dowels of various heights to establish the understanding that the length of a shadow and the height of the object have the same proportions for all objects at any given time.*

**MA.B.2.3.2**

- solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system.

6-8 “Spacing Out the Solar System”, Out of This World

*The student will create a model of the solar system that is accurate in terms of distance by converting units within the metric system.*

6,7 “The Metric Highway”, Historical Connections, Volume III

*The student will convert miles to kilometers.*

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**STANDARD 3:**The student estimates measurements in real-world problem situations.  
**The student:**

**MA.B.3.3.1**

- solves real-world and mathematical problems involving estimates of measurements including length, time, weight/mass, temperature, money, perimeter, area, and volume in either customary or metric unit.

- 6,7 “Corny Comparisons”, Math + Science: A Solution  
*The student will practice measuring volume in metric units. The student will find the ratio of popped to unpopped popcorn.*
- 6 “Cups ‘n Stuff”, Hardhatting in a Geo-World  
*The student will estimate, measure, and order the mass of five different materials with equal volume.*
- 6-8 “Mini-Metric Olympics”, Math + Science: A Solution  
*The student become familiar with metric units by estimating and measuring in an Olympic setting.*
- 6-8 “Mini-Metric Olympics II”, Math + Science: A Solution  
*The student will estimate and measure length, mass, volume, and area with metric units in an Olympic setting.*
- 6-8 “Puff Mobiles”, Popping with Power  
*The student will construct a straw sail car (puff mobile) powered by their own wind energy. The student will estimate and measure distances before and after car modifications.*
- 6-8 “Weight Watchers”, Math + Science: A Solution  
*The student will estimate and measure mass.*

**STANDARD 4:**The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations. **The student:**

**MA.B.4.3.1**

- selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the least precise unit of measurement.)

- 6 “Mini-Metric Olympics”, Math + Science: A Solution  
*The student become familiar with metric units by estimating and measuring in an Olympic setting.*
- 6 “Mini-Metric Olympics II”, Math + Science: A Solution  
*The student will estimate and measure length, mass, volume, and area with metric units in an Olympic setting.*

**MA.B.4.3.2**

- selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.

- 6-8 “The Measurer of Things”, Magazine Volume 11 # 2
- 6-8 “Boxes, Boxes, Boxes”, Magazine Volume 11 # 7
- 6-8 “Boxes, Boxes, Boxes: Part 2”, Magazine Volume 11 # 9
- 6-8 “Boxes, Boxes, Boxes: Part 3”, Magazine Volume 11 # 10
- 6-8 “Measurement Galore”, Magazine Volume 11 # 4  
*[A series of articles featuring ways that we, in our every day lives, encounter and engage in activities that involve measurement. The student is encouraged to complete a measurement journal.]*

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- 6 “Filling Stations”, Hardhatting in a Geo-World  
*The student will compare the capacity of various containers using accurate volume measurement.*
- 6 “Have a Ball”, Popping with Power  
*The student will explore the physical characteristics of balls (circumference, mass, and composition) and determine which one most influences the height of the bounce.*
- 6 “Pleased as Punch”, Hardhatting in a Geo-World  
*The student will plan various mixes of punch using accurate volume measurement.*
- 6 “Student-Made Measuring Tools”, Hardhatting in a Geo-World  
*The student will make his/her own measuring tools for measuring mass, volume, and length.*

### C. Geometry and Spatial Sense

**STANDARD 1:**The student describes, draws, identifies, and analyzes two- and three-dimensional shapes. The student:

#### MA.C.1.3.1

- understands the basic properties of, and relationships pertaining to, regular and irregular geometric shapes in two and three dimensions.

- 7,8 “Reflections on Geo-Panes”, Soap Films and Bubbles  
*The student will find formulas relating the parts of polyhedrons.*
- 7,8 “Nature’s Part in Art and Math”, Pieces and Patterns  
*The student will identify major polygons in natural objects and observe how they form patterns.*
- 6-8 “Trying Triangles”, Pieces and Patterns  
*The student will study the properties of triangles.*
- 7,8 “But It Will Fly”, The Sky’s the Limit  
*The student will explore the characteristics of a variety of polygons.*
- 6-8 The Amazing Circle [Book]  
*The student will be involved in 21 concrete activities that build upon one another to identify and analyze the properties of two- and three-dimensional shapes.*
- 7,8 “Phone Home”, Out of this World  
*The student will make congruent squares using two different sizes of toothpicks.*
- 6,7 “Searching for Congruent Halves”, Magazine Volume 12 # 6  
*The student will divide nine gridded squares into congruent halves in all possible ways..*

**STANDARD 2:**The student visualizes and illustrates ways that shapes can be combined, subdivided, and changed. The student:

#### MA.C.2.3.1

- understands the geometric concepts of symmetry, reflections, congruency, similarity, perpendicularity, parallelism, and transformations, including flips, slides, turns, and enlargements.

- 6-8 “3-D Line Plot”, Magazine Volume 11 # 10  
*The student will identify patterns when they place 3-D shapes along a number lines.*
- 6-8 “Unbelievable Flying Objects”, The Sky’s the Limit  
*The student will construct various symmetrical shapes using rulers, compasses and protractors, then explore the flight properties of the shapes.*

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- 6-8 “More Unbelievable Flying Objects”, The Sky’s the Limit  
*The student will construct various symmetrical shapes using rulers, compasses and protractors, then explore the flight properties of the shapes.*
- 6,7 “Net Sense”, Hardhatting in a Geo-World  
*The student will explore two- and three-dimensional shapes while working with pentominoes that form open boxes.*
- 6-8 “Growing Designs”, Magazine Volume 12 # 1  
*The student will enlarge designs on graph paper to gain an understanding of scaling.*
- 6-8 “Nature’s Part in Art and Math”, Pieces and Patterns  
*The student will explore three types of symmetry: bilateral, translational, and rotational in the world of nature and man-made objects.*
- 6 “Mirror, Mirror”, Pieces and Patterns  
*The student will use a mirror to explore mirror images of letters.*

**MA.C.2.3.2**

- predicts and verifies patterns involving tessellations ( a covering of a plane with congruent copies of the same pattern with no holes and no overlaps, like floor tiles).

- 8 “An Inside Job”, Pieces and Patterns  
*The student will investigate polygons that tessellate.*
- 8 “Patterns, Problem Solving and Practice: Designing the Yellow Brick Road”, Magazine Volume 11 # 8  
*The student will investigate the multiple ways to cover a “road” with bricks.*
- 8 “Taking Turns with Triangles”, Magazine Volume 9 # 5  
*The student will discover patterns by rotating one single pattern.*
- 8 “Multi-Colored Tiles: Maximizing Math”, Magazine Volume 11 # 3  
*The student will discover unique color patterns given three sets of rules.*

**STANDARD 3: The student uses coordinate geometry to locate objects in both two and three dimensional and to describe objects algebraically. The student:**

**MA.C.3.3.1**

- represents and applies geometric properties and relationships to solve real-world and mathematical problems.

- 6 “Turtle Trips and Turns”, Pieces and Patterns  
*The student will experience hands-on activities to become acquainted with LOGO language and behavior and related problem solving strategies.*
- 7 “Smart Shadows”, Historical Connections, Volume II  
*The student will simulate Thales’ method for measuring the height of pyramids.*
- 7 “Sizing Up Shadows”, Through the Eyes of the Explorers  
*The student will calculate the height of unknown objects by setting up a proportion to compare length of shadow to height of the object.*

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### **AIMS Activities supporting Mathematics Standards for Grades 6-8**

#### **MA.C.3.3.2**

- identifies and plots ordered pairs in all four quadrants of a rectangular coordinate system (graph) and applies simple properties to lines.

6,7 “Tic Tac Room”, Finding Your Bearings

*The student will locate items in the classroom using a life-size coordinate grid.*

6,7 “Space Shuttle Coordinate Graph”, Magazine Volume 6 # 8

*The student will make an outline drawing of the space shuttle on graph paper using coordinate points.*

6,7 Plot Your Position”, Finding Your Bearings

*The student will plot the boundaries of a fictitious country using latitude and longitude coordinates.*

6,7 “Plot and Swat”, Historical Connections, Volume II

*The student will plot coordinates on a grid to discover what Descartes saw on his ceiling.*

6,7 “On a Roll”, Historical Connections, Volume III

*The student will play a game with five end plot points on a grid.*

6,7 “Area the Easy Way”, Historical Connections, Volume III

*The student will find the area of any polygons using the coordinates of the vertices.*

6 “Welcome to 42<sup>nd</sup> Street”, Magazine Volume 13 # 8

*The student will graph ordered pairs whose product is 42 in the first quadrant and will construct a three dimensional model of the structures on 42<sup>nd</sup> Street to provide an additional perspective from which to view the results.*

#### **D. Algebraic Thinking**

**STANDARD 1: The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions. The student:**

#### **MA.D.1.3.1**

- describes a wide variety of patterns, relationships, and functions through models, such as manipulatives, tables, graphs, expressions, equations, and inequalities.

6,7 “Algebra Magic”, Historical Connections, Volume III

*The student will write an equation that explains a magic trick.*

6,7 “Algebra Solves the Mystery”, Historical Connections, Volume III

*The student will use simple algebra to solve a card trick.*

6,7 “Faces, Vertices, and Edges”, Historical Connections, Volume I

*The student will analyze collected data, then formulate Euler's formula.*

6-8 “What's the Attraction?”, Mostly Magnets

*The student will use algebraic procedure to calculate percent error.*

6-8 “Sandbagging the See-Saw”, Machine Shop

*The student will use a see-saw (a first-class lever) to collect data relating effort, resistance and torque.*

*Using data, they solve an algebraic equations with a missing variable in order to determine mechanical advantage.*

7,8 “Pierced Polygons”, What's Next? Volume 1

*The student will use the regions of a pierced polygon to find the missing variable that will complete a function table.*

8 “Mathematics, The Search for Patterns: A New Model for Quadratic Equations”, Magazine Volume 10 # 10

*The student will develop appropriate manipulative models and use them to solve quadratic equations.*

6-8 “The Chessboard Covered with Wheat”, Historical Connections, Volume II

*The student will solve a real world problem by placing grains of wheat on a chessboard and construct T-tables at the concrete level.*

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- 6 “That’s Sum Face”, Magazine Volume 12 # 7  
*The student will work with a mathematical microworld, a simple system with well defined rules that govern it, to explore many patterns and mathematical properties.*
- 6-8 “Maximizing Math-Topsy-Turvey Patterns” Magazine Volume 14 # 4  
*The student will use an input/output table to organize data about a mathematical triangle puzzle.*

**MA.D.1.3.2**

- creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.

- 6-8 “Swinging Bears”, Popping with Power  
*The student will develop graphs comparing relationships between length/frequency of a swinging pendulum, then answer the question “How does the length of a pendulum affect the frequency of its swing ?”*
- 6-8 “Building Bridges to Algebra and Beyond: Building Picket Fences”, Magazine Volume 13 # 3  
*The student will study picket fences to determine patterns in the number of pickets and nails added.*
- 6-8 “Patterns of Tree Growth”, Magazine Volume 13 # 3  
*The student will use the formula  $d=c/3.14$  to calculate the diametric growth of trees.*
- 6-8 “Building Bridges to Algebra and Beyond: The Arranging Table Problem”, Magazine Volume 13 # 3  
*The student will determine the number of people that can sit at a varying arrangement of tables using algebraic concepts.*
- 6-8 What’s Next ? [Book series]  
*The student will investigate and develop functions from number patterns in a variety of activities.*
- 6-8 “The Square Challenge”, Magazine Volume 7 # 3  
*The student will recognize the pattern and formula for determining the number of squares on any given grid.*
- 6-8 “Cool It!”, Math + Science: A Solution  
*The student will compare the time it takes hot water to cool in a styrofoam cup and a tin cup.*
- 7,8 “Just Drop It!”, Math + Science: A Solution  
*The student will interpret data in an investigation comparing the amount of bounce that results from dropping different types of balls from different heights.*
- 8 “Against the Wall”, Magazine Volume 14 # 1  
*The student will measure the length of their legs and the height of their torso while sitting against a wall. Students will then graph these values and compare the slope of their line to the slopes of others in their group.*

**STANDARD 2: The student uses expressions, equations, inequalities, graphs and formulas to represent and interpret situations. The student:**

**MA.D.2.3.1**

- represents and solves real-world problems graphically, with algebraic expressions, equations and inequalities.

- 6-8 “Meet the Equalizer”, Machine Shop  
*The student will solve equations with two variables.*
- 6-8 “Clever Lever 2”, Machine Shop  
*The student will use a formula while investigating how a first class lever works.*
- 6-8 “Patterns of Tree Growth”, Magazine Volume 13 # 3  
*The student will use the formula  $d=c/3.14$  to calculate the diametric growth of a tree.*
- 6-8 “Building Bridges to Algebra and Beyond: Building Picket Fences”, Magazine Volume 13 # 3  
*The student will study picket fences to determine patterns in the number of pickets and nails added.*

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### **AIMS Activities supporting Mathematics Standards for Grades 6-8**

- 6-8 “It Floats ! It Sinks”, Floaters and Sinkers  
*The student will determine if objects will float or sink by comparing the mass to volume ratio.*
- 6-8 “Sizing Up Shadows”, Through the Eyes of the Explorers  
*The student will determine the height of an object based on its shadow.*
- 6-8 “Number Tricks”, Historical Connections, Volume I  
*The student will write algebraic expressions that correspond to different number tricks.*
- 6 “The Role of Variables” Magazine Volume 13 # 6  
*An article describing the transition from arithmetic to algebra.*
- 7,8 “Against the Wall” Magazine Volume 14 # 1  
*The student will measure the length of his/her legs and the height of his/her torso while sitting against the wall. The student will graph these values and compare the slope of his/her line with others in the group.*

#### **MA.D.2.3.2**

- uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities.

- 6-8 “Making the Grade”, Machine Shop  
*The student will calculate the amount of force applied to a rubber band by solving equations with one variable.*
- 6-8 “Wat-ar Densities ?”, Floaters and Sinkers  
*The student will calculate the densities of water from various sources using linear equations.*
- “Number Tricks”, Historical Connections, Volume II  
*The student will write algebraic expressions that corresponds to different number tricks.*
- “Cool It !”, Math + Science: A Solution  
*The student will compare the time it takes hot water to cool in a Styrofoam cup compared to the length of time it takes to cool in a tin cup.*
- 6-8 “Patterns of Tree Growth”, Magazine Volume 13 # 3  
*The student will use the formula  $d=c/3.14$  to calculate the diametric growth of a tree.*

### **E. Data Analysis and Probability**

**STANDARD 1: The student understands and uses the tools of data analysis for managing information. The student:**

#### **MA.E.1.3.1**

- collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, and bar graphs, to determine how different ways of presenting data can lead to different interpretations.
- 6-8 “Cat Scan”, Magazine Volume 7 # 7  
*The student will gain experience in the construction and use of bar graphs, circle graphs, binary tree diagrams, and Venn diagrams. Comparisons will be made as to what information is provided by each type of representation.*
- 6-8 “Color Samples”, Magazine Volume 12 # 8  
*The student will gather the data for bags of “M&Ms” candies to determine measures of central tendency for the samples.*
- 6-8 “Cool It”, Math + Science: A Solution  
*The student will interpret data from a table and graph after collecting and recording water cooling times.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades 6-8**

- 6-8 “Data Plots: Organizing and Representing Data”, Magazine Volume 6 # 9  
[An article describing many concepts and tools used to record and organize data (line plot, grouped data, stem-and-leaf plot, box plot).]
- 6,7 “Dealing with Data”, Math + Science: A Solution  
*The student will gather data and gain skill in the design and use of a simple data table.*
- 6-8 “Drops on a Penny, Revisited”, Magazine Volume 12 # 5  
*The student will gather data to draw conclusions as to how many drops of water can fit on a penny. Data displays include tables, stem-and-leaf plots, and box plots.*
- 6-8 “Jelly Belly”, Pieces and Patterns  
*The student will design and construct a circle graph to show color distribution of jelly beans.*
- 6-8 “Just Drop It !”, Math + Science: A Solution  
*The student will interpret data in an investigation comparing the amount of bounce that results from dropping different types of balls from various heights.*
- 6-8 “M&M’s Count and Crunch”, Math + Science: A Solution  
*The student will gather and record data to determine the numerical frequency of the six colors of M&M’s plain candies. The student will use a data table and design their own graph for displaying data.*
- 6-8 “Practically Predictable”, Pieces and Patterns  
*The student will form and test a prediction by collecting and organizing data then graph the results.*
- 6-8 “Surf ‘n Sand Toss”, Finding Your Bearings  
*The student will discover the ratio of water to land on the Earth’s surface. Data displays include tables and circle graphs.*
- 6-8 “Teddy Bears Playing in the Den”, Primarily Bears  
*The student will investigate random samples to determine how they can be used to make predictions about the nature of a population. Data displays include tables and circle graphs.*
- 6-8 “Time Trials”, Magazine Volume 11 # 2  
*The student will determine how fast a toy vehicle is moving. Data displays include tables and line graphs.*

#### **MA.E.1.3.2**

- understands and applies the concepts of range and central tendency (mean, median and mode).

- 6-8 “Color Samples”, Magazine Volume 12 # 8  
*The student will gather the data for bags of “M&Ms” candies to determine measures of central tendency for the samples.*
- 6-8 “Drops on a Penny, Revisited”, Magazine Volume 12 # 5  
*The student will gather data to draw conclusions as to how many drops of water can fit on a penny and determine measures of central tendency for the data.*
- 6-8 “How High ? How Far ?”, Magazine Volume 13 # 2  
*The student will measure their heights and determine how far they can long jump. They will compare themselves to the rest of the class to gain an understanding of medians, extremes, and graphic displays. They will explore several ways to determine who is the “best” jumper.*
- 6 “Links to Length”, Hardhatting in a Geo-World  
*The student will be challenged to create the longest paper chain possible from limited materials and then measure and graph the results in a line plot formed with paper loops. The student then determines range and*
- 6-8 “Rally Round the Room”, Pieces and Patterns  
*The student will use Hot Wheels or Match Box type cars to explore concepts of friction, kinetic energy and distance traveled off an inclined plane. The student will determine range, median, and mean of the distances traveled.*

## **Sunshine State Standards**

### **AIMS Activities supporting Mathematics Standards for Grades 6-8**

6-8 “The Marble-ous Roll”, Magazine Volume 8 # 1  
*The student will study the effect of uniform acceleration of marbles rolled down an inclined plane on the distance they roll on a carpet. The student will determine the range, median and mean of the distances.*

6-8 “The Penny Sort and Nickel Dates”, Magazine Volume 5 # 10  
*The student will classify pennies and nickels by minting dates, determine medians and modes, construct real/representational/abstract bar graphs, and interpret results.*

#### **MA.E.1.3.3**

- analyzes real-world data by applying appropriate formulas for measures of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers.

6,7 “Color Samples”, Magazine Volume 12 # 8  
*The student will gather the data for bags of “M&Ms” candies to determine measures of central tendency for the samples.*

6,7 “Drops on a Penny, Revisited”, Magazine Volume 12 # 5  
*The student will gather data to draw conclusions as to how many drops of water can fit on a penny and determine measures of central tendency for the data.*

6,7 “Rally Round the Room”, Pieces and Patterns  
*The student will use Hot Wheels or Match Box type cars to explore concepts of friction, kinetic energy and distance traveled off an inclined plane. The student will determine range, median, and mean of the distances traveled.*

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*The student will study the effect of uniform acceleration of marbles rolled down an inclined plane on the distance they roll on a carpet. The student will determine the range, median and mean of the distances.*

6,7 “The Penny Sort and Nickel Dates”, Magazine Volume 5 # 10  
*The student will classify pennies and nickels by minting dates, determine medians and modes, construct real/representational/abstract bar graphs, and interpret results.*

**STANDARD 2: The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics. The student:**

#### **MA.E.2.3.1**

- compares experimental results with mathematical expectations of probabilities.

6-8 “See How They Roll”, Pieces and Patterns  
*The student will discover the probability of rolling three dices so that a given type of triangles will result.*

6-8 “Sharing Birthday”, Magazine Volume 9 # 6  
*The student will explore the probability of sharing a birthday with at least one other person in the class.*

6-8 “Sum Dominoes”, Magazine Volume 3 # 10  
*The student will find the mathematical and experiential probability of drawing a domino from six set that has prime number of dots.*

6-8 “Sum Will Sum Won’t”, What’s Next ? Volume I  
*The student will determine which number has the greatest chance of occurring when you toss a number cube.*

6-8 “Teddy Bears Playing in the Den”, Primarily Bears  
*The student will make predictions from random samples.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 6-8**

6-8 “Trying Triangles”, Piece and Patterns

*The student will roll number cubes and determine if the resulting number will make a triangle.*

6-8 “Maximizing Math-Dueling Dice” Magazine Volume 14 # 3

*The student will play a probability game with dice and draw conclusions after examining winning outcomes.*

**MA.E.2.3.2**

- determines the odds for and the odds against a given situation.

6-8 “Trait Combos”, Magazine Volume 6 # 10

*The student will investigate probability in various activities by collecting and analyzing data on similarities and differences in physical appearance.*

**STANDARD 3: The student uses statistical methods to make inferences and valid arguments about real-world situations. The student:**

**MA.E.3.3.1**

- formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts.

8 “How High ? How Far ?”, Magazine Volume 13 # 2

*The student will measure their height and determine how far they can long jump. They will compare themselves to the rest of the class to gain an understanding of medians, extremes, and graphic displays. They will explore several ways to determine who is the “best” jumper.*

8 “Practically Predictable”, Pieces and Patterns

*The student will form and test a prediction by collecting and organizing data then graph the results using the scientific method.*

8 “Watt Power !”, Machine Shop

*The student will determine their power in watts to see if there is a correlation between the weight of the person and the power they produce. The second part of this activity includes sharing data and graphing.*

8 “What’s in a BB ?”, Floaters and Sinkers

*The student will find the density of BBs and match that against the density of metals to determine the substance of which they are made. The student will design an investigation, collect, record and interpret data.*

**MA.E.3.3.2**

- identifies the common uses and misuses of probability and statistical analysis in the everyday world.

8 “Head Hunter”, Magazine Volume 9 # 10

*The student will determine if there is a correlation between a person’s height to head circumference. The student will take measurements of the class members and analyze the data with a scatter plot and averaging.*

**Sunshine State Standards**  
**AIMS Activities supporting Mathematics Standards for Grades 6-8**

- 8 “Surf ‘n Sand Toss”, Finding Your Bearings  
*The student will discover the ratio of water to land on the Earth’s surface. Data displays include tables and circle graphs.*
- 8 “The Big Banana Peel”, Math + Science: A Solution  
*The student will determine what percentage of a banana is edible. By sampling several bananas, the student will develop a formula relating the edible part to the total mass of the banana. [See extension in activity]*
- 8 “Who’s Right?”, Magazine Volume 5 # 4  
*The student will gather statistics to study right-left preferences. They will use the information and higher order thinking skills to construct a dichotomous key, Venn diagrams, bar and circle graphs.*