A Correlation of

Scott Foresman · Addison Wesley

enVisionMATH™

to the

Maryland
Mathematics Voluntary State Curriculum
Grades K-6

PEARSON

O/M-178

Introduction

This correlation shows the close alignment between **Scott Foresman – Addison Wesley enVisionMATH,** copyright 2009, to the *Maryland Mathematics Voluntary State Curriculum.* Correlation page references are to the Teacher's Edition. Lessons in the Teacher's Edition include facsimile pages of the Student Edition.

The en**Vision**MATH™ program is based around scientific research on how children learn mathematics as well as on classroom-based evidence that validates proven reliability.

Personalized Curriculum

en**Vision**MATH™ provides 20 (16 in Kindergarten) focused topics that are coherent, digestible groups of lessons focusing on one or a few related content areas. A flexible sequence of topics is small enough for a district to rearrange into a personalized curriculum that matches the sequence preferred by the district. The curriculum is designed so that all standards can be taught before the major mathematics testing.

Instructional Design

en**Vision**MATH™ teaches for deep conceptual understanding using research-based best practices. Essential understandings connected by Big Ideas are explicitly stated in the Teacher's Edition. Daily Spiral Review and the Problem of the Day focus foundational skills and allow for ongoing practice with a variety of problem types. Daily interactive concept development encourages students to interact with teachers and other students to develop conceptual understanding.

Visual Learning allows students to benefit from seeing math ideas portrayed pictorially as well as being able to see connections between ideas. en**Vision**MATH™ created a Visual Learning Bridge which is a step-by-step bridge between the interactive learning activity and the lesson exercises to help students focus on one idea at a time and see the connections within the sequence of ideas. The strong sequential visual/verbal connections deepen conceptual understanding for students of all learning modalities and are particularly effective with English language learners and struggling readers. Guiding questions in blue type help the teacher guide students through the examples, ask probing questions to stimulate higher order thinking, and allow for checking of understanding.

Differentiated Instruction

en**Vision**MATH™ engages and interests all students with leveled activities for ongoing differentiated instruction. A Teacher-Directed Intervention activity at the end of every lesson provides immediate opportunities to get students on track. In addition, ready made leveled learning centers for each lesson allow different students to do the same activity at different levels at the same time giving the teacher uninterrupted time to focus on reteaching students who require intervention. All centers can be used repeatedly due to the inclusion of a "Try Again" at the end. They can also be used for ongoing review and they can be used year after year. Topic-specific considerations for EL, Special Education, At-Risk, and Advanced students enable the teacher to accommodate the diverse learners in the classroom.

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to the
Maryland Voluntary State Curriculum

Kindergarten

Standard 1.0 Knowledge of Algebra, Patterns, and Functions

Knowledge of Algebra, Patterns, and Functions:
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1. Identify and copy numeric patterns

Objective

    a. Use manipulatives with numeric qualities to build patterns
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Indicator 2. Identify, copy, describe, create, and extend non-numeric patterns

Objectives

    a. **Represent patterns kinesthetically such as: clap/snap/clap**
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    b. **Represent and analyze repeating patterns using no more than 3 objects in the core of the pattern**
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Objective

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Indicator 2. Identify equations and inequalities

Objectives

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    b. Model and name the value of the missing part in a part-part-whole situation using no more than 10 manipulatives
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Topic C. Numeric and Graphic Representations of Relationships

Indicator 1. Locate points on a number line

Objective

    a. Identify and represent whole numbers up to 10 on a number line using manipulatives, symbols, and one-to-one correspondence
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Standard 2.0 Knowledge of Geometry

Knowledge of Geometry:
Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1. Recognize and describe the attributes of plane geometric figures

Objectives

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Indicator 1. Recognize, describe, and use the attributes of solid geometric figures

Objectives

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    125-126, 127-128, 129-130, 131-132, 134

  c. Identify solid geometric figures in the environment
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Kindergarten

Topic D. Congruence

Indicator 1. Recognize congruent objects

Objective

   a. Identify everyday objects which have the same size and shape
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Topic E. Transformations

Indicator 1. Begin to recognize a transformation

Objectives

   a. Use position words such as: over, under, above, on, next to, below, beside, behind
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   b. Use spatial reasoning to solve simple puzzles
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   c. Demonstrate slides using simple objects
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Indicator 2. Analyze geometric figures and pictures

Objective

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Standard 3.0 Knowledge of Measurement

Knowledge of Measurement:
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1. Explore measurement units

Objectives

   a. Order, compare, and describe objects by attributes such as: length/height, weight, capacity
      153-154, 155-156, 157-158, 163-164, 167-168

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Topic B. Measurement Tools

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Objectives

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Standard 4.0 Knowledge of Statistics

Knowledge of Statistics:
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1. Collect, organize, and display data

Objectives

   a. Collect data by answering a question
      95, 291-292, 292A, 292C, 295

   b. Organize and display data to make real graphs
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   c. Organize and display data to make picture graphs
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Topic B. Data Analysis

Indicator 1. Analyze data

Objectives

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      293-294, 294A, 294C, 304

   b. Compare and describe data from a picture graph to answer a question
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Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Knowledge of Number Relationships and Computation/Arithmetic:
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1. Apply knowledge of whole numbers and place value

Objectives

   a. Extend concept of number
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   b. Construct relationships between and among quantities using language such as: more than, less than, fewer than, as many as, one more, one less
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   f. Use concrete materials to compose and decompose quantities up to 10
      61-62, 77-78, 83-84, 87-88, 89-90

   g. Match a numeral to a set
      53-54, 57-58, 79-80, 85-86, 91-92

   h. Count to 31
      213-214, 215-216, 217-218, 219-220, 234

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   j. Use ordinal numbers to indicate position such as: first, second, third, fourth, fifth
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Indicator 2. Recognize fractions

Objective

  a. **Show initial awareness of fractional parts (halves) using concrete materials**
     137-138, 139-140, 141-142

Indicator 3. Recognize and use money

Objectives

  a. **Identify and name the value of pennies, nickels, and dimes**
     237-238, 239-240, 241-242

  b. **Choose the coin named from a given set of mixed coins**
     240A, 240C, 242C

  c. **Use money in real-world situations such as a classroom store**
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Topic C. Number Computation

Indicator 1. Analyze number relations and compute

Objectives

  a. **Model addition by combining sets of concrete objects and describe the results using words and pictures**
     177-178, 179-180, 181-182, 183-184, 185-186

  b. **Model subtraction by separating sets of concrete objects and describe the results using words and pictures**
     195-196, 197-198, 201-202, 203-204, 205-206

  c. **Solve a given story problem cooperatively that is based on the combining and separating of models**
     177-178, 189-190, 195-196, 197-198, 203-204

Standard 7.0 Process of Mathematics

Process of Mathematics:
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1. Apply a variety of concepts, processes, and skills to solve problems

Objectives

a. Identify the question in the problem
177-178, 189-190, 197-198, 199-200, 207-208

b. Decide if enough information is present to solve the problem
43-44, 44A, 44C

c. Make a plan to solve a problem
161-162, 171-172, 189-190, 207-208, 291-292

d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
41-42, 147-148, 161-162, 171-172, 231-232

e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
41-42, 147-148, 161-162, 171-172, 231-232

f. Identify alternative ways to solve a problem
187-188, 189-190, 195-196, 197-198, 199-200

g. Show that a problem might have multiple solutions or no solution
61-62, 77-78, 83-84, 89-90

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Topic B. Reasoning

Indicator 1. Justify ideas or solutions with mathematical concepts or proofs

Objectives

   a. Use inductive or deductive reasoning
   35-36, 37-38, 41-42, 43-44, 231-232

   b. Make or test generalizations
   43-44, 121-122, 221-222, 231-232

   c. Support or refute mathematical statements or solutions
   161-162, 163, 171-172

   d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
   33-34, 35-36, 37-38, 43-44, 161-162

Topic C. Communications

Indicator 1. Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

   a. Use multiple representations to express concepts or solutions
   53-54, 57-58, 79-80, 85-86, 91-92

   b. Express mathematical ideas orally
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   c. Explain mathematically ideas in written form
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   f. Explain solutions in written form
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g. Ask questions about mathematical ideas or problems
    291, 292A, 292C

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Indicator 1. Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

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    245-246, 261-262, 271-272, 281-282, 291-292

d. Use the relationship among mathematical concepts to learn other mathematical concepts
    129-130, 137-138, 187-188, 205-206, 245-246

Scott Foresman – Addison Wesley enVisionMATH
to the
Maryland Voluntary State Curriculum—Math

Grade One

Standard 1.0 Knowledge of Algebra, Patterns, and Functions

Knowledge of Algebra, Patterns, and Functions:
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1. Identify, describe, extend, and create numeric patterns

Objectives

> **a. Represent and analyze numeric patterns using skip counting by multiples of 2 and 10 starting with any whole number, and using manipulatives and the 100 chart**
>> 275-278, 279-282, 291-294, 295-298, 300

> **b. Represent and analyze numeric patterns using skip counting backward by 10s starting with a multiple of 10, and using manipulatives**
>> 279, 282B

Indicator 2. Identify, copy, describe, create and extend non-numeric patterns

Objectives

> **a. Represent and analyze growing patterns kinesthetically such as: clap/snap, clap/snap/snap, clap/snap/snap/snap, ...**
>> 205, 243, 246, 251, 254

> **b. Represent and analyze repeating patterns using no more than 3 different objects in the core of the pattern**
>> 243-246, 247-250, 251-254, 255-257, 258

> **c. Transfer a repeating pattern from one medium to a different medium using no more than 3 different objects in the core of the pattern**
>> 244-245, 252-253, 260

d. Identify patterns in real-world situations
243, 246, 250B

Topic B. Expressions, Equations, and Inequalities

Indicator 1. Write and identify expressions

Objective

a. Represent numeric quantities using concrete and pictorial representations and operational symbols (+, -) with whole numbers to 20
63, 64-65, 66, 66B

Indicator 2. Identify, write, and solve equations and inequalities

Objectives

a. Represent relationships using the terms greater than, less than, and equal to for quantities up to 100
31-33, 48, 339, 340-341, 364

b. Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers to 20 using pictures and manipulatives
97, 109, 177, 180-181, 184-185

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1. Locate points on a number line

Objective

a. Identify and represent whole numbers up to 50 on a number line using manipulatives and symbols
39, 40-41, 42, 48

Standard 2.0 Knowledge of Geometry

Knowledge of Geometry:
Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1. Recognize and apply the properties/attributes of plane geometric figures

Objectives

   a. Identify, name, and compare triangles, circles, squares, rectangles, and rhombi by their attributes
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   b. Create models of triangles, circles, squares, and rectangles with varied materials
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   c. Combine and subdivide squares and triangles
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Topic B. Solid Geometric Figures

Indicator 1. Recognize and use the attributes of solid geometric figures

Objective

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Topic C. Representation of Geometric Figures

Indicator 1. Represent plane geometric figures

Objective

   a. Sketch triangles, circles, squares, rectangles, and rhombi
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Topic D. Congruence

Indicator 1. Identify congruent figures

Objective

    a. Match congruent figures
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Topic E. Transformations

Indicator 1. Recognize a transformation

Objectives

    a. Use the direction, location, and position words right and left
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    b. Apply spatial reasoning in activities such as: pattern block
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    c. Identify and demonstrate slides and flips using manipulatives
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Indicator 2. Analyze geometric figures and pictures

Objective

    a. Demonstrate symmetry in basic shapes and pictures by paper folding and drawing a line of symmetry
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Standard 3.0 Knowledge of Measurement

Knowledge of Measurement:
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1. Read measurement units

Objectives

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Topic B. Measurement Tools

Indicator 1. Measure in customary units

Objectives

a. Measure length of objects and pictures of objects to the nearest inch using a ruler
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c. Compare and order objects by weight in pounds using a spring scale and a bathroom scale
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Standard 4.0 Knowledge of Statistics

Knowledge of Statistics:
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1. Collect, organize, and display data

Objectives

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Topic B. Data Analysis

Indicator 1. Analyze data

Objectives

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　b. Interpret data contained in picture graphs using a variety of categories with 1:1 intervals
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　c. Interpret data contained in single bar graphs
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Standard 5.0 Knowledge of Probability

Knowledge of Probability:
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic A. Sample Space
Indicator 1. Identify possible outcomes

Objective

   a. Recognize that a real life situation may have more than one outcome such as a coin having heads or tails
       574, 575, 576

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Knowledge of Number Relationships and Computation/Arithmetic:
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1. Apply knowledge of whole numbers and place value

Objectives

   a. Use concrete materials to compose and decompose quantities up to 20
       75-77, 111-113, 497-499, 521-523

   b. Identify multiple representations for a number, such as: 12, 6 + 6, dozen
       51-54, 55-58, 59-62, 71-74, 80

   c. Demonstrate instant recognition of quantities in patterned sets
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Indicator 2. Apply knowledge of fractions

Objectives

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Indicator 3. Apply knowledge of money

Objectives

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b. Demonstrate monetary value using real or play coins
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c. Compare the value of 2 sets of same currency up to $1.00
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Topic C. Number Computation

Indicator 1. Analyze number relations and compute

Objectives

  a. Develop strategies for addition and subtraction basic facts such as: counting on, counting back, making ten, doubles, and doubles plus one
    147-150, 151-154, 183-186, 485-488, 525-528

  b. Solve a given word problem based on addition or subtraction situation
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  c. Identify the concept of inverse operation to addition and subtraction
    179-182, 183-186, 517-520, 521-524, 525-528

Standard 7.0 Process of Mathematics

Process of Mathematics:
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1. Apply a variety of concepts, processes, and skills to solve problems

Objectives

  a. Identify the question in the problem
    68-69, 101-102, 104-105, 112-113, 638-639

  b. Decide if enough information is present to solve the problem
    248-249, 546-547, 550-551, 566-567, 570-571

  c. Make a plan to solve a problem
    76-77, 164-165, 296-297, 324-325, 474-475

  d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
    187-189, 255-257, 387-389, 533-536, 601-604

e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
163-166, 255-257, 295-298, 387-389, 533-536

f. Identify alternative ways to solve a problem
163-166, 187-189, 533-536

g. Show that a problem might have multiple solutions or no solution
573, 574-575, 576

h. Extend the solution of a problem to a new problem situation
493, 494-495, 496, 496B

Topic B. Reasoning

Indicator 1. Justify ideas or solutions with mathematical concepts or proofs

Objectives

a. Use inductive or deductive reasoning
247-249, 251-253, 255-257, 291-293, 295-297

b. Make or test generalizations
247-249, 251-253, 255-257, 291-293, 295-297

c. Support or refute mathematical statements or solutions
113, 297, 387-389, 535, 627

d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
219, 284-285, 387-389

Topic C. Communications

Indicator 1. Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

a. Use multiple representations to express concepts or solutions
119-122, 307-309, 315-317, 319-321, 533-536

b. Express mathematical ideas orally
223, 295, 387, 403, 569

c. Explain mathematically ideas in written form
   14, 42, 202, 238, 334

d. Express solutions using concrete materials
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e. Express solutions using pictorial, tabular, graphical, or algebraic methods
   135-137, 187-189, 509-511, 533-536, 569-572

f. Explain solutions in written form
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g. Ask questions about mathematical ideas or problems
   70, 102, 114, 174, 504

h. Give or use feedback to revise mathematical thinking
   387, 388-389, 390B

Topic D. Connections

Indicator 1. Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

a. Identify mathematical concepts in relationship to other mathematical concepts
   107-110, 175-178, 179-182, 183-186, 525-528

b. Identify mathematical concepts in relationship to other disciplines
   411-414, 427-430, 439-442, 443-446, 569-572

c. Identify mathematical concepts in relationship to life
   407-410, 423-426, 435-438, 443-446, 569-572

d. Use the relationship among mathematical concepts to learn other mathematical concepts
   107-110, 175-178, 179-182, 183-186, 525-528

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Grade Two

Standard 1.0 Knowledge of Algebra, Patterns, and Functions

Knowledge of Algebra, Patterns, and Functions:
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1. Identify, describe, extend, and create numeric patterns

Objectives

a. Represent and analyze numeric patterns using skip counting by 2, 5, and 10 starting with any whole number and using whole numbers to 100
127-129, 130, 141, 143-145, 146

b. Represent and analyze numeric patterns using skip counting backward by 10s starting with any 2-digit whole number
130, 623, 624-625

c. Recognize a function table as a relationship between numbers
635-637, 638, 638B

d. Complete a function table with a given one-operation rule (+, -) using whole numbers
188, 189, 192

Indicator 2. Identify, copy, describe, create, and extend nonnumeric patterns

Objectives

a. Represent and analyze growing patterns that start at the beginning and show no more than 3 levels, and ask for the next level, using symbols, shapes, designs, and pictures
187-190, 190B

b. Represent and analyze repeating patterns using 3 different objects in the core of the pattern
    337, 338, 338B

c. Transfer a repeating pattern from one medium to 2 different media using no more than 3 different objects in the core of the pattern such as: red, green, red, green, ... A, B, A, B, ... ▲, ■ ,▲, ■ , …
    Related concepts and skills are taught on the following pages:
    337, 338, 338B

Topic B. Expressions, Equations, and Inequalities

Indicator 1. Write and identify expressions

Objective

a. Represent numeric quantities using operational symbols (+, -) and whole numbers to 25
    7-9, 10, 35-37, 39-41, 43-45

Indicator 2. Identify, write, and solve equations and inequalities

Objectives

a. Represent relationships using appropriate relational symbols (>, <, =) and operational symbols (+, -) with whole numbers to 100
    3-6, 11-14, 15-18, 19-22, 27-29

b. Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers up to 50
    36-37, 40-41, 44-45, 72-73, 84-85

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1. Locate points on a number line

Objective

a. Represent whole numbers up to 100 on a number line
    127-130, 130B, 131, 136-137

Standard 2.0 Knowledge of Geometry

Knowledge of Geometry:
Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1. Recognize and apply the properties/attributes of plane geometric figures

Objectives

    a. Identify and describe sides and corners
      322, 324-325, 326, 344-345, 348

    b. Identify and describe quadrilaterals such as: squares, rectangles, rhombi
      321, 325, 344, 345, 348

    c. Identify and describe polygons by the number of sides such as: triangles, squares, rectangles, hexagons, octagons
      324, 343, 344, 345, 348

    d. Combine and subdivide squares, triangles, and rectangles to identify a new shape
      323-325, 326, 327-329, 330, 348

Topic B. Solid Geometric Figures

Indicator 1. Analyze the properties of solid geometric figures

Objective

    a. Compare two- and three-dimensional shapes such as: square to a cube, square and rectangle to a rectangular prism.
      315-317, 318, 319-321, 322, 348

Topic C. Representation of Geometric Figures

Indicator 1. Represent plane geometric figures

Objective

    a. Sketch plane figures
      319, 321, 324, 325, 326

Topic D. Congruence

Indicator 1. Compare congruent figures

Objective

    a. Describe congruent figures as having the same size and shape
      331-333, 334, 335-337, 338

Topic E. Transformations

Indicator 1. Recognize a transformation

Objectives

    a. Apply visualization and spatial reasoning in activities such as: tangrams
      319-321, 323-325, 327-329, 335-337, 338

    b. Identify and demonstrate slides, flips, and turns
      335, 336-337, 338

Indicator 2. Analyze geometric figures and pictures

Objectives

    a. Recognize that basic shapes have several lines of symmetry
      339, 340-341, 342, 348

    b. Demonstrate symmetry in basic shapes and pictures by drawing 2 lines of symmetry
      340, 342, 342B

Standard 3.0 Knowledge of Measurement

Knowledge of Measurement:
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1. Read customary and metric measurement units

Objectives

> **a. Read the scale on a ruler to identify length, in inches**
> 392, 393, 394

> **b. Tell time in intervals of 5 minutes using an analog clock**
> 452-453, 456-457, 474, 476

> **c. Compare the same time on analog and digital clocks**
> 452-453, 456-457, 474, 476

> **d. Read a thermometer to the nearest 5° (°F and °C) on a thermometer with a scale of 10° intervals**
> 467-469, 470, 476

> **e. Identify and compare the weight of objects to the nearest pound**
> 435, 436-437, 438

Topic B. Measurement Tools

Indicator 1. Measure in customary and metric units

Objectives

> **a. Measure length of objects and pictures of objects using a ruler or tape measure to the nearest inch, centimeter, and foot**
> 393, 397, 412

> **b. Measure capacity of objects using cup, pint, quart, liter, and gallon**
> 423-425, 426, 427-429, 430, 445

> **c. Measure objects to the nearest pound and kilogram**
> 435-437, 439-441, 442, 443, 444

d. Select and use appropriate units of measure for length/height, weight, and capacity
391-393, 395-397, 423-425, 427-429, 435-437

Topic C. Applications in Measurement

Indicator 1. Apply measurement concepts

Objectives

a. Develop the concept of perimeter by counting units around a picture or geometric shape
399-401, 402, 407-409, 410, 412

b. Develop the concept of area by counting square units within a picture or geometric shape
403-405, 406, 407-409, 410

Indicator 2. Calculate to determine equivalent units

Objective

a. Recognize equivalent units of 12 inches = 1 foot
391, 392, 393, 394, 412

Standard 4.0 Knowledge of Statistics

Knowledge of Statistics:
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1. Collect, organize, and display data

Objectives

a. Collect data by conducting surveys
479, 483, 487

b. Collect data in tables
479, 483, 487

c. Organize and display data to make pictographs using scales of 1:1 and 2:1
483, 484-485, 486

d. Organize and display data to make single bar graphs
487, 488-489, 490, 508

Topic B. Data Analysis

Indicator 1. Analyze data

Objectives

a. Interpret data contained in tables
483, 484-485, 486, 487-489, 502, 508

b. Interpret data contained in pictographs using scales of 1:1 and 2:1
484-485, 504, 508

c. Interpret data contained in single bar graphs using a variety of categories and intervals of 1, 2, 5, and 10
488-489, 505, 508

Standard 5.0 Knowledge of Probability

Knowledge of Probability:
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic A. Sample Space

Indicator 1. Identify possible outcomes

Objective

a. Identify some possible outcomes that make up the sample space such as on a number cube rolling a 2
496-497, 498, 499, 500-501, 508

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Knowledge of Number Relationships and Computation/Arithmetic:
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1. Apply knowledge of whole numbers and place value

Objectives

a. Use concrete materials to compose and decompose quantities up to 100
3-5, 27-29, 55-57, 219-221, 223-225

b. List multiple representations for a number
99-101, 103-105, 107-109, 515-517, 519-521

c. Develop a sense of the size of a number in relation to other numbers
111-113, 115-117, 118, 531-533, 534

d. Use the numbers of 10, 50, and 100 as anchors in relationship to other numbers
127-129, 130, 130B

e. Read, write, and represent whole numbers using models, symbols, and words through 1000
99-101, 103-105, 107-109, 515-517, 519-521

f. Express whole numbers up to 999 using expanded form
519, 520-521, 522

g. Identify the place value of a digit in whole numbers up to 999
103, 104-105, 516-517, 518, 548

h. Compare and order whole numbers up to 999 using words and relational symbols (>, <, =)
111-113, 114, 115-117, 118, 531-534

i. Estimate quantities up to 100 using a reference point such as 10 and the terminology "about"
287-289, 290, 299-301, 302, 312

j. Count forward by 2s, 5s, and 10s starting with numbers other than one
127-129, 130, 141, 143-145, 146

k. Count backward by 2s, 5s, and 10s from a multiple of that number
130, 623, 624-625

l. Use ordinal numbers to indicate position up to thirty-first
463, 464, 465, 466B

Indicator 2. Apply knowledge of fractions

Objectives

a. Read, write, and represent fractions as parts of a single region using symbols or models with denominators of 2, 3, or 4
351-353, 354, 355-357, 358, 376

b. Read, write, and represent halves or fourths as parts of a set using symbols, words, and models
367, 368-369, 370, 376

Indicator 3. Apply knowledge of money

Objectives

a. Determine the value of a given set of mixed currency up to $10
144-145, 148-149, 152-153, 160-161, 168

b. Represent money amounts up to $10
155-157, 158, 163-165, 166, 168

c. Compare the value of 2 sets of mixed currency up to $10
155-157, 158, 163-165, 168

Topic B. Number Theory

Indicator 1. Apply number relationships

Objective

a. Build and describe models of even and odd numbers using concrete materials, and discuss the models
131-133, 134, 140

Topic C. Number Computation

Indicator 1. Analyze number relations and compute

Objectives

   a. Demonstrate proficiency with addition and subtraction basic facts using a variety of strategies
      39-42, 55-58, 59-62, 71-74, 83-86

   b. Add no more than 3 whole number addends with no more than 2 digits in each addend and a sum of no more than 100
      223-225, 227-229, 231-233, 235-237, 239-241

   c. Subtract whole numbers with no more than 2 digits in the minuend or the subtrahend
      251-253, 255-257, 259-261, 263-265, 267-269

   d. Solve word problems based on addition or subtraction situations
      7-10, 15-18, 19-22, 27-29, 32

   e. Write word problems for addition and subtraction situations
      10, 14, 18, 22, 62

   f. Add and subtract money amounts up to $1
      283-285, 286, 295-297, 298, 312

   g. Apply the concept of inverse operations to addition and subtraction
      75-77, 79-82, 83-85, 87-89, 96

   h. Build equal groups to model multiplication
      591-593, 599-601, 603-605, 611-613, 616

   i. Build groups that share equally for division
      619-621, 622, 627-629, 630, 640

Indicator 2. Estimation

Objective

   a. Determine the reasonableness of sums and differences
      271-273, 274, 280, 287-289, 299-301

Standard 7.0 Process of Mathematics

Process of Mathematics:
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1. Apply a variety of concepts, processes, and skills to solve problems

Objectives

  a. Identify the question in the problem
   27-29, 91-93, 275-277, 471-473

  b. Decide if enough information is present to solve the problem
   211-213, 214, 214B

  c. Make a plan to solve a problem
   136-137, 212-213, 408-409, 544-545, 612-613

  d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
   63-65, 187-189, 307-309, 543-545, 611-613

  e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
   63-65, 243-245, 307-309, 611-613, 635-637

  f. Identify alternative ways to solve a problem
   63-65, 66, 243-245, 246, 611-613, 614

  g. Show that a problem might have multiple solutions or no solution
   211-213, 214, 214B

  h. Extend the solution of a problem to a new problem situation
   91-94, 275-278, 471-474

Topic B. Reasoning

Indicator 1. Justify ideas or solutions with mathematical concepts or proofs

Objectives

    a. Use inductive or deductive reasoning
       187-189, 343-345, 348, 543-545, 635-637

    b. Make or test generalizations
       187-190, 543-545, 546, 635-637, 638

    c. Support or refute mathematical statements or solutions
       271-274, 280, 287-290, 307-310, 312

    d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
       307-310, 343-346, 543-546, 635-638

Topic C. Communications

Indicator 1. Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

    a. Use multiple representations to express concepts or solutions
       63-66, 155-157, 243-245, 515-518, 611-613

    b. Express mathematical ideas orally
       179, 207, 303, 451, 531

    c. Explain mathematically ideas in written form
       54, 66, 118, 322, 354

    d. Express solutions using concrete materials
       27-29, 151-154, 371-373, 407-410, 443-446

    e. Express solutions using pictorial, tabular, graphical, or algebraic methods
       63-66, 243-245, 583-586, 611-613, 635-638

    f. Explain solutions in written form
       62, 134, 178, 186, 206

g. Ask questions about mathematical ideas or problems
  88, 228, 480, 601, 629

h. Give or use feedback to revise mathematical thinking
  271-274, 280, 287-289, 307-310, 312

Topic D. Connections

Indicator 1. Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

a. Identify mathematical concepts in relationship to other mathematical concepts
  75-78, 79-82, 83-86, 591-594, 623-626

b. Identify mathematical concepts in relationship to other disciplines
  295-298, 467-470, 479, 483, 574

c. Identify mathematical concepts in relationship to life
  151-154, 283-286, 391-394, 423-426, 451-454

d. Use the relationship among mathematical concepts to learn other mathematical concepts
  75-78, 79-82, 83-86, 591-594, 623-626

Scott Foresman – Addison Wesley enVisionMATH
to the
Maryland Voluntary State Curriculum—Math

Grade Three

Standard 1.0 Knowledge of Algebra, Patterns, and Functions
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1: Identify, describe, extend, and create numeric patterns and functions

Objectives

   a. **Represent and analyze numeric patterns using skip counting**
      Assessment limit: Use 2, 5, 10, or 100 starting with any whole number (0 - 1000)
      15, 121, 143, 149, 208-209

   b. **Represent and analyze numeric patterns using skip counting**
      Assessment limit: Use 3 or 4 starting with 0, 1, 2, 3, or 4 (0 - 30)
      15, 121, 143, 149, 208-209

   c. **Represent and analyze numeric patterns using skip counting backward**
      Assessment limit: Use 10 or 100 starting with any whole number (0 - 1000)
      15, 208, 230

   d. **Complete a function table using a given addition or subtraction rule**
      210, 212, 213, 360, 361

Indicator 2: Identify, describe, extend, and create non-numeric growing or repeating patterns

Objectives

   a. **Represent and analyze growing patterns using symbols, shapes, designs, or pictures**
      Assessment limit: Start at the beginning, show at least 3 levels but no more than 5 levels, and ask for the next level
      211, 218-219, 220, 221, 230

b. Represent and analyze repeating patterns using symbols, shapes, designs, or pictures
   Assessment limit: Use no more than 4 objects in the core of the pattern
   206-207, 209, 221, 230, 299

Topic B. Expressions, Equations, and Inequalities
Indicator 1: Write and identify expressions

Objective

   a. Represent numeric quantities using operational symbols (+, -, ×, ÷)
     Assessment limit: Use operational symbols (+ or -) and whole numbers (0 - 50)
     216-217, 231, 262

Indicator 2: Identify, write, solve, and apply equations and inequalities

Objectives

   a. Represent relationships using appropriate relational symbols (<, >, or =) and operational symbols (+,- ×, ÷) on either side
     Assessment limit: Use operational symbols (+ or -) and whole numbers (0 - 1000)
     35, 43, 222-223, 231

   b. Find the missing number (unknown) in a number sentence (equation) using operational symbols (+, -, ×, ÷)
     Assessment limit: Use one operational symbol (+ or -) and whole numbers (0 - 100)
     32, 33, 62, 71, 95

   c. Find the missing number(s) (unknown) on one or both sides of a number sentence (equation)
     371, 111, 112, 164, 184

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1: Locate points on a number line

Objectives

   a. Represent whole numbers on a number line
     Assessment limit: Use whole numbers (0 - 500)
     12, 13, 16, 32, 33

b. Represent proper fractions on a number line
   Assessment limit: Use fractions that have denominators of 2, 3, or 4
   290, 291, 293, 303

Standard 2.0 Knowledge of Geometry
Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1: Analyze the properties of plane geometric figures

Objectives

   a. Identify or describe points, lines, line segments, rays, and angles
   242-243, 244-245, 256

   b. Identify or describe polygons
   Assessment limit: Use triangles, quadrilaterals, pentagons, hexagons, or octagons and the number of sides or vertices
   246-247, 248-249, 250-251, 257

   c. Identify or describe quadrilaterals
   Assessment limit: Use squares, rectangles, rhombi, parallelograms, and trapezoids and the length of sides
   250, 251, 257

   d. Identify triangles, rectangles, or squares as part of a composite figure
   Assessment limit: Use a combination of 2 of the stated polygons
   268, 269, 273

Indicator 2: Analyze geometric relationships

Objective

   a. Identify right angles
   244, 245, 249, 256

Topic B. Solid Geometric Figures

Indicator 1: Analyze the properties of solid geometric figures

Objective

   a. Identify and describe cubes, rectangular prisms, and triangular prisms
      Assessment limit: Use cubes and the number of edges, faces, vertices, or shape of each face
      234-235, 236, 237, 239, 240

Topic C. Representation of Geometric Figures

Indicator 1. Represent plane geometric figures

Objective

   a. Sketch triangles, quadrilaterals, pentagons, hexagons, octagons, and circles
      249, 250, 251, 252, 261

Topic D. Congruence

Indicator 1: Analyze congruent figures

Objective

   a. Identify and describe geometric figures as congruent
      Assessment limit: Use the same shape and same size
      260-261, 262, 272

Topic E. Transformations

Indicator 1: Analyze a transformation

Objective

   a. Identify and describe the results of a slide, flip, and turn
      Assessment limit: Use horizontal slide, flip over a vertical line, or turn of 90° clockwise around a given point of a geometric figure or picture
      260-261, 263, 272

Indicator 2: Analyze geometric figures or pictures

Objective

    a. Identify and describe symmetry
        Assessment limit: Use no more than 4 lines of symmetry
        264-265, 266-267, 272, 273

Standard 3.0 Knowledge of Measurement
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1: Read customary and metric measurement units

Objectives

    a. Estimate and determine length
        Assessment limit: Use the nearest centimeter or ½ inch
        328-331, 332-333, 346, 350-351

    b. Tell time in days, hours, minutes, and seconds
        Assessment limit: Use the nearest minute using an analog clock
        392-393, 394, 396-397, 408

    c. Estimate and read temperature
        Assessment limit: Use the nearest degree (°F or °C)
        402, 403, 409

    d. Estimate and determine weight of objects
        Assessment limit: Use the nearest pound or ounce
        340-341, 347, 358-359, 365

Topic B. Measurement Tools

Indicator 1: Measure in customary and metric units

Objectives

    a. Measure length of objects and pictures of objects using a ruler, a tape measure, a yardstick, or a meter stick
        Assessment limit: Use a ruler and the nearest centimeter or ½ inch
        328-331, 332-333, 346, 364

b. Measure capacity of containers to the nearest cup, pint, quart, gallon, milliliter, and liter using graduated containers
338, 339, 356, 357

c. Measure weight of objects to the nearest ounce and pound and the mass of an object to the nearest gram and kilogram
340, 341, 358, 359

Topic C. Applications in Measurement

Indicator 1: Apply measurement concepts

Objectives

a. Estimate and determine the perimeter of geometric figures and pictures on a grid
Assessment limit: Use counting and whole numbers (0 - 50)
368, 369, 372, 373, 383

b. Estimate and determine the area of geometric figures and pictures on a grid
Assessment limit: Use counting and whole numbers (0 - 50)
376, 377, 378, 379, 389

Indicator 2: Calculate equivalent measurements

Objective

a. Determine equivalent units of length
Assessment limit: Use 12 inches = 1 foot and 3 feet = 1 yard and whole numbers (0 - 30)
334-335, 350-351, 352-353, 354, 355

Standard 4.0 Knowledge of Statistics
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1: Collect, organize, and display data

Objectives

a. Collect data by conducting surveys
458-459, 459B, 486

b. Organize and display data to make tables using a variety of categories and sets of data
　　Assessment limit: Use no more than 4 categories from one set of data and whole numbers (0 - 1000)
　　458-459, 482, 483, 486

c. Organize and display data to make pictographs using a variety of scales
　　Assessment limit: Use scales of 2:1, 4:1, or 10:1 and whole numbers (0 - 100)
　　460-461, 462, 464-465, 486

d. Organize and display data to make single bar graphs using a variety of categories and intervals
　　Assessment limit: Use no more than 4 categories of data with intervals of 1, 2, 5, or 10 and whole numbers (0 -100)
　　461, 462, 463, 466-467, 486

e. Organize and display data to make line plots using a variety of intervals
　　478, 479, 480, 481, 487

Topic B. Data Analysis

Indicator 1: Analyze data

Objectives

　a. Interpret data contained in tables using a variety of categories and intervals
　　Assessment limit: Use no more than 4 categories from one set of data and whole numbers (0 - 1000)
　　458-459, 482, 483, 486

　b. Interpret data contained in pictographs using a variety of categories and intervals
　　Assessment limit: Use scales of 2:1, 4:1, or 10:1 and whole numbers (0 - 100)
　　460-461, 462, 464-465, 486

　c. Interpret data contained in single bar graphs using a variety of categories and intervals
　　Assessment limit: Use no more than 4 categories of data, intervals of 1, 2, 5, or 10 and whole numbers (0 - 100)
　　461, 462, 463, 466-467, 486

　d. Interpret data contained in line plots using a variety of intervals
　　478, 479, 480, 481, 487

Standard 5.0 Knowledge of Probability
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic A. Sample Space

Indicator 1: Identify possible outcomes

Objectives

a. Identify possible outcomes that make up the sample space for a given real life situation
472-475, 476-477, 487

b. Identify possible outcomes that make up the sample space for a given experiment such as: flipping a coin, spinning a spinner, and rolling a number cube
472-475, 476-477, 487

Topic B. Theoretical Probability

Indicator 1: Identify the probability of one simple event

Objective

a. Describe the probability of an event using words
Assessment limit: Use probability terms of more (or most) likely, less (or least) likely, or equally likely
472, 473, 474, 475, 477

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1: Apply knowledge of whole numbers and place value

Objectives

a. Read, write, and represent whole numbers using symbols, words, and models
   Assessment limit: Use whole numbers (0 - 10,000)
   4-5, 6-7, 8-9, 10-11, 28

b. Express whole numbers using expanded form
   Assessment limit: Use whole numbers (0 - 10,000)
   4-5, 6-7, 8-9, 28

c. Identify the place value of a digit in a whole number
   Assessment limit: Use whole numbers (0 - 9,999)
   4-5, 6-7, 8-9, 28

d. Compare, order, and describe whole numbers with or without using relational symbols (<, >, =)
   Assessment limit: Use no more than four whole numbers (0 - 10,000)
   12-13, 14, 16-17, 29

Indicator 2: Apply knowledge of fractions

Objectives

a. Read, write, and represent fractions as parts of a single region using symbols, words, and models
   Assessment limit: Use fractions with denominators of 2, 3, or 4
   276-277, 278-279, 282-283, 302

b. Read, write, and represent fractions as parts of a set using symbols, words, and models
   Assessment limit: Use fractions with denominators of 2, 3, or 4, and use sets of 2, 3, 4 items, respectively
   280, 281, 302

Indicator 3: Apply knowledge of money

Objectives

a. Represent money amounts in different ways
   Assessment limit: Use money amounts ($0 - $100)
   18-20, 21, 29, 308-309, 310

b. Determine the value of a given set of mixed currency
Assessment limit: Use coins and bills ($0 - $100)
18-19, 20, 311

c. Compare the value of two sets of mixed currency
20, 198, 221, 311, 314, 463

Topic B. Number Theory

Indicator 1: Apply number relationships to:

Objective

a. Identify and describe whole numbers as even or odd
Assessment limit: Use whole numbers (0 - 100)
122-123, 137, 143

Topic C. Number Computation

Indicator 1: Analyze number relations and compute

Objectives

a. Add numbers using a variety of strategies
Assessment limit: Use no more than 3 addends, with no more than 3 digits
in each addend and whole numbers (0 - 1000)
34-35, 48-49, 50-51, 54-55, 56-57

b. Subtract numbers using a variety of strategies
Assessment limit: Use no more than 3 digits in the minuend or subtrahend
and whole numbers (0 - 999)
86-87, 88-89, 90-91, 92-94, 96-97

c. Solve addition and subtraction word problems
38, 52, 87, 91, 98-100

d. Add and subtract money amounts
46, 58-59, 69, 72-73, 90

e. Identify and apply the concept of inverse operations to addition and
subtraction
66, 68, 82, 98

f. Represent multiplication and division basic facts using number sentences, pictures, and drawings
   Assessment limit: Use basic facts of no more than 9 x 9 = 81
   122-123, 128-129, 130-131, 140-141, 142-143

g. Identify and use properties of multiplication
   Assessment limit: Use the properties of commutative, identity, or zero and whole numbers (0 - 20)
   110-111, 112, 131, 136, 137

h. Multiply a one-digit factor by a two-digit factor using models, pictures, and drawings
   126-127, 150-151, 161

i. Divide a two-digit dividend by a one-digit divisor using models, pictures, and drawings
   444-445, 446-447, 451, 454, 455

j. Identify and apply the concept of inverse operations to multiplication and division
   184-185, 186-187, 190-191, 192-193, 444-445

k. Write a word problem based on multiplication or division number sentences
   116-117, 136, 172-173, 181, 189

Indicator 2: Estimation

Objective

a. Determine the reasonableness of sums and differences
   46, 49, 54, 78-79, 89

Standard 7.0 Process of Mathematics
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1: Apply a variety of concepts, processes, and skills to solve problems

Objectives

a. Identify the question in the problem
   58, 119, 298, 342, 404

b. Decide if enough information is present to solve the problem
   320, 321, 325

c. Make a plan to solve a problem
   24-25, 174-175, 298-299, 360-361, 404-405

d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
   58-59, 98-99, 174-175, 298-299, 374-375, 426-427

e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
   174-175, 196-197, 316-317, 360-361, 394-395

f. Identify alternative ways to solve a problem
   98-99, 196-197, 316-317, 426-427, 433

g. Show that a problem might have multiple solutions or no solution
   121, 131, 195

h. Extend the solution of a problem to a new problem situation
   132-133, 137, 154-155, 161, 448-449

Topic B. Reasoning

Indicator 1: Justify ideas or solutions with mathematical concepts or proofs

Objectives

   a. Use inductive or deductive reasoning
      252-253, 257, 298-299, 360-361, 482-483

   b. Make or test generalizations
      252-253, 257, 405

   c. Support or refute mathematical statements or solutions
      78-79, 83, 252-253, 257, 374-375

   d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
      249, 252-253, 257, 379

Topic C. Communications

Indicator 1: Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

    a. Use multiple representations to express concepts or solutions
        98-99, 105, 196-197, 316-317, 426-427

    b. Express mathematical ideas orally
        74, 110, 234, 328, 448

    c. Explain mathematically ideas in written form
        7, 111, 245, 339, 475

    d. Express solutions using concrete materials
        108-109, 110-112, 166-167, 174-175, 268-269

    e. Express solutions using pictorial, tabular, graphical, or algebraic methods
        58-59, 196-197, 298-299, 316-317, 482-483

    f. Explain solutions in written form
        75, 111, 245, 339, 475

    g. Ask questions about mathematical ideas or problems
        58, 119, 298, 342, 404

    h. Give or use feedback to revise mathematical thinking
        374, 375, 388

Topic D. Connections

Indicator 1: Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

    a. Identify mathematical concepts in relationship to other mathematical concepts
        44-45, 74-75, 184-185, 260-261, 400-401

    b. Identify mathematical concepts in relationship to other disciplines
        47, 77, 113, 169, 215

c. Identify mathematical concepts in relationship to life
   18-19, 312-313, 334-335, 400-401, 402-403

d. Use the relationship among mathematical concepts to learn other mathematical concepts
   212-213, 260-261, 308-309, 400-401, 482-483

Scott Foresman – Addison Wesley enVisionMATH
to the
Maryland Voluntary State Curriculum—Math

Grade Four

Voluntary State Curriculum Math 4

Standard 1.0 Knowledge of Algebra, Patterns, and Functions
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1: Identify, describe, extend, and create numeric patterns and functions

Objectives

a. **Represent and analyze numeric patterns using skip counting**
   Assessment limit: Use patterns of 3, 4, 6, 7, 8, or 9 starting with any whole number (0 - 100)
   58, 59, 72, 237, 356-357

b. **Create a one-operation (+ or -) function table to solve a real world problem**
   128-129, 130-131, 132-133, 138, 139

c. **Complete a function table using a one operation (+, -, ×, ÷ with no remainders) rule**
   Assessment limit: Use whole numbers (0 - 50)
   128-129, 130-131, 132-133, 138, 139

d. **Describe the relationship that generates a one-operation rule**
   128-129, 130-131, 132-133, 138, 139

Indicator 2: Identify, describe, extend, analyze, and create a non-numeric growing or repeating pattern

Objectives

a. **Generate a rule for the next level of the growing pattern**
   Assessment limit: Use at least 3 levels but no more than 5 levels
   240, 336-337, 343

b. Generate a rule for a repeating pattern
   Assessment limit: Use no more than 4 objects in the core of the pattern
   209, 338, 356, 357, 477

c. Create a non-numeric growing or repeating pattern
   209, 240, 336-337, 356, 477

Topic B. Expressions, Equations, and Inequalities

Indicator 1: Write and identify expressions

Objectives

a. Represent numeric quantities using operational symbols (+,-,×,÷ with no remainders)
   Assessment limit: Use whole numbers (0 - 100)
   46, 67, 109, 118, 149

b. Determine equivalent expressions
   Assessment limit: Use whole numbers (0 - 100)
   79, 88, 104, 432-433, 444

Indicator 2: Identify, write, solve, and apply equations and inequalities

Objectives

a. Represent relationships using relational symbols (>, <, =) and operational symbols (+,-,×,÷) on either side
   Assessment limit: Use operational symbols (+, -, ×) and whole numbers (0 - 200)
   31, 62, 79, 82, 104, 113

b. Find the unknown in an equation with one operation
   Assessment limit: Use multiplication (×) and whole numbers (0-81)
   303, 434-435, 436-437, 444, 445

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1: Locate points on a number line and in a coordinate grid

Objectives

    a. Represent mixed numbers and proper fractions on a number line
       Assessment limit: Use proper fractions with a denominators of 6, 8, or 10
       280, 281, 283, 287

    b. Identify positions in a coordinate plane
       Assessment limit: Use the first quadrant and ordered pairs of whole numbers (0 - 20)
       408, 409, 427

    c. Represent decimals on a number line
       280, 281, 283, 287

Standard 2.0 Knowledge of Geometry
Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1: Analyze the properties of plane geometric figures

Objectives

    a. Identify properties of angles using manipulatives and pictures
       198, 199, 200, 212

    b. Identify, compare, classify, and describe angles in relationship to another angle
       Assessment limit: Use acute, right, or obtuse angles
       198, 199, 200, 201, 212

    c. Identify parallel and intersecting line segments
       196, 197, 212

Topic B. Solid Geometric Figures

Indicator 1: Analyze the properties of solid geometric figures

Objectives

  a. Identify cones, cylinders, prisms, and pyramids
  Assessment limit: Use cones or cylinders
  346, 347, 349, 350, 351

  b. Describe solid geometric figures by the number of edges, faces, or vertices
  Assessment limit: Use triangular pyramids, rectangular pyramids, triangular prisms, or rectangular prisms
  347, 349, 350, 353, 360

Indicator 2: Analyze the relationship between plane geometric figures and surfaces of solid geometric figures

Objective

  a. Compare a plane figure to surfaces of solid geometric figure
  Assessment limit: Analyze or identify the number or arrangement of squares needed to make a cube, triangles/rectangles needed to make a triangular pyramid or rectangular pyramid, triangles/rectangles needed to make a triangular prism, and circles/rectangles needed to make a cylinder.
  346, 347, 348, 349, 350, 351

Topic C. Representation of Geometric Figures

Indicator 1: Represent plane geometric figures

Objective

  a. Sketch acute, right, obtuse angles, and parallel and intersecting line segments
  196-197, 198-199, 200-201, 212

Topic D. Congruence

Indicator 1: Analyze geometric figures

Objective

    a. Identify and describe geometric figures as congruent
       Assessment limit: Identify the result in a transformation as being congruent
       to the original figure
       448-449, 450-451, 452-453, 454-455, 464

Topic E. Transformations

Indicator 1: Analyze a transformation

Objective

    a. Identify and describe the results of translations, reflections, and rotations
       Assessment limit: Use a horizontal line translation, reflection over a vertical
       line, or rotation of 90° clockwise around a given point of a geometric figure
       or picture
       448-449, 450-451, 452-453, 464

Standard 3.0 Knowledge of Measurement
Students will identify attributes, units, or systems of measurements or apply a variety of
techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1: Read customary and metric measurement units

Objectives

    a. Estimate and determine length and height
       Assessment limit: Use the nearest millimeter or ¼ inch
       364-365, 374-375, 396, 397

    b. Estimate and determine weight or mass
       368-369, 378-379, 382, 398

    c. Estimate and determine capacity
       366-367, 376-377, 396, 397

Topic B. Measurement Tools

Indicator 1: Measure in customary and metric units

Objective

    a. Select and use appropriate tools and units
       Assessment limit: Use the nearest millimeter or ¼ inch with a ruler
       364-365, 367, 369, 374-375, 377

Indicator 2: Compare right angles to a corner

Topic C. Applications in Measurement

Indicator 1: Apply measurement concepts

Objectives

    a. Determine perimeter
       Assessment limit: Use polygons with no more than 6 sides given the length
       of the sides in whole numbers (0 - 100)
       328-329, 330, 332-333, 334-335, 343

    b. Determine area
       Assessment limit: Use rectangles with the length of the sides in whole
       numbers (0 - 100)
       318-319, 332-333, 334-335, 342, 343

    c. Determine start time, elapsed time, and end time
       Assessment limit: Use hour and half hour intervals
       386-387, 388, 389, 399

Indicator 2: Calculate equivalent measurements
Objectives

    a. Determine equivalent units of length
       Assessment limit: Use 36 inches = 1 yard and whole numbers (0-100)
       370, 371, 372, 380, 381

    b. Determine equivalent units of time
       384, 385, 398

c. Determine equivalent units of capacity and weight within the same system
370, 371, 372, 380, 381

Standard 4.0 Knowledge of Statistics
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays
Indicator 1: Collect, organize, and display data

Objectives

a. Collect data by conducting surveys to answer a question
402, 402B, 403, 426

b. Organize and display data in line plots and frequency tables using a variety of categories and sets of data
Assessment limit: Use line plots with no more than 20 pieces of unorganized data and a range of no more than 10 and whole numbers (0 - 100)
402-403, 406-407, 426

Topic B. Data Analysis

Indicator 1: Analyze data

Objectives

a. Interpret line plots
Assessment limit: Use no more than 20 pieces of data with a range no more than 10 and whole numbers (0 - 100)
406, 407, 426

b. Interpret line graphs
Assessment limit: Use the x-axis representing no more than 6 time intervals, the y-axis consisting of no more than 10 intervals with scales as factors of 100 using whole numbers (0 - 100)
410, 411, 427

Indicator 2: Describe a set of data

Objectives

    a. Determine median, mode, and range
      Assessment limit: Use no more than 8 pieces of data and whole numbers (0 - 100)
      414, 415, 428

    b. Model the mean of a set of data
      412, 413, 428

Standard 5.0 Knowledge of Probability
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic B. Theoretical Probability
Indicator 1: Determine the probability of one simple event comprised of equally likely outcomes

Objective

    a. Express the probability as a fraction
      Assessment limit: Use a sample space of no more than 6 outcomes
      472-473, 474, 481

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1: Apply knowledge of whole numbers and place value

Objectives

    a. Read, write, and represent whole numbers using symbols, words, and models
      Assessment limit: Use whole numbers (0 - 1,000,000)
      4-5, 6, 8-9, 24

b. Express whole numbers in expanded form
Assessment limit: Use whole numbers (0 - 1,000,000)
4, 5, 6, 8, 9, 24

c. Identify the place value of a digit in a number
Assessment limit: Use whole numbers (0 - 1,000,000)
4, 5, 6, 8, 9, 24

d. Compare, order, and describe whole numbers
Assessment limit: Use no more than 4 whole numbers with or without using the symbols (<, > , =) and whole numbers (0 - 1,000,000)
10-11, 12, 13, 24

Indicator 2: Apply knowledge of fractions and decimals

Objectives

a. Read, write, and represent proper fractions of a single region using symbols, words, and models
Assessment limit: Use denominators 6, 8, and 10
216-217, 218, 226, 232

b. Read, write, or represent proper fractions of a set which has the same number of items as the denominator using symbols, words, and models
Assessment limit: Use denominators of 6, 8, and 10 with sets of 6, 8, and 10, respectively
216-217, 218, 244

c. Find equivalent fractions
224-225, 226, 228-229, 241, 245

d. Read, write, and represent mixed numbers using symbols, words, and models
230-231, 232, 246

e. Read, write, and represent decimals using symbols, words and models
Assessment limit: Use no more than 2 decimal places and numbers (0-100)
16-17, 25, 274-275, 286

f. Express decimals in expanded form
Assessment limit: Use no more than 2 decimal places and numbers (0-100)
16, 17, 268, 269, 286

g. Compare and order fractions and mixed numbers with or without using the symbols (<, >, or =)
  Assessment limit: Use like denominators and no more than 3 numbers (0-20)
  234-235, 236-237, 246

h. Compare, order, and describe decimals with or without using the symbols (<,>, or =)
  Assessment limit: Use no more than 3 decimals with no more than 2 decimal places and numbers (0 - 100)
  17, 270-271, 272, 276-278, 280-281

Indicator 3: Apply knowledge of money

Objectives

a. Compare the value of sets of mixed currency
  Assessment limit: Use 2 sets of mixed currency and money ($0 - $100)
  16, 16B, 17B, 18, 19

b. Determine the change from $100
  18-19, 25, 33, 35

Topic B. Number Theory

Indicator 1: Apply number relationships

Objectives

a. Identify and use divisibility rules
  Assessment limit: Use the rules for 2, 5, or 10 with whole numbers (0 - 1000)
  82-83, 84, 89, 93

b. Identify factors
  Assessment limit: Use whole numbers (0 - 24)
  62-63, 64-65, 66-67, 182-183, 192

c. Identify multiples
  Assessment limit: Use the first 5 multiples of any single digit whole number
  58, 59, 72, 237, 356, 357

Topic C. Number Computation

Indicator 1: Analyze number relations and compute

Objectives

   a. Add whole numbers
   Assessment limit: Use up to 3 addends with no more than 4 digits in each addend and whole numbers (0 - 10,000)
   28-29, 36-37, 38, 50, 51

   b. Subtract whole numbers
   Assessment limit: Use a minuend and subtrahend with no more than 4 digits in each and whole numbers (0 - 9999)
   28-29, 40-41, 42-43, 50, 51

   c. Multiply whole numbers
   Assessment limit: Use a one 1-digit factor by up to a 3-digit factor using whole numbers (0 - 1000)
   96-97, 98-99, 106-108, 110-112, 114-115

   d. Divide whole numbers
   Assessment limit: Use up to a 3-digit dividend by a 1-digit divisor and whole numbers with no remainders (0 - 999)
   76-77, 82-83, 84-85, 164-165, 190

   e. Add and subtract proper fractions and mixed numbers
   Assessment limit: Use 2 proper fractions with a single digit like denominators, 2 mixed numbers with single digit like denominators, or a whole number and a proper fraction with a single digit denominator and numbers (0 - 20)
   250-251, 252, 264

   f. Add 2 decimals
   Assessment limit: Use the same number of decimal places but no more than 2 decimal places and no more than 4 digits including monetary notation and numbers (0 - 100)
   296-297, 299, 300-301, 312, 313

   g. Subtract decimals
   Assessment limit: Use the same number of decimal places but no more than 2 decimal places and no more than 4 digits including monetary notation and numbers (0 - 100)
   296-297, 298, 300-301, 312, 313

Indicator 2: Estimation

Objectives

a. **Determine the approximate sum and difference of 2 numbers**
   Assessment limit: Use no more than 2 decimal places in each and numbers (0 - 100)
   32-33, 36-37, 41, 43, 50

b. **Determine the approximate product or quotient of 2 numbers**
   Assessment limit: Use a 1-digit factor with the other factor having no more than 2-digits or a 1-digit divisor and no more than a 2-digit dividend and whole numbers (0 - 1000)
   100-101, 123, 166-167, 190

Standard 7.0 Process of Mathematics
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1: Apply a variety of concepts, processes, and skills to solve problems

Objectives

a. **Identify the question in the problem**
   35, 187, 283, 357, 461

b. **Decide if enough information is present to solve the problem**
   34, 34B, 35, 35B, 50

c. **Make a plan to solve a problem**
   34-35, 156-157, 282-283, 336-337, 420-421

d. **Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation**
   34-35, 116-117, 258-259, 308-309, 356-357

e. **Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation**
   68-69, 116-117, 258-259, 308-309, 356-357

f. **Identify alternative ways to solve a problem**
   44-45, 68-69, 86-87, 116-117

g. Show that a problem might have multiple solutions or no solution
58-59, 182-183, 472, 473, 474

h. Extend the solution of a problem to a new problem situation
316, 336-337, 343, 354

Topic B. Reasoning

Indicator 1: Justify ideas or solutions with mathematical concepts or proofs

Objectives

a. Use inductive or deductive reasoning
208-209, 213, 356-357, 361, 476-477

b. Make or test generalizations
208-209, 213, 413, 477

c. Support or refute mathematical statements or solutions
208-209, 213, 235, 278, 307

d. Use methods of proof, ie. direct, indirect, paragraph, or contradiction
208-209, 213, 278, 307

Topic C. Communications

Indicator 1: Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

a. Use multiple representations to express concepts or solutions
44-45, 68-69, 86-87, 116-117

b. Express mathematical ideas orally
76, 174, 216, 328, 472

c. Explain mathematically ideas in written form
132, 184, 208, 306, 416

d. Express solutions using concrete materials
134-135, 182, 200-201, 364-365, 374-375

e. Express solutions using pictorial, tabular, graphical, or algebraic methods
44-45, 116-117, 258-259, 366-367, 420-421

f. Explain solutions in written form
238-239, 247, 260, 325, 439

g. Ask questions about mathematical ideas or problems
34, 156, 282, 336, 420

h. Give or use feedback to revise mathematical thinking
308, 308B, 309, 309B, 313

Topic D. Connections

Indicator 1: Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

a. Identify mathematical concepts in relationship to other mathematical concepts
18-19, 386-387, 412-413, 454-455, 472-473

b. Identify mathematical concepts in relationship to other disciplines
39, 57, 233, 293, 390-391

c. Identify mathematical concepts in relationship to life
18-19, 364-365, 374-375, 386-387, 390-391

d. Use the relationship among mathematical concepts to learn other mathematical concepts
18-19, 386-387, 412-413, 454-455, 472-473

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Maryland Voluntary State Curriculum—Math

Grade Five

Standard 1.0 Knowledge of Algebra, Patterns, and Functions
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1: Identify, describe, extend, and create numeric patterns and functions

Objectives

a. Interpret and write a rule for a one-operation (+,-, x, ÷ with no remainders) function table
   Assessment limit: Use whole numbers or decimals with no more than 2 decimal places (0 - 1000)
   148-149, 151, 382-384, 420-421

b. Create a one-operation (x, ÷ with no remainders) function table to solve a real world problem
   148-149, 166, 420-421

c. Complete a one-operation function table
   Assessment limit: Use whole numbers with +, -, x, ÷ (with no remainders) or use decimals with no more than two decimal places with +, - (0 - 200)
   148-149, 151, 382-384, 393, 421

d. Apply a given two operation rule for a pattern
   Assessment limit: Use two operations (+, -, x) and whole numbers (0 - 100)
   150, 152-154, 157, 166

Topic B. Expressions, Equations, and Inequalities

Indicator 1: Write and identify expressions

Objectives

a. Represent unknown quantities with one unknown and one operation (+,-,×,÷ with no remainders)
Assessment limit: Use whole numbers (0 - 100) or money ($0 - $100)
146-147, 150, 166

b. Determine the value of algebraic expressions with one unknown and one operation
Assessment limit: Use +,- with whole numbers (0-1000) or ×,÷ (with no remainders) with whole numbers (0-100) and the number for the unknown is no more than 9
148-149, 151, 166

c. Use parenthesis to evaluate a numeric expression
67, 158-159, 160, 167

Indicator 2: Identify, write, solve, and apply equations and inequalities

Objectives

a. Represent relationships by using the appropriate relational symbols (>, <, =) and one operational symbol (+,-,×,÷ with no remainders) on either side
Assessment limit: Use whole numbers (0 - 400)
40, 41B, 93

b. Find the unknown in an equation use one operation (+,-,×,÷ with no remainders)
Assessment limit: Use whole numbers (0 - 2000)
34-35, 376-377, 378-379, 392

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1: Locate points on a number line and in a coordinate grid

Objectives

a. Represent decimals and mixed numbers on a number line
Assessment limit: Use decimals with no more than two decimal places (0 - 100) or mixed numbers with denominators of 2, 3, 4, 5, 6, 8, or 10 (0 - 10)
224-225, 244-245, 250, 253

    b. Create a graph in a coordinate plane
       Assessment limit: Use the first quadrant and ordered pairs of whole numbers (0 - 50)
       414-416, 420, 421, 426

Standard 2.0 Knowledge of Geometry

Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures

Indicator 1: Analyze the properties of plane geometric figures

Objectives

    a. Identify and describe relationships of lines and line segments in geometric figures or pictures
       Assessment limit: Use parallel or perpendicular lines and line segments
       200-201, 202, 216

    b. Identify polygons within a composite figure
       Assessment limit: Use polygons with no more than 8 sides as part of a composite figure comprised of triangles or quadrilaterals
       306, 306B, 307, 307B

    c. Identify and describe the radius and diameter of a circle
       310-311, 312, 319

Indicator 2: Analyze geometric relationships

Objectives

    a. Compare and classify quadrilaterals by length of sides and types of angles (Include the angle symbol   ABC)
       Assessment limit: Use squares, rectangles, rhombi, parallelograms, and trapezoids
       210, 211, 217

    b. Compare triangles by sides
       208, 209, 217

Topic B. Solid Geometric Figures
Indicator 1: Analyze the properties of solid geometric figures

Objectives

a. Identify and classify pyramids and prisms by the number of edges, faces, or vertices
   Assessment limit: Use triangular pyramids, rectangular pyramids, triangular prisms, or rectangular prisms
   322, 323, 324, 344

b. Identify and classify pyramids and prisms by the base
   Assessment limit: Use triangular prisms and pyramids or rectangular prisms and pyramids
   322, 323, 326, 327, 344

Indicator 2: Analyze the relationship between plane geometric figures and faces of solid geometric figures

Objective

a. Compare a plane figure to faces of solid geometric figure
   Assessment limit: Analyze and identify the number or arrangement of rectangles needed to make a rectangular prism, number of triangles/rectangles needed to make a triangular prism, and the number of circles/rectangles needed to make a cylinder.
   322, 326-327, 344

Topic C. Representation of Geometric Figures

Indicator 1: Represent plane geometric figures

Objective

a. Identify, describe, and draw angles, parallel line segments, and perpendicular line segments
   Assessment limit: Provide their dimensions as whole numbers (0 - 20) or angle measurements (0° - 179°)
   200-202, 204-205, 216

Topic D. Congruence

Indicator 1: Analyze similar figures to

Objective

   a. Identify or describe geometric figures as similar
      Assessment limit: Use same shape and different size
      467B, 472, 473B

Topic E. Transformations

Indicator 1: Analyze a transformation

Objective

   a. Identify and describe the results of translations, reflections, and rotations of geometric figures
      Assessment limit: Use translation along a vertical line, reflection over a horizontal line, or rotation 90° or 180° around a given point
      464-466, 467, 468-469, 470-471, 482

Standard 3.0 Knowledge of Measurement
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic A. Measurement Units

Indicator 1: Read customary and metric measurement units

Objectives

   a. Estimate and determine weight or mass
      Assessment limit: Use the nearest ounce for weight and the nearest gram for mass
      352, 353, 370

   b. Estimate and determine capacity
      Assessment limit: Use the nearest ounce
      348-349, 350-351, 370

Topic B. Measurement Tools

Indicator 1: Measure in customary and metric units

Objective

a. Select and use appropriate tools and units
   Assessment limit: Measure length to 1/8 inch with a ruler
   348-349, 350-351, 352-353, 354-355, 356-357

Indicator 2: Measure angles

Objective

   a. Measure a single angle and angles in regular polygons
   Assessment limit: Measure an angle between 0 and 180 to the nearest degree
   204, 205, 216

Topic C. Applications in Measurement

Indicator 1: Estimate and apply measurement formulas

Objectives

   a. Determine perimeter
   Assessment limit: Use polygons with no more than 8 sides and whole numbers (0 -500)
   300-301, 302, 318

   b. Determine area
   Assessment limit: Use rectangles and whole numbers (0 - 200)
   304-305, 306-307, 308-309, 319

   c. Find the area and the perimeter of any closed figure on a grid
   Assessment limit: Use whole and partial units (0-50)
   315, 319, 339

   d. Estimate and determine volume by counting
   332, 333, 339

Indicator 2: Calculate equivalent measurements

Objectives

    a. Determine start, elapsed, and end time
       Assessment limit: Use the nearest minute
       358-360, 361, 362-363, 372

    b. Determine equivalent units of measurement
       Assessment limit: Use seconds, minutes, and hours or pints, quarts, and gallons
       348-349, 354-355, 370, 371

Standard 4.0 Knowledge of Statistics
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1: Collect, organize, and display data

Objectives

    a. Collect data by conducting surveys to answer a question
       430-431, 432, 444, 446, 458

    b. Organize and display data in stem-and-leaf plots
       Assessment limit: Use no more than 20 data points and whole numbers (0 - 100)
       440-441, 442, 459

    c. Organize and display data in line plots
       Assessment limit: Use no more than 20 pieces of data with a range of no more than 20 and whole numbers (0 - 200)
       436-437, 438, 439, 455, 459

    d. Organize and display data in double bar graphs
       Assessment limit: Use no more than 4 categories and intervals of 1, 2, 5, or 10 and whole numbers (0 - 100)
       433, 434, 455, 458

e. Organize and display data in line graphs
Assessment limit: Use y-axis with intervals of 1, 2, 4, 5, or 10 and x-axis with no more than 10 time intervals and whole numbers (0 - 100)
436-437, 438, 439, 455, 459

f. Determine the appropriate type of graph to effectively display data
443, 454-455, 461

Topic B. Data Analysis

Indicator 1: Analyze data
Objectives

a. Interpret and compare data in stem & leaf plot
Assessment limit: Use no more than 20 data points and whole numbers (0 - 100)
440-441, 442, 459

b. Interpret and compare data in line plots
Assessment limit: Use no more than 20 pieces of data with a range of no more than 20 and whole numbers (0 - 100)
430, 431, 458

c. Interpret and compare data in double bar graphs
Assessment limit: Use no more than 4 categories and intervals of 1, 2, 5, or 10 and whole numbers (0 - 1000)
433, 434, 455, 458

d. Interpret and compare data in double line graphs
Assessment limit: Use y-axis with intervals of 1, 2, 5, or 10 and x-axis with no more than 10 time intervals and whole numbers (0 - 100)
Related concepts and skills are taught on the following pages:
436-437, 438, 439, 459

e. Read circle graphs
Assessment limit: Use no more than 4 categories and data in whole numbers or percents which are multiples of 5 and whole numbers (0 - 100)
446-448, 449, 455, 460

Indicator 2: Describe a set of data (mean, median, mode)

Objectives

 a. Determine the mean of a given data set or data display
  Assessment limit: Use no more than 8 pieces of data and whole numbers
  without remainders (0 - 1000)
  450, 451, 461

 b. Apply the range and measures of central tendency to solve a problem or
 answer a question
  450-451, 452-453, 461

Standard 5.0 Knowledge of Probability
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic A. Sample Space

Indicator 1: Identify possible outcomes

Objective

 a. Determine possible outcomes of independent events
  Assessment limit: Use two independent events with no more than 4
  outcomes each and an organized list or tree diagram
  488, 489, 498

Topic B. Theoretical Probability

Indicator 1: Determine the probability of one simple event comprised of equally likely outcomes

Objective

 a. Make predictions and express the probability as a fraction
  Assessment limit: Use a sample space of no more than 20 outcomes
  492, 493, 499

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1: Apply knowledge of fractions, decimals, and place value

Objectives

    a. Read, write, or represent fractions or mixed numbers using symbols, models, and words
        Assessment limit: Use denominators that are factors of 24 and numbers (0 - 200)
        220-221, 222, 224-225, 226-227, 250

    b. Read, write, or represent decimals using symbols, words, or models
        Assessment limit: Use no more than 3 decimal places (0 - 100)
        238-240, 241, 242-243, 252, 253

    c. Identify and determine equivalent forms of proper fractions
        Assessment limit: Use denominators that are factors of 100, decimals, or percents (0 - 200)
        228-229, 242-243, 251, 253, 400-401

    d. Compare or order fractions with or without using the symbols (<, >, or =)
        Assessment limit: Use no more than 4 fractions or mixed numbers with denominators that are factors of 100 and numbers (0 - 100)
        230-231, 244-245, 251, 253

    e. Compare, order, and describe decimals with or without using the symbols (<, >, or =)
        Assessment limit: Use no more than 4 decimals with no more than 3 decimal places and numbers (0 - 100)
        12-13, 21, 244-245, 253

Topic B. Number Theory

Indicator 1: Apply number relationships

Objectives

    a. Identify or describe numbers as prime or composite
        Assessment limit: Use whole numbers (0 - 100)
        106-107, 108, 119

b. Identify and use rules of divisibility
Assessment limit: Use rules for 2, 3, 5, 9, or 10 and whole numbers (0 - 10,000)
102-103, 109, 118

c. Identify the greatest common factor
Assessment limit: Use 2 numbers whose GCF is no more than 10 and whole numbers (0 - 100)
232, 233, 252

d. Identify a common multiple and the least common multiple
Assessment limit: Use no more than 4 single digit whole numbers
260, 261, 274

Topic C. Number Computation

Indicator 1: Analyze number relations and compute

Objectives

a. Multiply whole numbers
Assessment limit: Use a 3-digit factor by another factor with no more than 2-digits and whole numbers (0 - 10,000)
64-65, 68-69, 70-71, 81

b. Divide whole numbers
Assessment limit: Use a dividend with no more than a 4-digits by a 2-digit divisor and whole numbers (0 - 9,999)
94-95, 98-99, 128-129, 130-131, 134-135

c. Interpret quotients and remainders mathematically and in the context of a problem
Assessment limit: Use dividend with no more than a 3-digits by a 1 or 2 digit divisor and whole numbers (0 - 999)
94-95, 113, 130-131, 134-135, 143

d. Add and subtract proper fractions and mixed numbers with answers in simplest form
Assessment limit: Use denominators as factors of 24 and numbers (0 - 20)
256-258, 262-263, 264-265, 266-267, 268-269

e. Add decimals including money
   Assessment limit: Use no more than 4 addends and no more than 3 decimal places in each addend and numbers (0 - 1000)
   42-43, 49, 54

f. Subtract decimals including money
   Assessment limit: Use a minuend and subtrahend with no more than 3 decimal places and numbers (0 - 1000)
   44, 45, 55

g. Multiply decimals
   Assessment limit: Use a decimal in monetary notation by a single digit whole number and numbers (0 - 100)
   170-171, 172-173, 194

h. Divide decimals by whole numbers
   178-179, 180-181, 196

Indicator 2: Estimation

Objectives

a. Determine the approximate sum and difference of decimals
   Assessment limit: Use no more than 3 addends with no more than 3 decimal places in each addend or the difference of a minuend and subtrahend with no more than 3 decimal places and numbers (0 - 1000)
   30-31, 32, 36, 53

b. Determine approximate product and quotient of whole numbers
   Assessment limit: Use a 1-digit factor with the other factor having no more than 3 digits or a dividend having no more than 3 digits and a 1-digit divisor and whole numbers (0 - 5000)
   62-63, 80, 86-87, 116, 124-125

c. Determine the approximate product of decimals
   Assessment limit: Use a decimal in monetary notation and a single digit whole number (0 - 100)
   174, 175, 195

Standard 7.0 Process of Mathematics
Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1: Apply a variety of concepts, processes, and skills to solve problems

Objectives

a. Identify the question in the problem
88, 126, 270, 366, 494

b. Decide if enough information is present to solve the problem
138, 139, 143

c. Make a plan to solve a problem
162-163, 288-289, 340-341, 404-405, 478-479

d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
14-15, 74-75, 270-271, 288-289, 386-387

e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
34-35, 110-111, 270-271, 386-387, 404-405

f. Identify alternative ways to solve a problem
34-35, 74-75, 161, 288-289, 386-387

g. Show that a problem might have multiple solutions or no solution
228-229, 229B, 251, 233, 491B

h. Extend the solution of a problem to a new problem situation
382-383, 404-405, 492-493, 499

Topic B. Reasoning

Indicator 1: Justify ideas or solutions with mathematical concepts or proofs

Objectives

a. Use inductive or deductive reasoning
14-15, 212-213, 217, 366-367, 404-405

b. Make or test generalizations
212, 212B, 213, 213B, 217

c. Support or refute mathematical statements or solutions
212, 212B, 213, 213B, 217

d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
212-213, 217, 472-473

Topic C. Communications

Indicator 1: Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

a. Use multiple representations to express concepts or solutions
34-35, 74-75, 110-111, 288-289, 386-387

b. Express mathematical ideas orally
74, 188, 234, 322, 414

c. Explain mathematically ideas in written form
88, 126, 315, 405, 422

d. Express solutions using concrete materials
340-341, 345, 478-479, 483

e. Express solutions using pictorial, tabular, graphical, or algebraic methods
74-75, 366-367, 386-387, 404-405, 454-455

f. Explain solutions in written form
246-247, 253, 258, 261, 297

g. Ask questions about mathematical ideas or problems
88, 126, 270, 366, 494

h. Give or use feedback to revise mathematical thinking
209, 270-271, 275

Topic D. Connections

Indicator 1: Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

a. Identify mathematical concepts in relationship to other mathematical concepts
420-421, 446-447, 452-453, 472-473, 488-489

b. Identify mathematical concepts in relationship to other disciplines
27, 41, 161, 237, 361

c. Identify mathematical concepts in relationship to life
46-47, 188-189, 288-289, 314-315, 422-423

d. Use the relationship among mathematical concepts to learn other mathematical concepts
313, 420-421, 446-447, 472-473, 492-493

Scott Foresman – Addison Wesley enVisionMATH
to the
Maryland Voluntary State Curriculum—Math

Grade Six

Standard 1.0 Knowledge of Algebra, Patterns, and Functions
Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Topic A. Patterns and Functions

Indicator 1: Identify, describe, extend, and create numeric patterns and functions

Objectives

a. Identify and describe sequences represented by a physical model or in a function table
290-291, 376-377, 378-379, 380-381, 382-383

b. Interpret and write a rule for a one-operation (+,-, x, ÷) function table
Assessment limit: Use whole numbers or decimals with no more than two decimal places (0 - 10,000)
376, 377, 388, 395

c. Complete a function table with a given two-operation rule
Assessment limit: Use the operations of (+, -, x), numbers no more than 10 in the rule, and whole numbers (0 - 50)
378, 379, 388, 395

Topic B. Expressions, Equations, and Inequalities

Indicator 1: Write and evaluate expressions

Objectives

a. Write an algebraic expression to represent unknown quantities
Assessment limit: Use one unknown and one operation (+, -) with whole numbers, fractions with denominators as factors of 24, or decimals with no more than two decimal places (0-200)
32-33, 48-49, 53, 56

b. Evaluate an algebraic expression
    Assessment limit: Use one unknown and one operation (+, -) with whole numbers (0 - 200), fractions with denominators as factors of 24 (0 - 50), or decimals with no more than two decimal places (0 - 50)
    31, 46, 52

c. Evaluate numeric expressions using the order of operations
    Assessment limit: Use no more than 4 operations (+, -, x, ÷ with no remainders) with or without 1 set of parentheses or a division bar and whole numbers (0-100)
    36-37, 39, 57, 80-81, 92

d. Represent algebraic expressions using physical models, manipulatives, and drawings
    46, 50, 51

Indicator 2: Identify, write, solve, and apply equations and inequalities

Objectives

a. Identify and write equations and inequalities to represent relationships
    Assessment limit: Use a variable, the appropriate relational symbols (>, <, =), and one operational symbol (+, -, ×, ÷) on either side and use fractions with denominators as factors of 24 (0 - 50) or decimals with no more than two decimal places (0 - 200)
    13, 102-103, 110-111, 116, 117

b. Determine the unknown in a linear equation
    Assessment limit: Use one operation (+, -, ×, ÷ with no remainders) and use positive whole number coefficients using decimals with no more than two decimal places (0 - 100)
    98-100, 102-104, 106-108, 110-111, 113

c. Solve for the unknown in a one-step inequality
    Related concepts and skills are taught on the following pages:
    13, 389

d. Identify or graph solutions of a one-step inequality on a number line
    Related concepts and skills are taught on the following pages:
    13, 389

e. Apply given formulas to a problem solving situation
    310-312, 319, 358-360, 369, 417

Topic C. Numeric and Graphic Representations of Relationships

Indicator 1: Locate points on a number line and in a coordinate plane

Objectives

  a. Represent rational numbers on a number line
   Assessment limit: Use integers (-20 to 20)
   150, 222-223, 225, 226-227, 256

  b. Graph ordered pairs in a coordinate plane.
   Assessment limit: Use no more than 3 ordered pairs of integers (-20 to 20) or no more than 3 ordered pairs of fractions/mixed numbers with denominators of 2 (-10 to 10)
   246-247, 248, 249, 259

  c. Graph linear data from a function table
   380-381, 382-383, 385, 396

Indicator 2: Analyze linear relationships

Objectives

  a. Identify and describe the change represented in a graph
   Assessment limit: Identify increase, decrease, or no change
   380-381, 382-383, 385, 386, 387

  b. Translate the graph of a linear relationship onto a table of values that illustrates the type of change
   380-381, 382-383, 385, 386, 387

Standard 2.0 Knowledge of Geometry
Students will apply the properties of one-, two-, or three-dimensional geometric figures
to describe, reason, or solve problems about shape, size, position, or motion of objects.

Topic A. Plane Geometric Figures
Indicator 1: Analyze the properties of plane geometric figures

Objectives

  a. Identify, describe, and label points, lines, rays, line segments, vertices, angles, and planes using correct symbolic notation
   261, 262-264, 266-268, 294

b. Identify and describe line segments
  Assessment limit: Use diagonal line segments
  263, 264, 282, 290, 294

c. Identify and describe the parts of a circle
  Assessment limit: Use radius, diameter, or circumference
  282, 283, 293, 296, 438-440, 441, 451

Indicator 2: Analyze geometric relationships

Objectives

a. Compare and classify triangles by sides
  Assessment limit: Use scalene, equilateral, or isosceles
  274, 275, 276, 295

b. Compare and classify triangles by angle measure
  Assessment limit: Use equiangular, obtuse, acute, or right
  274, 275, 276, 295

c. Determine a third angle measure of a triangle given two angle measures
  Assessment limit: Use the concept of the sum of angles in any triangle is 180° without using a diagram
  274, 275, 276, 295

d. Identify and compare the relationship between parts of a circle
  Assessment limit: Use radius, diameter and circumference (π = 3.14)
  282, 283, 296, 438-440, 441, 451

Topic C. Representation of Geometric Figures

Indicator 1: Represent plane geometric figures

Objectives

a. Draw geometric figures using a variety of tools
  Assessment limit: Draw triangles given the measures of 2 sides and one angle or 2 angles and 1 side using whole numbers (0-20) and angle measures (0°-179°)
  274, 276, 278, 281, 295

b. Identify, describe, or draw a polygon
   Assessment limit: Use the first quadrant given no more than six coordinates
   274, 276, 278, 281, 295

c. Identify or describe angle relationships
   Assessment limit: Use perpendicular bisectors or angle bisectors
   270-272, 273, 285, 289, 294

Topic D. Congruence

Indicator 1: Analyze congruent figures

Objective

a. Identify and describe congruent polygons and their corresponding parts
   284, 285, 286, 296

Topic E. Transformations

Indicator 1: Analyze a transformation on a coordinate plane

Objective

a. Plot the result of one transformation (translation, reflection, rotation) on a coordinate plane
   284, 285, 286, 296

Standard 3.0 Knowledge of Measurement
Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Topic B. Measurement Tools

Indicator 1: Measure in customary and metric units

Objective

a. Select and use appropriate tools and units
   Assessment limit: Measure length to the nearest 1/16 inch with a ruler
   401, 408, 409, 410, 422

Indicator 2: Measure angles in polygons

Topic C. Applications in Measurement

Indicator 1: Estimate and apply measurement formulas

Objectives

  a. Estimate and determine the area of a polygon
    Assessment limit: Use triangles and whole number dimensions (0 - 200)
    430-433, 434-436, 450

  b. Estimate and determine the volume of a rectangular prism
    Assessment limit: Use rectangular prisms and whole number dimensions (0 - 1000)
    462, 463, 469, 473

  c. Estimate and determine the area of a composite figure
    Assessment limit: Use composite figures with no more than four polygons (triangles or rectangles) and whole number dimensions (0 - 500)
    430, 431, 432

  d. Determine missing dimension of a quadrilateral given the perimeter length
    Assessment limit: Find length in a quadrilateral given the perimeter with whole number dimensions (0 - 200)
    426, 428, 433, 448

e. Determine the missing dimension of rectangles
    Assessment limit: Find length in a square or rectangle given the area and whole number dimensions (0 - 200)
    431, 432, 433

Standard 4.0 Knowledge of Statistics
Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

Topic A. Data Displays

Indicator 1: Organize and display data

Objectives

Grade Six

   a. Organize and display data to make frequency tables
   Assessment limit: Use no more than 5 categories or ranges of numbers and total frequencies of no more than 25
   494, 495, 496, 515

   b. Organize and display data to make stem-and-leaf plots
   Assessment limit: Use no more than 20 data points and whole numbers (0-99)
   498, 499, 500, 516

c. Organize and display data using a back-to-back stem-and-leaf plot
   Related concepts and skills are taught on the following pages:
   498-499, 498B, 499B, 516

Topic B. Data Analysis

Indicator 1: Analyze data

Objectives

   a. Interpret frequency tables
   Assessment limit: Use no more than 5 categories or ranges of numbers and frequencies of no more than 25
   495, 496, 515

   b. Read and analyze circle graphs
   Assessment limit: Use no more than 5 categories using data in whole numbers or percents (0 - 1000)
   347, 348, 349, 352, 354, 480-482, 485, 486

   c. Interpret data form a stem-and-leaf plot
   498, 499, 501, 508, 509

Indicator 2: Describe a set of data

Objective

   a. Apply measures of central tendency (mean, median, mode)
   490-492, 493, 500-501, 515, 516

Standard 5.0 Knowledge of Probability
Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Topic B. Theoretical Probability

Indicator 1: Determine the probability of one simple event comprised of equally likely outcomes

Objectives

  a. Express the probability of an event as a fraction.
    528-529, 530-532, 533, 541, 542

  b. Express the probability of an event as a decimal
    Assessment limit: Use a sample space of 10, 20, 25, or 50 outcomes
    528-529, 530-532, 533, 541, 542

  c. Express the probability of an event as a percent
    528-529, 530-532, 533, 541, 542

Topic C. Experimental Probability

Indicator 1: Analyze the results of a probability experiment

Objective

  a. Make predictions and express the experimental probability as a fraction, a decimal, or a percent
    Assessment limit: Use no more than 30 results in the sample space
    530, 531, 532, 533, 542

Indicator 2: Conduct a probability experiment
    530B, 533, 533B

Indicator 3: Compare outcomes of theoretical probability with the results of experimental probability
    530B, 530, 531, 532, 533, 533B, 542

Indicator 4: Describe the difference between theoretical and experimental probability
    530B, 530, 531, 532, 533, 533B, 542

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic
Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Topic A. Knowledge of Number and Place Value

Indicator 1: Apply knowledge of rational numbers and place value

Objectives

a. Read, write, and represent whole numbers
   Assessment limit: Use exponential form with powers of 10 (0 - 100,000)
   4, 5, 6, 10, 11

b. Read, write, and represent integers
   Assessment limit: Use integers from (-100 to 100)
   222, 223, 256

c. Identify and determine equivalent forms of fractions as decimals, as percents, and as ratios
   Assessment limit: Use proper fractions with denominators as factors of 100, decimals, percents, or ratios (0 - 1000)
   150-151, 229, 348-349, 350-351, 366

d. Compare and order fractions, decimals alone or mixed together, with and without relational symbols (<, >, =)
   Assessment limit: Include no more than 4 fractions with denominators with factors of 100 or decimals with up to 2 decimal places (0 - 100)
   22-23, 29, 128-129, 149

e. Compare and order integers
   222, 224-225, 253, 256

Topic B. Number Theory

Indicator 1: Apply number relationships

Objective

a. Determine prime factorizations for whole numbers and express them using exponential form
   124-125, 126, 140

Topic C. Number Computation

Indicator 1: Analyze number relations and compute

Objectives

a. Add and subtract fractions and mixed numbers and express answers in simplest form
> **Assessment limit: Use proper fractions and denominators as factors of 60 (0-20)**
> 162-163, 166-167, 168, 172-173, 174-175

b. Multiply fractions and mixed numbers and express in simplest form
> **Assessment limit: Use denominators as factors of 24 not including 24 (0 - 20)**
> 186-187, 190-191, 192-193, 198, 199

c. Multiply decimals
> **Assessment limit: Use a decimal with no more than 3 digits multiplied by a 2-digit decimal (0 - 1000)**
> 70-71, 72, 91

d. Divide decimals
> **Assessment limit: Use a decimal with no more than 5 digits divided by a whole number with no more than 2 digits without annexing zeros (0 - 1000)**
> 18, 19, 74-75, 91

e. Determine a percent of a whole number
> **Assessment limit: Use 10%, 20%, 25% or 50% of a whole number (0 - 1000)**
> 354-355, 356, 357, 368

f. Simplify numeric expressions using the properties of addition and multiplication
> **Assessment limit: Use the distributive property to simplify numeric expressions and whole numbers (0 - 1000)**
> 41, 42, 43, 57, 58, 192

Indicator 2: Estimation

Objective

a. Determine the approximate products and quotients of decimals
   Assessment limit: Use a decimal with no more than a 3 digits multiplied by a
   2-digit whole number, or the quotient of a decimal with no more than 4 digits
   in the dividend divided by a 2-digit whole number (0 - 1000)
   67, 68, 69, 75, 87

Indicator 3: Analyze ratios, proportions, and percents

Objectives

a. Represent ratios in a variety of forms
   300-301, 304, 305, 318

b. Use ratios and unit rates to solve problems
   306-307, 308-309, 310-312, 313, 314-315

Standard 7.0 Process of Mathematics
Students demonstrate the processes of mathematics by making connections and
applying reasoning to solve problems and to communicate their findings.

Topic A. Problem Solving

Indicator 1: Apply a variety of concepts, processes, and skills to solve problems

Objectives

a. Identify the question in the problem
   136, 251, 314, 418, 536

b. Decide if enough information is present to solve the problem
   84-85, 93, 194-195, 199

c. Make a plan to solve a problem
   51, 179, 215, 391, 489

d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern,
writing an equation
   102-103, 136-137, 178-179, 214-215, 536-537

e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation
177, 237, 337, 441, 523

f. Identify alternative ways to solve a problem
110-111, 112, 110B, 113B, 117

g. Show that a problem might have multiple solutions or no solution
122, 123, 127, 327

h. Extend the solution of a problem to a new problem situation
50-51, 131, 178-179, 290-291, 297

Topic B. Reasoning

Indicator 1: Justify ideas or solutions with mathematical concepts or proofs

Objectives

a. Use inductive or deductive reasoning
50-51, 59, 214-215, 290-291, 310-311

b. Make or test generalizations
136-137, 141, 310-311, 313, 319

c. Support or refute mathematical statements or solutions
214-215, 250-251, 328-329, 362-363, 369

d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
125, 136-137, 286, 328-329, 332

Topic C. Communications

Indicator 1: Present mathematical ideas using words, symbols, visual displays, or technology

Objectives

a. Use multiple representations to express concepts or solutions
102-103, 110-111, 116, 117, 382-383

b. Express mathematical ideas orally
14, 150, 230, 310, 490

c. Explain mathematically ideas in written form
125, 223, 309, 405, 529

d. Express solutions using concrete materials
444-446, 451, 466-468, 478

e. Express solutions using pictorial, tabular, graphical, or algebraic methods
50-51, 110-111, 154-155, 178-179, 488-489

f. Explain solutions in written form
63, 179, 245, 322, 328-329

g. Ask questions about mathematical ideas or problems
50, 111, 215, 314, 536

h. Give or use feedback to revise mathematical thinking
136-137, 141, 510-511, 517

Topic D. Connections

Indicator 1: Relate or apply mathematics within the discipline, to other disciplines, and to life

Objectives

a. Identify mathematical concepts in relationship to other mathematical concepts
284-285, 290-291, 330-331, 380-381, 386-387

b. Identify mathematical concepts in relationship to other disciplines
177, 277, 305, 347, 441

c. Identify mathematical concepts in relationship to life
249, 310-311, 358-359, 382-383, 403

d. Use the relationship among mathematical concepts to learn other mathematical concepts
284-285, 330-331, 376-377, 380-381, 382-383