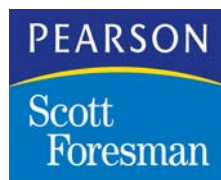


A Correlation of



to the

**Delaware**  
Mathematics  
Content Standards  
Grades K-2



O/M-149

## INTRODUCTION

This document demonstrates how well *Investigations in Number, Data, and Space*<sup>®</sup> integrates with the Delaware Mathematics Content Standards. The citations within this correlation provide Investigation Curriculum Unit titles, each Investigation number and Session number or Focus Time/Choice Time title correlated to the Delaware Mathematics Content Standards. Thus, teachers know exactly where instruction is located to prepare students for mastery of Delaware Mathematics Content Standards.

*Investigations in Number, Data, and Space*<sup>®</sup> is a Kindergarten through Grade 5 curriculum consisting of a series of Teacher's Editions that focus on major mathematical ideas, content, and pedagogy. Each book emphasizes depth of mathematical thinking over fragmented topics. Students invent strategies and approaches to solving problems and rely less on rote learning stressed in traditional textbooks. The program blends concrete materials with appropriate technology, including calculators in everyday mathematical lessons.

Developed by TERC under a grant from the National Science Foundation, *Investigations in Number, Data, and Space*<sup>®</sup> is comprehensive in its approach to students of diverse cultural, ethnic and language groups. In an effort to give mathematical lessons a broader spectrum, students are encouraged to explore working in groups, individually and as a whole class. By incorporating these methods into everyday learning, students learn to express mathematical thinking through talking, drawing, and writing.

*Investigations in Number, Data and Space*<sup>®</sup> was developed after three years of nationwide field-testing and includes teacher's practical suggestions, student dialogues, and teacher notes.

## Table of Contents

Kindergarten.....	1
Grade One.....	19
Grade Two.....	36

***Investigations in Number, Data, & Space***  
**to the**  
**Delaware Mathematics Content Standards**

**Kindergarten**

**STANDARD 1:** Students will develop their ability to SOLVE PROBLEMS by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts; to formulate their own problems; to find solutions to problems from everyday situations; to develop and apply strategies to solve a wide variety of problems; and to integrate mathematical reasoning, communication and connections.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**1.01 persist and solve problems from start to finish;**

Pattern Trains and Hopscotch Paths

Investigation 1: Choice Time: What's Missing?

How Many in All?

Investigation 3: Focus Time: Story problems

**1.02 investigate and build their understanding of mathematical content;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Pattern Trains and Hopscotch Paths

Investigation 1: Focus time: Cubes: What do You Notice?

Choice Time: Making Patterns

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

How many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with Cubes

**1.03 formulate problems from everyday and mathematical situations;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 3: Focus Time: Calendar

Investigation 4: Focus Time: Today's Question

**1.04 develop and apply strategies to solve problems;**

Mathematical Thinking in Kindergarten

Investigation 2: Focus Time: Counting Jar

Choice Time: Country Jar

Pattern Trains and Hopscotch Paths

Investigation 1: Choice Time: What's Missing?

Collecting, Counting and Measuring

Investigation 5: Focus Time: Six Tiles

Choice Time: Books of Six

How Many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with  
Cubes

Investigation 2: Focus Time: Six Tiles in All

Choice Time: Books of Six in All, Towers of Six

Investigation 3: Focus Time: Story Problems

Choice Time: Double Compare, Counters in a Cup,  
Racing Bears

Investigation 4: Focus Time: Five Crayons in All

Choice Time: Six Crayons in All, Total of Six

**1.05 interpret results with respect to the original problem;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

**1.06 generalize strategies and solutions to new problem situations.**

Counting Ourselves and Others

Investigation 1: Focus Time: Counting Noses, Counting Eyes

How Many in All?

Investigation 3: Focus Time: Story Problems

**STANDARD 2:** Students will develop their ability to COMMUNICATE

MATHEMATICALLY by solving problems in which there is a need to obtain information from the real world through reading, listening and observing; to translate this information into mathematical language and symbols; to process this information mathematically; and to present results in written, oral and visual formats.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**2.01 model real-world situations using oral, written, concrete, pictorial, graphical and algebraic methods;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 1: Focus Time: Today's Question

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book, Grab and Count

Investigation 2: Focus Time: Taking Inventory

Choice Time: Inventory Bags

How Many in All:

Investigation 1: Focus Time: Story Problems

**2.02 use reading, listening, viewing, speaking and writing to explain and develop mathematical ideas;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Patterns Trains and Hopscotch Paths

Investigation 1: Focus Time: Watching and Looking, Cubes: What do You Notice?

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book, Grab and Count

**2.03 use mathematical notation and language to describe and discuss real-world situations;**

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book

**2.04 read mathematics with understanding;**

How Many in All?

Investigation 3: Focus Time: Story Problems

**2.05 develop common understandings of mathematical ideas and use generalizations discovered through investigations to formulate definitions;**

Pattern Trains and Hopscotch Paths

Investigation 1: Focus Time: Cubes: What do you Notice?

Choice Time: Making Patterns

How Many in All?

Investigation 3: Focus Time: Story Problems

**2.06 ask questions to clarify the problem situation.**

Introduced in Grade 2

Mathematical thinking at Grade 2

Investigation 5: Session 1-2, 4-6

Coins, Coupons and Combinations

Investigation 1: Session 4-6, 10

Investigation 2: Session 1, 10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does it Walk, Crawl or Swim?

Investigation 2: Session 1-2

Investigation 3: Session 1-3

Shapes, Halves and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1, 4-5

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 3: Session 2-5

Investigation 5: Session 7

How Long? How Far?

Investigation 1: Session 1, 8

Investigation 2: Session 1-5

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**STANDARD 3:** Students will develop their ability to REASON MATHEMATICALLY by solving problems in which there is a need to investigate significant mathematical ideas in all content area; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thinking; to ask questions to extend their thinking; and to construct their own learning.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to use inductive and deductive reasoning to:***

**3.01 formulate and test conjectures;**

Introduced in Grade 1

Survey Questions and Secret Rules

Investigation 2: Session 3-4

**3.02 draw and then justify conclusions;**

Pattern Trains and Hopscotch Paths

Investigation 2: Choice Time: What Comes Next?

**3.03 construct and follow logical arguments;**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 1: Session 2-4

Investigation 2: Session 1-5

Investigation 3: Session 3-5

Investigation 4: Session 1-5

Investigation 5: Session 4-6

Coins, Coupons and Combinations

Investigation 1: Session 1, 6, 8-10

Investigation 2: Session 1-3, 7-9

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Does it Walk, Crawl or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-2

Investigation 4: Session 1

Investigation 5: Session 1-8

**3.04 use properties, models, known facts, and relationships to explain and defend their thinking.**

Pattern Trains and Hopscotch Paths

Investigation 1: Focus Time: What do you Notice?

Investigation 1: Choice Time: Making Patterns



**STANDARD 4:** Students will develop their ability to make MATHEMATICAL CONNECTIONS by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**4.01 make connections linking conceptual and procedural knowledge;**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 1-7

Investigation 3: Session 5

Investigation 4: Session 1-4

Coins, Coupons and Combinations

Investigation 1: Session 1-3, 6-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does it Walk, Crawl or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Shapes, Halves and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 2-3

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-5

Investigation 4: Session 1

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 2-7

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-4

**4.02 integrate mathematical problem-solving with other curricular areas;**

Introduced in Grade 1

Survey Questions and Secret Rules

Investigation 3: Session 2-3

**4.03 use connections among mathematical topics;**

How Many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with Cubes

**4.04 use various representations of the same concept;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Pattern Trains and Hopscotch Paths

Investigation 3: Focus Time: Hopscotch Paths

Choice Time: Hopscotch Paths, Tile Paths

Investigation 4: Choice Time: Color Tile Borders, 12 Chips, Staircase Patterns

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book, Grab and Count

Investigation 2: Focus Time: Taking Inventory

Choice Time: Inventory Bags

Investigation 3: Choice Time: Compare

Investigation 6: Focus Time: Six Tiles

Choice Time: Books of Six

How Many in All?

Investigation 2: Focus Time: Six Tiles in All

Choice Time: Books of Six in All, Towers of Six

Investigation 3: Choice Time: Double Compare, Counters in a Cup, Racing Bears

Investigation 4: Focus Time: Five Crayons in All

Choice Time: Six Crayons in All, Total of Six

**4.05 make connections from manipulative solutions to algorithmic solutions to technological solutions;**

How Many in All?

Investigation 3: Focus Time: Story Problems

**4.06 determine the reasonableness of a mathematical solution as it applies in a real-world situation.**

How Many in All:

Investigation 3: Focus Time: Story Problems

**STANDARD 5:** Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by electing appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

*Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:*

**5.10 estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and non-standard units;**

Mathematical Thinking in Kindergarten

Investigation 3: Focus Time: Calendar

Collecting, Counting, and Measuring

Investigation 3: Focus Time: Measurement Towers

Choice Time: Measuring Table

How Many in All:

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with Cubes

**5.11 determine the value of a given set of coins;**

Introduced in Grade 1

Number Games and Story Problems

Investigation 2: Session 3-8

**5.12 measure and compute the perimeter of rectangles;**

In Grade 2 can be developed from

Shapes, Halves and Symmetry

Investigation 2: Session 2-3

**5.13 use multiple computational procedures with whole numbers;**

Introduced in Grade 1

Mathematical Thinking at Grade 1

Investigation 4: Session 1-3

Building Number Sense

Investigation 1: Session 1-9

Investigation 2: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 3: Session 1-13

**5.14 add and subtract single-digit and multi-digit whole numbers;**

Collecting, Counting, and Measuring

Investigation 4: Choice Time: Collect 10 Together

Investigation 5: Choice Time: Racing Bears

How Many in All?

Investigation 2: Focus Time: Six Tiles in All

Choice Time: Books of Six in All, Towers of Six

Investigation 3: Focus Time: Story Problems

Choice Time: Double Compare, Counters in a Cup,  
Racing Bears

Investigation 4: Focus Time: Five Crayons in All

Choice Time: Six Crayons in All, Total of Six

**5.15 multiply whole numbers using at least one single-digit factor;**

In Grade 2 can be developed for

Coins, Coupons and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**5.16 divide whole numbers using single-digit divisors;**

This objective is addressed in Investigations Grade 3.

**5.17 make estimates before measuring, counting and computing;**

How Many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with  
Cubes**5.18 round whole numbers and values of money as an estimation strategy;**

Introduced in Grade 2

How Long? How Far?

Investigation 1: Session 1-4

**5.19 select appropriate measures to compare objects;**

Collecting, Counting, and Measuring

Investigation 3: Focus Time: Measurement Towers

Choice Time: Measuring Table

How Many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with Cubes

**5.20 compare objects through measurable attributes;**

Pattern Trains and Hopscotch Paths

Investigation 4: Choice Time: 12 Cups, Staircase Patterns

Collecting, Counting, and Measuring

Investigation 3: Focus Time: Measurement Towers

Choice Time: Measuring Table, Grab and Count: Which Has More?, Compare

Investigation 4: Choice Time: Comparing Names, Grab and Count: Compare

Investigation 5: Focus Time: Least to Most

Choice Time: Grab and Count: Least to Most

Counting Ourselves and Others

Investigation 1: Choice Time: Counting Chairs

Investigation 4: Focus Time: Who's Here? Who's Not?

How Many in All?

Investigation 2: Choice Time: Grab Two Handfuls

**5.21 read and write decimal notation when representing money.**

In Grade 2 can be developed from

Coins, Coupons and Combinations

Investigation 2: Session 6-9

**STANDARD 6:** Students will develop NUMBER SENSE by solving problems in which there is a need to represent and model real numbers verbally, physically and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**6.10 connect physical, verbal and symbolic representations of whole numbers;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 2: Focus Time: Counting Jar

Choice Time: Counting Jar

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book

**6.11 show whole/part relationships;**

Collecting, Counting, and Measuring

Investigation 4: Choice Time: Collect 10 Together

Investigation 5: Choice Time: Racing Bears

Making Shapes and Building Blocks

Investigation 3: Choice Time: The Shape of Things on the Computer

Investigation 5: Choice Time: Geoblock Match-Up

How Many in All?

Investigation 2: Focus Time: Six Tiles in All, Books of Six in All,  
Towers of SixInvestigation 3: Choice Time: Double Compare, Counters in a Cup,  
Racing Bears

Investigation 4: Focus Time: Five Crayons in All

Choice Time: Six Crayons in All, Total of Six

**6.12 use fractions to represent part of a whole and part of a set;**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 4: Session 1-5

Shapes, Halves and Symmetry

Investigation 3: Session 1-8

**6.13 decompose and recompose whole numbers using addition and subtraction;**

Collecting, Counting, and Measuring

Investigation 4: Choice Time: Collect 10 Together

Investigation 5: Choice Time: Racing Bears

How Many in All:

Investigation 2: Focus Time: Six Tiles in All

Choice Time: Books of Six in All, Towers of Six

Investigation 3: Choice Time: Double Compare, Counters in a Cup,  
Racing Bears

Investigation 4: Focus Time: Five Crayons in All

Choice Time: Six Crayons in All, Total of Six

**6.14 build whole numbers using the concept of place value using base ten;**

Introduced in Grade 2

Mathematical Thinking in Grade 2

Investigation 1: Session 1

Investigation 2: Session 2-3, 6-8

Coins, Coupons and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 4-8

**6.15 demonstrate an understanding of order relations for whole numbers;**

Collecting, Counting, and Measuring

Investigation 5: Focus Time: Least to Most

Choice Time: Grab and Count: Least to Most

**6.16 examine the relative effect of operations on whole numbers;**

How Many in All?

Investigation 3: Focus Time: Story Problems

**6.17 recognize the arbitrary size of a unit;**

How Many in All?

Investigation 1: Focus Time: Counting and Measuring

Choice Time: Measuring with Sticks, Measuring with  
Cubes**6.18 connect repeated addition with multiplication and repeated subtraction with  
division;**

In Grade 2 can be developed from

Coins, Coupons and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**6.19 recognize inverse operations; subtraction/addition and division/multiplication;**

- Coins, Coupons and Combinations
  - Investigation 3: Session 1-5
- Putting Together and Taking Apart
  - Investigation 1: Session 1-2
  - Investigation 3: Session 2

**6.20 count sets of objects and units of measure;**

- Mathematical Thinking in Kindergarten
  - Investigation 1: Focus Time: Attendance
  - Investigation 2: Focus Time: Counting Jar
    - Choice Time: Counting Jar
  - Investigation 4: Focus Time: Today's Question
- Pattern Trains and Hopscotch Paths
  - Investigation 2: Choice Time: Add On, Brake the Train, Make A Train
  - Investigation 4: Choice Time: 12 Chips
- Collecting, Counting and Measuring
  - Investigation 1: Focus Time: Counting Books
    - Choice Time: My Counting Book, Grab and Count, Counting Jar
  - Investigation 2: Focus Time: Taking Inventory
    - Choice Time: Inventory Bags
  - Investigation 3: Choice Time: Which Has More?
  - Investigation 4: Focus Time: Letters in Our Names
    - Choice Time: Collect 10 Together
  - Investigation 5: Focus Time: Least to Most
    - Choice Time: Racing Bears
- Counting Ourselves and Others
  - Investigation 1: Focus Time: How Many Are We?
    - Choice Time: Counting Chairs, Pattern Block Grab
  - Investigation 4: Focus Time: Who's Here? Who's Not?
- How Many in All?
  - Investigation 1: Focus Time: Counting and Measuring
    - Choice Time: Measuring with Sticks, Measuring with Cubes, Collect 15 Together, Inventory Bags
  - Investigation 2: Choice Time: Grab Two Handfuls



**6.21 count on, count back, and count by multiples.**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 2: Focus Time: Counting Jar

Choice Time: Counting Jar

Investigation 4: Focus Time: Today's Question

Collecting, Counting, and Measuring

Investigation 1: Focus Time: Counting Books

Choice Time: My Counting Book

**STANDARD 7:** Students will develop an understanding of ALGEBRA by solving problems in which there is a need to progress from the concrete to the abstract using physical models, equations and graphs; to generalize number patterns; and to describe, represent and analyze relationships among variable quantities.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**7.10 represent operations with symbols;**

How Many in All?

Investigation 4: Choice Time: Total of Six

**7.11 use symbols as representations of variables such as missing add ends or factors;**

Introduced in Grade 1

Number Games and Story Problems

Investigation 3: Session 9

**7.12 generate and write number sentences vertically and horizontally;**

How Many in All?

Investigation 4: Choice Time: Total of Six

**7.13 solve open sentences using informal methods.**

Introduced in Grade 1

Number Games and Story Problems

Investigation 3: Session 9

**STANDARD 8:** Students will develop SPATIAL SENSE and an understanding of GEOMETRY by solving problems in which there is a need recognize, construct, transform, analyze properties of, and discover relationships between, geometric figures.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**8.10 sort solid and plane figures by common attributes;**

Mathematical Thinking in Kindergarten

Investigation 1: Choice Time: Exploring Pattern Blocks, Exploring Geoblocks

Making Shapes and Building Blocks

Investigation 1: Focus Time: Looking at 2-D Shapes

Choice Time: Book of Shapes, Pattern Block Pictures, Shape Mural

Investigation 2: Choice Time: Pattern Block Puzzles

Investigation 3: Focus Time: 3-D Shapes in the Classroom

Choice Time: Shape Hunt, Exploring Geoblocks

Investigation 4: Focus Time: Clay Shapes

Choice Time: Clay Shapes

Investigation 5: Focus Time: A Close Look at Geoblocks

Choice Time: Matching Faces, Geoblock Match-up

**8.11 recognize congruence of geometric figures in the real world;**

Introduced in Grade 1

Quilt Squares and Block Towns

Investigation 3: Session 3-4

**8.12 identify and create symmetrical shapes (line symmetry);**

Introduced in Grade 2

Shapes, Halves and Symmetry

Investigation 4: Session 1-7

**8.13 draw an example of a flip, slide, or turn given a model;**

Making Shapes and Building Blocks

Investigation 2: Focus Time: Introducing the *Shapes* Software

Choice Time: Free Explore with *Shapes* on the Computer

Investigation 3: Choice Time: The Shape of Things on the Computer

**8.14 draw a square, rectangle, and triangle on grid paper;**

Making Shapes and Building Blocks

Investigation 4: Focus Time: Clay Shapes

Choice Time: Clay Shapes

**8.15 describe the effect of combining two or more shapes.**

Collecting, Counting, and Measuring

Investigation 6: Focus Time: Six Tiles

Choice Time: Books of Six

Making Shapes and Building Blocks

Investigation 1: Choice Time: Pattern Block Pictures, Shape Mural

Investigation 2: Choice Time: Pattern Block Puzzles

Investigation 3: Choice Time: The Shape of Things on the Computer

Investigation 4: Choice Time: Fill the Hexagons, Build a Block

Investigation 4: Choice Time: Planning Pictures on the Computer

**STANDARD 9:** Students will develop an understanding of STATISTICS AND PROBABILITY by solving problems in which there is a need to collect, appropriately represent, and interpret data; to make inferences or predictions; to present convincing arguments; and to model mathematical situations to determine the probability.

*Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:*

**9.10 collect data by observing, measuring, surveying and counting;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 4: Focus Time: Today's Question

Counting Ourselves and Others

Investigation 1: Focus Time: How Many Are We?, Counting Noses,  
Counting Eye2

Choice Time: Counting Chairs, Pattern Block Grab

Investigation 2: Focus Time: What Did You Eat for Lunch?

Investigation 3: Focus Time: Yes/No Surveys

Choice Time: Yes/No Surveys

Investigation 1: Focus Time: Who's Here? Who's Not?

**9.11 demonstrate a variety of techniques for representing and organizing data such as using physical objects, tallies, pictographs, and bar graphs;**

Mathematical Thinking in Kindergarten

Investigation 1: Focus Time: Attendance

Investigation 4: Focus Time: Today's Question

Counting Ourselves and Others

Investigation 1: Focus Time: How Many Are We?, Counting Noses,  
Counting Eyes

Choice Time: Pattern Block Grab

Investigation 2: Focus Time: What Did You Eat for Lunch?

Investigation 3: Focus Time: Yes/No Surveys

Choice Time: Yes/No Surveys

**9.12 interpret data by: looking for patterns and relationships, considering cause and effect, drawing conclusions, answering the stated question or related questions;**

Counting Ourselves and Others

Investigation 1: Focus Time: Counting Noses, Counting Eyes

Investigation 2: Focus Time: What Did You Eat for Lunch?

Investigation 3: Choice Time: Yes/No Surveys

**9.13 determine the likelihood of a simple chance event.**

In Grade 2 can be developed from

How Many Pockets? How Many Teeth?

Investigation 2: Session 3-6

**STANDARD 10:** Students will develop an understanding of PATTERNS, RELATIONSHIPS AND FUNCTIONS by solving problems in which there is a need to recognize and extend a variety of patterns; and to analyze, represent, model and describe real-world functional relationships.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**10.10 sort and classify objects by common attributes;**

Collecting, Counting, and Measuring

Investigation 3: Choice Time: Measuring Table

Counting Ourselves and Others

Investigation 1: Choice Time: Self-Portraits

Investigation 2: Focus Time: What Did You Eat for Lunch?

Choice Time: Same and Different, Boxes, Bottles and Cans, The Grocery Story, Clothing Sort

**10.11 recognize, analyze, create and extend visual, symbolic, oral and physical patterns;**

Mathematical Thinking in Kindergarten

Investigation 1: Choice Time: Exploring Pattern Block, Exploring Geoblocks

Patterns Trains and Hopscotch Paths

Investigation 1: Focus Time: Watching and Looking, Cubes: What do You Notice?

Choice Time: Making Patterns

Investigation 2: Focus Time: Patterns on the Pocket Chart

Choice Time: What Comes Next?, Pattern Block Snakes, Add On, Break The Train, Make A Train

Investigation 3: Focus Time: Hopscotch Paths  
Choice Time: Hopscotch Paths, Tile Paths  
Investigation 4: Focus Time: Pattern Borders  
Choice Time: Color Tile Borders, 12 Chips, Staircase  
Patterns

**10.12 sort numbers into different classes such as evens, odds, multiples and factors.**

Introduced in Grade 1

Number Games and Story Problems

Investigation 2: Session 2

***Investigations in Number, Data, & Space***  
**to the**  
**Delaware Mathematics Content Standards**

**Grade One**

**STANDARD 1:** Students will develop their ability to SOLVE PROBLEMS by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts; to formulate their own problems; to find solutions to problems from everyday situations; to develop and apply strategies to solve a wide variety of problems; and to integrate mathematical reasoning, communication and connections.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**1.01 persist and solve problems from start to finish;**

Mathematical Thinking at Grade 1  
Investigation 2: Session 1-6  
Building Number Sense  
Investigation 4: Session 1-10  
Quilt Squares and Block Towns  
Investigation 3: Session 6-7

**1.02 investigate and build their understanding of mathematical content;**

Mathematical Thinking at Grade 1  
Investigation 1: Session 1-4  
Investigation 2: Session 1-6  
Investigation 3: Session 5-6  
Building Number Sense  
Investigation 2: Session 1-9  
Quilt Squares and Block Towns  
Investigation 2: Session 1-10  
Number Games and Story Problems  
Investigation 1: Session 1-10  
Investigation 3: Session 1-13  
Bigger, Taller, Heavier, Smaller  
Investigation 1: Session 1-6  
Investigation 2: Session 1-7  
Investigation 3: Session 1-2

**1.03 formulate problems from everyday and mathematical situations;**

Building Number Sense

Investigation 2: Session 2

Survey Questions and Secret Rules

Investigation 3: Session 1-3

Investigation 4: Session 1-5

**1.04 develop and apply strategies to solve problems;**

Mathematical Thinking at Grade 1

Investigation 2: Session 1-6

Investigation 4: Session 6

Building Number Sense

Investigation 1: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 2: Session 1-2, 4-8, 10-13

Investigation 3: Session 1-13

**1.05 interpret results with respect to the original problem;**

Mathematical Thinking at Grade 1

Investigation 4: Session 1-3

Survey Questions and Secret Rules

Investigation 2: Session 5-6

Bigger, Taller, Heavier, Smaller

Investigation 2: Session 1-4

**1.06 generalize strategies and solutions to new problem situations.**

Mathematical Thinking at Grade 1

Investigation 2: Session 1-6

Investigation 4: Session 6

Building Number Sense

Investigation 1: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 2: Session 1-2, 4-8, 10-13

Investigation 3: Session 1-13

**STANDARD 2:** Students will develop their ability to COMMUNICATE MATHEMATICALLY by solving problems in which there is a need to obtain information from the real world through reading, listening and observing; to translate this information into mathematical language and symbols; to process this information mathematically; and to present results in written, oral and visual formats.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**2.01 model real-world situations using oral, written, concrete, pictorial, graphical and algebraic methods;**

Building Number Sense

Investigation 2: Session 1-9

Survey Questions and Secret Rules

Investigation 3: Session 1-3

Investigation 4: Session 1-5

Number Games and Story Problems

Investigation 3: Session 1-13

**2.02 use reading, listening, viewing, speaking and writing to explain and develop mathematical ideas;**

Mathematical Thinking at Grade 1

Investigation 1: Session 1-4

Investigation 2: Session 1-6

Investigation 3: Session 5-6

Building Number Sense

Investigation 1: Session 1-9

Investigation 2: Session 1-9

Bigger, Taller, Heavier, Smaller

Investigation 1: Session 1-6

**2.03 use mathematical notation and language to describe and discuss real-world situations;**

Number Games and Story Problems

Investigation 3: Session 1-13

**2.04 read mathematics with understanding;**

Building Number Sense

Investigation 4: Session 1-13



**2.05 develop common understandings of mathematical ideas and use generalizations discovered through investigations to formulate definitions;**

Mathematical Thinking at Grade 1

Investigation 3: Session 5-6

Quilt Squares and Block Towns

Investigation 2: Session 1-10

**2.06 ask questions to clarify the problem situation.**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 5: Session 1-2, 4-6

Coins, Coupons, and Combinations

Investigation 1: Session 4-6, 10

Investigation 2: Session 1, 10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl or Swim?

Investigation 2: Session 1-2

Investigation 3: Session 1-3

Shapes, Halves and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1, 4-5

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 3: Session 2-5

Investigation 5: Session 7

How Long? How Far?

Investigation 1: Session 1, 8

Investigation 2: Session 1-5

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**STANDARD 3:** Students will develop their ability to REASON MATHEMATICALLY by solving problems in which there is a need to investigate significant mathematical ideas in all content area; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thinking; to ask questions to extend their thinking; and to construct their own learning.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to use inductive and deductive reasoning to:***

**3.01 formulate and test conjectures;**

Survey Questions and Secret Rules  
Investigation 2: Session 3-4

**3.02 draw and then justify conclusions;**

Mathematical Thinking in Grade 1  
Investigation 2: Session 4-6  
Investigation 4: Session 5

**3.03 construct and follow logical arguments;**

Introduced in Grade 2

Investigation 1: Session 2-4  
Investigation 2: Session 1-5  
Investigation 3: Session 3-5  
Investigation 4: Session 1-5  
Investigation 5: Session 4-6

Coins, Coupons and Combinations

Investigation 1: Session 1, 6, 8-10  
Investigation 2: Session 1-3, 7-9  
Investigation 3: Session 1-5  
Investigation 4: Session 1-4

Does It Walk, Crawl or Swim:

Investigation 1: Session 1-6  
Investigation 2: Session 1-4

Putting Together and Taking Apart

Investigation 1: Session 1-4  
Investigation 2: Session 3-4  
Investigation 3: Session 1-2  
Investigation 4: Session 1  
Investigation 5: Session 1-8

**3.04 use properties, models, known facts, and relationships to explain and defend their thinking.**

Mathematical Thinking at Grade 1

Investigation 2: Session 1-6

Quilt Squares and Block Towns

Investigation 2: Session 1-10

**STANDARD 4:** Students will develop their ability to make MATHEMATICAL CONNECTIONS by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.

*Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:*

**4.01 make connections linking conceptual and procedural knowledge;**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 1-7

Investigation 3: Session 5

Investigation 4: Session 1-4

Coins, Coupons and Combinations

Investigation 1: Session 1-3, 6-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 2-3

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-5

Investigation 4: Session 1

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 2-7

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-4

**4.02 integrate mathematical problem-solving with other curricular areas;**

Survey Questions and Secret Rules

Investigation 3: Session 2-3

**4.03 use connections among mathematical topics;**

Building Number Sense

Investigation 1: Session 1-9

Quilt Squares and Block Towns

Investigation 1: Session 2-10, 13-15

Investigation 2: Session 1-10

**4.04 use various representations of the same concept;**

Building Number Sense

Investigation 2: Session 1-9

Investigation 4: Session 1-10

Survey Questions and Secret Rules

Investigation 4: Session 1-5

Number Games and Story Problems

Investigation 1: Session 1-10

**4.05 make connections from manipulative solutions to algorithmic solutions to \ technological solutions;**

Building Number Sense

Investigation 1: Session 1-9

Investigation 2: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

**4.06 determine the reasonableness of a mathematical solution as it applies in a real-world situation.**

Introduced in Grade 2

Mathematical Thinking at Grade 2

Investigation 2: Session 1

Investigation 3: Session 3-5

Investigation 4: Session 1, 5

Investigation 5: Session 3

Coins, Coupons and Combinations

Investigation 1: Session 1, 4-6, 10

Investigation 2: Session 1, 4-6

Investigation 3: Session 1-5

Does It Walk, Crawl or Swim

Investigation 2: Session 1-2

Shapes, Halves and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1-3

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 5-6

Investigation 3: Session 3-5

Investigation 4: Session 2-4

How Long? How Far?

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 3-5

Investigation 2: Session 1-5

**STANDARD 5:** Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by electing appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**5.10 estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and non-standard units;**

Quilt Squares and Block Towns

Investigation 3: Session 6-7

Bigger, Taller, Heavier, Smaller

Investigation 1: Session 1-6

Investigation 3: Session 1-5

**5.11 determine the value of a given set of coins;**

Number Games and Story Problems

Investigation 2: Session 3-8

**5.12 measure and compute the perimeter of rectangles;**

In Grade 2 can be developed from

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

**5.13 use multiple computational procedures with whole numbers;**

Mathematical Thinking at Grade 1

Investigation 4: Session 1-3

Building Number Sense

Investigation 1: Session 1-9

Investigation 2: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 3: Session 1-13

**5.14 add and subtract single-digit and multi-digit whole numbers;**

Building Number Sense

Investigation 2: Session 1-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 3: Session 1-13

**5.15 multiply whole numbers using at least one single-digit factor;**

In Grade 2 can be developed from

Coins, Coupons and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**5.16 divide whole numbers using single-digit divisors;**

This objective is addressed in Investigations Grade 3.

**5.17 make estimates before measuring, counting and computing;**

Building Number Sense

Investigation 3: Session 3-7, 9

Bigger, Taller, Heavier, Smaller

Investigation 2: Session 1

**5.18 round whole numbers and values of money as an estimation strategy;**

Introduced in Grade 2

How Long? How Far?

Investigation 1: Session 1-4

**5.19 select appropriate measures to compare objects;**

Bigger, Taller, Heavier, Smaller

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

**5.20 compare objects through measurable attributes;**

Survey Questions and Secret Rules

Investigation 4: Session 1-5

Quilt Squares and Block Towns

Investigation 2: Session 1-7

Investigation 3: Session 6-7

Bigger, Taller, Heavier, Smaller

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

**5.21 read and write decimal notation when representing money.**

In Grade 2 can be developed from  
Coins, Coupons and Combinations  
Investigation 2: Session 6-9

**STANDARD 6:** Students will develop NUMBER SENSE by solving problems in which there is a need to represent and model real numbers verbally, physically and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**6.10 connect physical, verbal and symbolic representations of whole numbers;**

Mathematical Thinking at Grade 1  
Investigation 1: Session 2-4  
Investigation 4: Session 1-6  
Building Number Sense  
Investigation 4: Session 1-10  
Number Games and Story Problems  
Investigation 1: Session 1-10

**6.11 show whole/part relationships;**

Building Number Sense  
Investigation 1: Session 1-9  
Investigation 2: Session 1-9  
Investigation 4: Session 1-10  
Number Games and Story Problems  
Investigation 1: Session 1-10

**6.12 use fractions to represent part of a whole and part of a set;**

Introduced in Grade 2  
Mathematical Thinking at Grade 2  
Investigation 4: Session 1-5  
Shapes, Halves and Symmetry  
Investigation 3: Session 1-8

**6.13 decompose and recompose whole numbers using addition and subtraction;**

Number Games and Story Problems  
Investigation 1: Session 1-10



**6.14 build whole numbers using the concept of place value using base ten;**

Introduced In Grade 2

Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 2-3, 6-8

Coins, Coupons and Combinations

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 2: Session 4-8

**6.15 demonstrate an understanding of order relations for whole numbers;**

Mathematical Thinking in Grade 1

Investigation 2: Session 1-6

Investigation 4: Session 2-3

Building Number Sense

Investigation 3: Session 1-7, 9

Survey Questions and Secret Rules

Investigation 3: Session 1-3

**6.16 examine the relative effect of operations on whole numbers;**

Building Number Sense

Investigation 4: Session 1-2

Number Games and Story Problems

Investigation 3: Session 1-2

**6.17 recognize the arbitrary size of a unit;**

Bigger, Taller, Heavier, Smaller

Investigation 2: Session 2-4

**6.18 connect repeated addition with multiplication and repeated subtraction with division;**

In Grade 2 can be developed from

Coins, Coupons and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**6.19 recognize inverse operations; subtraction/addition and division/multiplication;**

Introduced in Grade 2

Coins, Coupons and Combinations

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1-2

Investigation 3: Session 2

**6.20 count sets of objects and units of measure;**

Mathematical Thinking at Grade 1

Investigation 1: Session 2-4

Investigation 2: Session 106

Investigation 4: Session 1-6

Investigation 5: Session 1-2

Building Number Sense

Investigation 3: Session 1-7, 9

Quilt Squares and Block Towns

Investigation 1: Session 2-7

Number Games and Story Problems

Investigation 1: Session 1-5

Investigation 2: Session 1-8, 10-13

**6.21 count on, count back, and count by multiples.**

Mathematical Thinking at Grade 1

Investigation 1: Session 2-4

Investigation 2: Session 1-6

Investigation 4: Session 1-6

Investigation 5: Session 2

Number Games and Story Problems

Investigation 2: Session 1-2, 4-13

**STANDARD 7:** Students will develop an understanding of ALGEBRA by solving problems in which there is a need to progress from the concrete to the abstract using physical models, equations and graphs; to generalize number patterns; and to describe, represent and analyze relationships among variable quantities.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**7.10 represent operations with symbols;**

Building Number Sense

Investigation 2: Session 1-2, 6-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 3: Session 1-13

**7.11 use symbols as representations of variables such as missing add ends or factors;**

Number Games and Story Problems

Investigation 3: Session 9

**7.12 generate and write number sentences vertically and horizontally;**

Building Number Sense

Investigation 2: Session 1-2, 6-9

Investigation 4: Session 1-10

Number Games and Story Problems

Investigation 1: Session 1-10

Investigation 3: Session 1-13

**7.13 solve open sentences using informal methods.**

Number Games and Story Problems

Investigation 3: Session 9

**STANDARD 8:** Students will develop SPATIAL SENSE and an understanding of GEOMETRY by solving problems in which there is a need recognize, construct, transform, analyze properties of, and discover relationships between, geometric figures.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**8.10 sort solid and plane figures by common attributes;**

Mathematical Thinking at Grade 1

Investigation 1: Session 1-4

Survey Questions and Secret Rules

Investigation 1: Session 1-2

Quilt Squares and Block Towns

Investigation 1: Session 3-6, 8-15

Investigation 2: Session 1-10

Investigation 3: Session 1-2, 5

**8.11 recognize congruence of geometric figures in the real world;**

Quilt Squares and Block Towns

Investigation 3: Session 3-4

**8.12 identify and create symmetrical shapes (line symmetry);**

Introduced in Grade 2

Investigation 4: Session 1-7

**8.13 draw an example of a flip, slide, or turn given a model;**

Quilt Squares and Block Towns

Investigation 1: Session 13-15

**8.14 draw a square, rectangle, and triangle on grid paper;**

Quilt Squares and Block Towns

Investigation 1: Session 11-15

**8.15 describe the effect of combining two or more shapes.**

Quilt Squares and Block Towns

Investigation 1: Session 2-10

Investigation 2: Session 1-10

Investigation 3: Session 1-2, 5

**STANDARD 9:** Students will develop an understanding of STATISTICS AND PROBABILITY by solving problems in which there is a need to collect, appropriately represent, and interpret data; to make inferences or predictions; to present convincing arguments; and to model mathematical situations to determine the probability.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**9.10 collect data by observing, measuring, surveying and counting;**

Mathematical Thinking at Grade 1

Investigation 5: Session 2-6

Survey Questions and Secret Rules

Investigation 2: Session 1-6

Investigation 3: Session 1-3

Bigger, Taller, Heavier, Smaller

Investigation 2: Session 1

**9.11 demonstrate a variety of techniques for representing and organizing data such as using physical objects, tallies, pictographs, and bar graphs;**

Mathematical Thinking at Grade 1

Investigation 5: Session 2-6

Survey Questions and Secret Rules

Investigation 2: Session 1-6

Investigation 3: Session 1-3

Investigation 4: Session 1-5

**9.12 interpret data by: looking for patterns and relationships, considering cause and effect, drawing conclusions, answering the stated question or related questions;**

Mathematical Thinking at Grade 1

Investigation 5: Session 3-6

Survey Questions and Secret Rules

Investigation 2: Session 5-6

Investigation 3: Session 1-3

Investigation 4: Session 1-5

**9.13 determine the likelihood of a simple chance event.**

In Grade 2 can be developed from

How Many Pockets? How Many Teeth?

Investigation 2: Session 3-6

**STANDARD 10:** Students will develop an understanding of PATTERNS, RELATIONSHIPS AND FUNCTIONS by solving problems in which there is a need to recognize and extend a variety of patterns; and to analyze, represent, model and describe real-world functional relationships.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**10.10 sort and classify objects by common attributes;**

Mathematical Thinking at Grade 1

Investigation 1: Session 1-4

Survey Questions and Secret Rules

Investigation 1: Session 1-6

Investigation 2: Session 3-4

**10.11 recognize, analyze, create and extend visual, symbolic, oral and physical patterns;**

Mathematical Thinking at Grade 1

Investigation 3: Session 1-6

Investigation 4: Session 2-3, 5-6

Building Number Sense

Investigation 3: Session 1-8

Quilt Squares and Block Towns

Investigation 1: Session 3-6, 13-15

**10.12 sort numbers into different classes such as evens, odds, multiples and factors.**

Number Games and Story Problems

Investigation 2: Session 2

***Investigations in Number, Data, & Space***  
**to the**  
**Delaware Mathematics Content Standards**

**Grade Two**

**STANDARD 1:** Students will develop their ability to SOLVE PROBLEMS by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts; to formulate their own problems; to find solutions to problems from everyday situations; to develop and apply strategies to solve a wide variety of problems; and to integrate mathematical reasoning, communication and connections.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**1.01 persist and solve problems from start to finish;**

Mathematical Thinking at Grade 2

Investigation 2: Session 4-6, 8

Investigation 3: Session 1-6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 3-6

Investigation 3: Session 1-8

Investigation 4: Session 3-4

Putting Together and Taking Apart

Investigation 1: Session 1-7

Investigation 2: Session 1-5

Investigation 3: Session 1-4

Investigation 4: Session 1-8

How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

## **1.02 investigate and build their understanding of mathematical content;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1-4

Investigation 2: Session 1-8

Investigation 3: Session 1-6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 2-3

Investigation 3: Session 3-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 1-7

Investigation 2: Session 2-8



How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**1.03 formulate problems from everyday and mathematical situations;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1-4

Investigation 2: Session 1-8

Investigation 3: Session 1-6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 1-8

Investigation 2: Session 1-6

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 5-6

Investigation 2: Session 5-6

Investigation 3: Session 2-5

Investigation 4: Session 1-4

Investigation 5: Session 1-3

How Long? How Far?

Investigation 1: Session 2-4

Investigation 2: Session 1

How Many Pockets? How Many Teeth?

Investigation 1: Session 3-5

Investigation 3: Session 2-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-4

**1.04 develop and apply strategies to solve problems;**

## Mathematical Thinking at Grade 2

Investigation 2: Session 4-6, 8

Investigation 3: Session 1-6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

## Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

## Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

## Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 3-6

Investigation 3: Session 1-8

Investigation 4: Session 3-4

## Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

## How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

## How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

## Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**1.05 interpret results with respect to the original problem;**

## Mathematical Thinking at Grade 2

Investigation 1: Session 2-4

Investigation 2: Session 2-3, 6-8

Investigation 3: Session 1-4, 6

Investigation 4: Session 1-5

Investigation 5: Session 4-5

## Coins, Coupons, and Combinations

Investigation 1: Session 1-3, 6-11

Investigation 2: Session 1-10

Investigation 3: Session 1-2

Investigation 4: Session 1-5

## Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

## Shapes, Halves, and Symmetry

Investigation 1: Session 1-8

Investigation 2: Session 1-6

Investigation 3: Session 1-8

Investigation 4: Session 1-7

## Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

## How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

## How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**1.06 generalize strategies and solutions to new problem situations.**

## Mathematical Thinking at Grade 2

Investigation 2: Session 4-6, 8

Investigation 3: Session 1-6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

## Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

## Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

## Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 3-6

Investigation 3: Session 1-8

Investigation 4: Session 3-4

## Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

## How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

## How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

## Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**STANDARD 2:** Students will develop their ability to COMMUNICATE MATHEMATICALLY by solving problems in which there is a need to obtain information from the real world through reading, listening and observing; to translate this information into mathematical language and symbols; to process this information mathematically; and to present results in written, oral and visual formats.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**2.01 model real-world situations using oral, written, concrete, pictorial, graphical and algebraic methods;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1-4

Investigation 2: Session 6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 3-4

Investigation 3: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 1-8

Investigation 2: Session 1-6

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-5

**2.02 use reading, listening, viewing, speaking and writing to explain and develop mathematical ideas;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1-4

Investigation 2: Session 6

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 3-4

Investigation 3: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 1-8

Investigation 2: Session 1-6

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 1-8

Investigation 2: Session 1-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-5

**2.03 use mathematical notation and language to describe and discuss real-world situations;**

## Mathematical Thinking at Grade 2

Investigation 2: Session 1

Investigation 3: Session 3-5

Investigation 4: Session 1, 5

Investigation 5: Session 3

## Coins, Coupons, and Combinations

Investigation 1: Session 1, 4-6, 10

Investigation 2: Session 1, 4-6

Investigation 3: Session 1-5

Investigation 4: Session 1

## Does It Walk, Crawl, or Swim?

Investigation 2: Session 1-2

## Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1-3

Investigation 3: Session 1-8

## Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 5-6

Investigation 3: Session 2-5

Investigation 4: Session 2-4

## How Long? How Far?

Investigation 2: Session 2-8

## How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-5

**2.04 read mathematics with understanding;**

## Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 1-6

Investigation 3: Session 1-2, 5

Investigation 4: Session 1, 5

- Coins, Coupons, and Combinations
  - Investigation 1: Session 1, 4-6, 10
  - Investigation 2: Session 1, 4-6
  - Investigation 3: Session 1-5
  - Investigation 4: Session 1
- Does It Walk, Crawl, or Swim?
  - Investigation 2: Session 1-2
  - Investigation 3: Session 1-3
- Shapes, Halves, and Symmetry
  - Investigation 1: Session 2-8
  - Investigation 2: Session 1-3
  - Investigation 3: Session 1-8
- Putting Together and Taking Apart
  - Investigation 1: Session 1, 5-6
  - Investigation 5: Session 2-4
- Timelines and Rhythm Patterns
  - Investigation 2: Session 1-5

**2.05 develop common understandings of mathematical ideas and use generalizations discovered through investigations to formulate definitions;**

- Mathematical Thinking at Grade 2
  - Investigation 5: Session 1-2, 4-6
- Coins, Coupons, and Combinations
  - Investigation 1: Session 4-6, 10
  - Investigation 2: Session 1, 10
  - Investigation 3: Session 1-5
  - Investigation 4: Session 1-5
- Does It Walk, Crawl, or Swim?
  - Investigation 2: Session 1-2
  - Investigation 3: Session 1-3
  
- Shapes, Halves, and Symmetry
  - Investigation 1: Session 2-8
  - Investigation 2: Session 1, 4-5
  - Investigation 3: Session 1-8
  - Investigation 4: Session 1-7
- Putting Together and Taking Apart
  - Investigation 1: Session 1-6
  - Investigation 3: Session 2-5
  - Investigation 5: Session 7
- How Long? How Far?
  - Investigation 1: Session 1, 8
  - Investigation 2: Session 1-5



How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**2.06 ask questions to clarify the problem situation.**

Mathematical Thinking at Grade 2

Investigation 5: Session 1-2, 4-6

Coins, Coupons, and Combinations

Investigation 1: Session 4-6, 10

Investigation 2: Session 1, 10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 2: Session 1-2

Investigation 3: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1, 4-5

Investigation 3: Session 1-8

Investigation 4: Session 1-7

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 3: Session 2-5

Investigation 5: Session 7

How Long? How Far?

Investigation 1: Session 1, 8

Investigation 2: Session 1-5

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-6

Investigation 2: Session 1-5

**STANDARD 3:** Students will develop their ability to REASON MATHEMATICALLY by solving problems in which there is a need to investigate significant mathematical ideas in all content area; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thinking; to ask questions to extend their thinking; and to construct their own learning.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to use inductive and deductive reasoning to:***

**3.01 formulate and test conjectures;**

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

How Long? How Far?

Investigation 2: Session 1-3

How Many Pockets? How Many Teeth?

Investigation 1: Session 1, 4-5

Investigation 2: Session 1-6

**3.02 draw and then justify conclusions;**

Mathematical Thinking at Grade 2

Investigation 1: Session 2-4

Investigation 2: Session 1-5

Investigation 3: Session 3-5

Investigation 4: Session 1-5

Investigation 5: Session 4-6

Coins, Coupons, and Combinations

Investigation 1: Session 1, 6, 8-10

Investigation 2: Session 1-3, 7-9

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-2

Investigation 4: Session 1

Investigation 5: Session 1-8

**3.03 construct and follow logical arguments;**

Mathematical Thinking at Grade 2

Investigation 1: Session 2-4

Investigation 2: Session 1-5

Investigation 3: Session 3-5

Investigation 4: Session 1-5

Investigation 5: Session 4-6

Coins, Coupons, and Combinations

Investigation 1: Session 1, 6, 8-10

Investigation 2: Session 1-3, 7-9

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-2

Investigation 4: Session 1

Investigation 5: Session 1-8

**3.04 use properties, models, known facts, and relationships to explain and defend their thinking.**

Mathematical Thinking at Grade 2

Investigation 1: Session 2-4

Investigation 2: Session 1-5

Investigation 3: Session 3-5

Investigation 4: Session 1-5

Investigation 5: Session 4-6

Coins, Coupons, and Combinations

Investigation 1: Session 1, 6, 8-10

Investigation 2: Session 1-3, 7-9

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-2

Investigation 4: Session 1

Investigation 5: Session 1-8

**STANDARD 4:** Students will develop their ability to make MATHEMATICAL CONNECTIONS by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-10 will be able to:***

**4.01 make connections linking conceptual and procedural knowledge;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 1-7

Investigation 3: Session 5

Investigation 4: Session 1-4

Coins, Coupons, and Combinations

Investigation 1: Session 1-3, 6-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 2-3

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 1: Session 1-4

Investigation 2: Session 3-4

Investigation 3: Session 1-5

Investigation 4: Session 1

Investigation 5: Session 1-8

How Long? How Far?

Investigation 1: Session 2-7

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-4

**4.02 integrate mathematical problem-solving with other curricular areas;**

## Mathematical Thinking at Grade 2

Investigation 2: Session 1-5, 7

Investigation 4: Session 2-4

## Coins, Coupons, and Combinations

Investigation 1: Session 6-9

## Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

## Shapes, Halves, and Symmetry

Investigation 4: Session 1-7

## Putting Together and Taking Apart

Investigation 3: Session 1-5

Investigation 5: Session 1-6, 8

## How Long? How Far?

Investigation 2: Session 1-3

**4.03 use connections among mathematical topics;**

## Mathematical Thinking at Grade

Investigation 1: Session 4

Investigation 3: Session 1-5

## Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

Investigation 3: Session 1-8

Investigation 4: Session 1-7

## How Long? How Far?

Investigation 1: Session 2-8

Investigation 2: Session 2-8

## Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-3

**4.04 use various representations of the same concept;**

Mathematical Thinking at Grade 2

Investigation 1: Session 4

Investigation 3: Session 1-5

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

Investigation 3: Session 1-8

Investigation 4: Session 1-7

How Long? How Far?

Investigation 1: Session 2-8

Investigation 2: Session 2-8

Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-3

**4.05 make connections from manipulative solutions to algorithmic solutions to technological solutions;**

Mathematical Thinking at Grade 2

Investigation 1: Session 1-3

Investigation 3: Session 1-4

Coins, Coupons, and Combinations

Investigation 1: Session 7-9

Investigation 2: Session 1-9

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-2

Investigation 2: Session 3-4

Investigation 3: Session 2-3

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 3-5

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 2: Session 3-4

Investigation 5: Session 2-3, 6, 8

How Long? How Far?

Investigation 1: Session 2-8

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

Timelines and Rhythm Patterns

Investigation 1: Session 1-5

Investigation 2: Session 1-5

**4.06 determine the reasonableness of a mathematical solution as it applies in a real-world situation.**

Mathematical Thinking at Grade 2

Investigation 2: Session 1

Investigation 3: Session 3-5

Investigation 4: Session 1, 5

Coins, Coupons, and Combinations

Investigation 1: Session 1, 4-6, 10

Investigation 2: Session 1, 4-6

Investigation 3: Session 1-5

Does It Walk, Crawl, or Swim?

Investigation 2: Session 1-2

Shapes, Halves, and Symmetry

Investigation 1: Session 2-8

Investigation 2: Session 1-3

Investigation 3: Session 1-8

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 5-6

Investigation 3: Session 3-5

Investigation 4: Session 2-4

How Long? How Far?

Investigation 2: Session 2-8

How Many Pockets? How Many Teeth?

Investigation 1: Session 2-5

Investigation 2: Session 1-6

Investigation 3: Session 2-5

Timelines and Rhythm Patterns

Investigation 1: Session 3-5

Investigation 2: Session 1-5

**STANDARD 5:** Students will develop an understanding of ESTIMATION, MEASUREMENT, and COMPUTATION by solving problems in which there is a need to measure to a required degree of accuracy by electing appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**5.10 estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and non-standard units;**

How Long? How Far?

Investigation 1: Session 1-4, 8

Investigation 2: Session 4-5

**5.11 determine the value of a given set of coins;**

Mathematical Thinking at Grade 2

Investigation 4: Session 2-4

Coins, Coupons, and Combinations

Investigation 2: Session 6-9

Putting Together and Taking Apart

Investigation 2: Session 5-6

Investigation 4: Session 3-4

**5.12 measure and compute the perimeter of rectangles;**

Can be developed from

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

**5.13 use multiple computational procedures with whole numbers;**

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 2: Session 1-10

Investigation 3: Session 1-5

Investigation 4: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 2: Session 4-8

**5.14 add and subtract single-digit and multi-digit whole numbers;**

Mathematical Thinking at Grade 2

Investigation 2: Session 1-8

Investigation 4: Session 1-5

Investigation 5: Session 1-6

Coins, Coupons, and Combinations

Investigation 1: Session 1-11

Investigation 3: Session 1-5

Investigation 4: Session 1-5



Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1-7

Investigation 3: Session 1-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

How Long? How Far?

Investigation 2: Session 4-8

**5.15 multiply whole numbers using at least one single-digit factor;**

Can be developed from

Coins, Coupons and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**5.16 divide whole numbers using single-digit divisors;**

This objective is addressed in *Investigations*, grade 3.

**5.17 make estimates before measuring, counting and computing;**

How Long? How Far?

Investigation 1: Session 1-4

**5.18 round whole numbers and values of money as an estimation strategy;**

How Long? How Far?

Investigation 1: Session 1-4

**5.19 select appropriate measures to compare objects;**

Mathematical Thinking at Grade 2

Investigation 4: Session 1, 5

Investigation 5: Session 1-3

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

How Long? How Far?

Investigation 1: Session 1-8

**5.20 compare objects through measurable attributes;**

Mathematical Thinking at Grade 2

Investigation 4: Session 1, 5

Investigation 5: Session 1-3

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

How Long? How Far?

Investigation 1: Session 1-8

Timelines and Rhythm Patterns

Investigation 1: Session 4-6

**5.21 read and write decimal notation when representing money.**

Can be developed from  
Coins, Coupons, and Combinations  
Investigation 2: Session 6-9

**STANDARD 6:** Students will develop NUMBER SENSE by solving problems in which there is a need to represent and model real numbers verbally, physically and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**6.10 connect physical, verbal and symbolic representations of whole numbers;**

Mathematical Thinking at Grade 2  
Investigation 1: Session 1-4  
Investigation 2: Session 1-8  
Investigation 3: Session 1-6  
Investigation 4: Session 1-5  
Investigation 5: Session 1-6  
Coins, Coupons, and Combinations  
Investigation 1: Session 1-11  
Investigation 2: Session 1-10  
Investigation 3: Session 1-5  
Investigation 4: Session 1-5  
Putting Together and Taking Apart  
Investigation 1: Session 1-6  
Investigation 2: Session 1-7  
Investigation 3: Session 1-5  
Investigation 4: Session 1-4  
Investigation 5: Session 1-8  
How Many Pockets? How Many Teeth?  
Investigation 2: Session 1-2, 4-5  
Timelines and Rhythm Patterns  
Investigation 1: Session 1

**6.11 show whole/part relationships;**

Mathematical Thinking at Grade 2  
Investigation 4: Session 1-5  
Shapes, Halves, and Symmetry  
Investigation 3: Session 1-8

**6.12 use fractions to represent part of a whole and part of a set;**

Mathematical Thinking at Grade 2  
Investigation 4: Session 1-5  
Shapes, Halves, and Symmetry  
Investigation 3: Session 1-8

**6.13 decompose and recompose whole numbers using addition and subtraction;**

Mathematical Thinking at Grade 2  
Investigation 1: Session 1  
Investigation 2: Session 2-3, 6-8  
Coins, Coupons, and Combinations  
Investigation 1: Session 1-11  
Investigation 2: Session 1-10  
Investigation 3: Session 1-5  
Investigation 4: Session 1-5  
Putting Together and Taking Apart  
Investigation 1: Session 1-6  
Investigation 2: Session 1-7  
Investigation 3: Session 1-5  
Investigation 4: Session 1-4  
Investigation 5: Session 1-8  
How Long? How Far?  
Investigation 2: Session 4-8

**6.14 build whole numbers using the concept of place value using base ten;**

Mathematical Thinking at Grade 2  
Investigation 1: Session 1  
Investigation 2: Session 2-3, 6-8  
Coins, Coupons, and Combinations  
Investigation 1: Session 1-11  
Investigation 2: Session 1-10  
Investigation 3: Session 1-5  
Investigation 4: Session 1-5  
Putting Together and Taking Apart  
Investigation 1: Session 1-6  
Investigation 2: Session 1-7  
Investigation 3: Session 1-5  
Investigation 4: Session 1-4  
Investigation 5: Session 1-8  
How Long? How Far?  
Investigation 2: Session 4-8

**6.15 demonstrate an understanding of order relations for whole numbers;**

Coins, Coupons, and Combinations

Investigation 4: Session 2-4

Putting Together and Taking Apart

Investigation 2: Session 1-2

**6.16 examine the relative effect of operations on whole numbers;**

Coins, Coupons, and Combinations

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 2: Session 7

Investigation 5: Session 2-3, 6-8

**6.17 recognize the arbitrary size of a unit;**

How Long? How Far?

Investigation 1: Session 5-8

Timelines and Rhythm Patterns

Investigation 1: Session 1-3

**6.18 connect repeated addition with multiplication and repeated subtraction with division;**

Can be developed from

Coins, Coupons, and Combinations

Investigation 1: Session 4-5

Investigation 2: Session 1-5, 10

**6.19 recognize inverse operations; subtraction/addition and division/multiplication;**

Coins, Coupons, and Combinations

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1-2

Investigation 3: Session 2

**6.20 count sets of objects and units of measure;**

Mathematical Thinking at Grade 2

Investigation 4: Session 1-5

Shapes, Halves, and Symmetry

Investigation 2: Session 2-3

How Long? How Far?

Investigation 1: Session 1-8

**6.21 count on, count back, and count by multiples.**

Mathematical Thinking at Grade 2

Investigation 2: Session 6

Investigation 4: Session 1-5

Investigation 5: Session 4-5

Coins, Coupons, and Combinations

Investigation 2: Session 1-10

Putting Together and Taking Apart

Investigation 2: Session 1-7

Investigation 5: Session 2-3

**STANDARD 7:** Students will develop an understanding of ALGEBRA by solving problems in which there is a need to progress from the concrete to the abstract using physical models, equations and graphs; to generalize number patterns; and to describe, represent and analyze relationships among variable quantities.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**7.10 represent operations with symbols;**

Coins, Coupons, and Combinations

Investigation 1: Session 1, 4-11

Investigation 2: Session 4-5

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1-6

Investigation 2: Session 1, 3-4

Investigation 3: Session 3-5

Investigation 4: Session 1-4

Investigation 5: Session 1-8

**7.11 use symbols as representations of variables such as missing add ends or factors;**

Putting Together and Taking Apart

Investigation 3: Session 1-5

**7.12 generate and write number sentences vertically and horizontally;**

Mathematical Thinking at Grade 2

Investigation 2: Session 2-3, 8

Coins, Coupons and combinations

Investigation 1: Session 1, 4-11

Investigation 2: Session 4-5

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 1: Session 1, 4-11

Investigation 4: Session 4-5

Investigation 5: Session 1-5

**7.13 solve open sentences using informal methods.**

Mathematical Thinking at Grade 2

Investigation 1: Session 1

Investigation 2: Session 2-5

Coins, Coupons, and Combinations

Investigation 1: Session 1-10

Investigation 3: Session 1-5

Putting Together and Taking Apart

Investigation 3: Session 1-5

**STANDARD 8:** Students will develop SPATIAL SENSE and an understanding of GEOMETRY by solving problems in which there is a need recognize, construct, transform, analyze properties of, and discover relationships between, geometric figures.

*Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:*

**8.10 sort solid and plane figures by common attributes;**

Mathematical Thinking at Grade 2

Investigation 3: Session 1-5

Shapes, Halves and Symmetry

Investigation 1: Session 1-3

Investigation 2: Session 1-6

**8.11 recognize congruence of geometric figures in the real world;**

Shapes, Halves, and Symmetry

Investigation 3: Session 1-8

**8.12 identify and create symmetrical shapes (line symmetry);**

Shapes, Halves and Symmetry

Investigation 4: Session 1-7

**8.13 draw an example of a flip, slide, or turn given a model;**

Can be developed from  
Shapes, Halves and Symmetry  
Investigation 4: Session 1-4

**8.14 draw a square, rectangle, and triangle on grid paper;**

Shapes, Halves and Symmetry  
Investigation 2: Session 4-6

**8.15 describe the effect of combining two or more shapes.**

Mathematical Thinking at Grade 2  
Investigation 3: Session 6  
Shapes, Halves, and Symmetry  
Investigation 1: Session 2-3

**STANDARD 9:** Students will develop an understanding of STATISTICS AND PROBABILITY by solving problems in which there is a need to collect, appropriately represent, and interpret data; to make inferences or predictions; to present convincing arguments; and to model mathematical situations to determine the probability.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**9.10 collect data by observing, measuring, surveying and counting;**

Mathematical Thinking at Grade 2  
Investigation 5: Session 1-5  
Coins, Coupons and Combinations  
Investigation 2: Session 10  
Investigation 4: Session 5  
Does It Walk, Crawl or Swim?  
Investigation 1: Session 1-2  
Investigation 2: Session 3-4  
Investigation 4: Session 1  
How Many Pockets? How Many Teeth?  
Investigation 1: Session 1-5  
Investigation 2: Session 1-6  
Investigation 3: Session 1-5

**9.11 demonstrate a variety of techniques for representing and organizing data such as using physical objects, tallies, pictographs, and bar graphs;**

Mathematical Thinking at Grade 2

Investigation 2: Session 6

Investigation 5: Session 1-6

Does It Walk, Crawl, or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-3

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

**9.12 interpret data by: looking for patterns and relationships, considering cause and effect, drawing conclusions, answering the stated question or related questions;**

Does It Walk, Crawl or Swim?

Investigation 1: Session 1-6

Investigation 2: Session 1-4

Investigation 3: Session 1-3

Investigation 4: Session 1-4

How Many Pockets? How Many Teeth?

Investigation 1: Session 1-5

Investigation 2: Session 1-6

Investigation 3: Session 1-5

**9.13 determine the likelihood of a simple chance event.**

Can be developed from

How Many Pockets? How Many Teeth?

Investigation 2: Session 3-6



**STANDARD 10:** Students will develop an understanding of PATTERNS, RELATIONSHIPS AND FUNCTIONS by solving problems in which there is a need to recognize and extend a variety of patterns; and to analyze, represent, model and describe real-world functional relationships.

***Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:***

**10.10 sort and classify objects by common attributes;**

Mathematical Thinking at Grade 2

Investigation 1: Session 4

Investigation 3: Session 1-5

Does It Walk, Crawl or Swim?

Investigation 1: Session 3-6

Investigation 2: Session 1-4

Shapes, Halves, and Symmetry

Investigation 1: Session 1-8

Investigation 2: Session 1

**10.11 recognize, analyze, create and extend visual, symbolic, oral and physical patterns;**

Coins, Coupons and Combinations

Investigation 2: Session 1-2

Investigation 4: Session 1

Shapes, Halves, and Symmetry

Investigation 3: Session 1-5

Timelines and Rhythm Patterns

Investigation 2: Session 1-5

**10.12 sort numbers into different classes such as evens, odds, multiples and factors.**

Coins, Coupons, and Combinations

Investigation 2: Session 1-5, 10

Putting Together and Taking Apart

Investigation 2: Session 1-2