

A Correlation of

**SCOTT FORESMAN ■ ADDISON WESLEY**  
**Mathematics**

to the

**SOUTH DAKOTA**  
**Essential Core Mathematics**  
**Standards**  
**Grades K-6**



G/M-203

## Introduction

This document demonstrates the high degree of success students will achieve when using **Scott Foresman – Addison Wesley Mathematics** in meeting the objectives of the South Dakota Essential Core Mathematics Standards. Correlation page references are to the Teacher Edition, which contains facsimile Pupil Edition pages.

**Scott Foresman – Addison Wesley Mathematics** was carefully developed to reflect the specific needs of students and teachers at every grade level, while maintaining an overall primary goal: to have math make sense from every perspective. This program is based on scientific research that describes how children learn mathematics well and on classroom-based evidence that validates proven reliability.

### ● **Reaching All Learners**

**Scott Foresman – Addison Wesley Mathematics** addresses the needs of every student through structured instruction that makes concepts easier for students to grasp. Lessons provide step-by-step examples that show students how to think about and solve the problem. Built-in leveled practice in every lesson allows the teacher to customize instruction to match students' abilities. Reaching All Learners, featured in the Teacher Edition, helps teachers meet the diverse needs of the classroom with fun and stimulating activities that are easy to incorporate directly into the lesson plan.

### ● **Test Prep**

**Scott Foresman - Addison Wesley Mathematics** builds understanding through connections to prior knowledge, math strands, other subjects and the real world. It provides practice for maximum results and offers assessment in a variety of ways. Besides carefully placed reviews at the end of each Section, an important Test Prep strand runs throughout the program. Writing exercises prepare students for open-ended and short-or extended-response questions on state and national tests. Spiral review in a test format help students keep their test-taking skills sharp.

### ● **Priority on problem solving:**

Problem-solving instruction is systematic and explicit. Reading connections help children with problem-solving skills and strategies for math. Reading for Math Success encourages students to use the reading skills and strategies they already know to solve math problems.

### ● **Instructional Support**

In the Teacher Edition, the Lesson Planner provides an easy, at-a-glance planning tool. It identifies objectives, math understandings, focus questions, vocabulary, and resources for each lesson in the chapter. Professional Development at the beginning of each chapter in the Teacher Edition includes a Skills Trace as well as Math Background and Teaching Tips for each section in the chapter.

Ancillaries help to reach all learners with practice, problem solving, hands-on math, language support, assessment and teacher support. Technology resources for both the student and the teacher provide a whole new dimension to math instruction by helping to create motivating and engaging lessons.

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**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Kindergarten**

**Goal 1 – ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**K - 2 Benchmarks:**

- a. identify equalities and inequalities.
- b. explore elements of sets.
- c. write mathematical statements to show relationships.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. recognize, compare, and create a variety of sets and patterns using symbols and objects.**

18, 37A-37B, 37-38, 39A-39B, 39-40, 45A-45B, 45-46, 48, 54, 134, 164, 218, 276, 292

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**K - 2 Benchmarks:**

- a. create algebraic expressions that represent problem situations.
- b. recognize various representations of a number sentence.
- c. use the number line to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. recognize and interpret that addition or subtraction is used to solve problems.**

245A-245B, 245-246, 247A-247B, 247-248, 249A-249B, 249-250, 251A-251B, 251-252, 253A-253B, 253-254, 255A-255B, 255-256, 260, 265A-265B, 265-266, 271A-271B, 271-272, 273A-273B, 273-274, 275A-275B, 275-276, 277A-277B, 277-278, 279A-279B, 279-280, 281A-281B, 281-282

**Indicator 3: Analyze and describe situations that involve one or more variables.****K - 2 Benchmarks:**

- a. identify the variables in open sentences.
- b. explore various representations of a given number.
- c. describe processes used to find answers to open sentences.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. explore and model possible addition and subtraction combinations for a given number.**

223I, 225A-225B, 225-226, 227A-227B, 227-228, 229A-229B, 229-230, 231A-231B, 231-232, 233A-233B, 233-234, 239A, 259

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****K - 2 Benchmarks:**

- a. identify characteristics of two- and three-dimensional shapes.
- b. use geometric properties to identify shapes.
- c. investigate relationships between various geometric shapes.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. observe, sort and compare plane geometric figures based on attributes.**

1I-1J, 15A-15B, 15-16, 17A-17B, 17-18, 19A-19B, 19-20, 22, 28, 148, 203A-203B, 203-204, 205A-205B, 205-206, 208, 219A-219B, 219

**2. observe and sort solid geometric figures based on attributes.**

195I, 197A-197B, 197-198, 199A-199B, 199-200, 201A-201B, 201-202, 248

**Indicator 2: Analyze geometric figures from a variety of perspectives.****K - 2 Benchmarks:**

- a. explore concepts of perspective using geometric shapes and figures.
- b. describe spatial arrangements or positions of shapes and figures.
- c. explore ways to arrange and/or transform geometric shapes.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. explore, identify and describe geometric objects in the environment and describe their position, e.g., next to, top, bottom.**

3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 9A-9B, 9-10, 21A-21B, 21, 66

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****K - 2 Benchmarks:**

- a. explore various types of measurement used.
- b. recognize specific standard measurement units.
- c. use non-standard units to explore measurement in unique situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. explore and compare units of time, e.g., yesterday, today, tomorrow, days, hours, seasons.**

161A-161B, 161-162, 163A-163B, 163-164, 165A-165B, 165-166, 167A-167B, 167-168, 171A-171B, 171-172, 173A-173B, 173-174, 175A-175B, 175-176, 184, 191A-191B, 191

**2. identify coins.**

179A-179B, 179-180, 181A-181B, 181-182, 183A-183B, 183-184, 187A-187B, 187-188, 200

**3. explore length, weight, and volume of objects using standard and non-standard units.**

20, 88, 139A-139B, 139-140, 141A-141B, 141-142, 147A-147B, 147-148, 151A-151B, 151-152, 154, 155A-155B, 155-156, 274

**4. order a group of objects using measurable attributes.**

137A-137B, 137-138, 145A-145B, 145-146, 149A-149B, 149-150, 250, 288

**Indicator 2: Apply measurement concepts in practical applications.****K - 2 Benchmarks:**

- a. explore various tools that provide accurate measurements.
- b. apply physical senses in making measurements and estimations of measurements.
- c. explore the use of measurement in various situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. make comparisons according to a given attribute, e.g., length (longer/shorter), temperature (hotter/colder), volume (holds more/ holds less).**

34, 106, 131I-131J, 133A-133B, 133-134, 135A-135B, 135-136, 145A-145B, 145-146, 149A-149B, 149-150, 153A-153B, 153-154, 166, 177A-177B, 177-178, 204, 214, 228, 234

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.****K - 2 Benchmarks:**

- a. explore the structure and applications of the rational number system.
- b. use physical materials to understand the rational number system.
- c. explore connections of the whole number system to the rational number system.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. represent numbers through the use of physical models, word names, events and symbols.**

6, 14, 51I, 53A-53B, 53-54, 55A-55B, 55-56, 57A-57B, 57-58, 59A-59B, 59-60, 61A-61B, 61-62, 65A-65B, 65-66, 69A-69B, 69-70, 71-72, 75I-75J, 77A-77B, 77-78, 79A-79B, 79-80, 81A-81B, 81-82, 83A-83B, 83-84, 85A-85B, 85-86, 89-90, 91A-91B, 91-92, 93A-93B, 93-94, 97-98, 105A-105B, 105-106, 107A-107B, 107-108, 109A-109B, 109-110, 117A-117B, 117-118, 144, 176, 232

**2. count to 20.**

101I, 103A-103B, 103-104, 111A-111B, 111-112, 127A-127B, 127, 140

**Indicator 2: Apply number operations with real numbers and other number systems.****K - 2 Benchmarks:**

- a. model operations of addition and subtraction using rational numbers.
- b. construct meaning for whole numbers, common fractions, and decimals.
- c. apply the number operations of addition and subtraction in problem-solving situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use objects to model addition and subtraction.**

70, 235A-235B, 235-236, 237A-237B, 237-238, 243I, 247A-247B, 251A-251B, 257A-257B, 257-258, 259A-259B, 263I-263J, 267A-267B, 267-268, 271A-271B

**2. demonstrate and describe that a whole is composed of fractional parts using things encountered in daily experiences.**

213B, 213-214, 215A-215B, 215-216, 268

**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****K - 2 Benchmarks:**

- a. explore properties of the whole number system.
- b. explore various problem-solving rules.
- c. estimate and/or predict results of various calculations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. estimate and describe answers to problems using comparative words, e.g., greater, fewer, more, less.**

25I, 27A-27B, 27-28, 32, 51J, 63A-63B, 63-64, 67A-67B, 67-68, 71A-71B, 87A-87B, 87-88, 89A-89B, 94, 121A-121B, 121-122, 128, 162, 202, 210, 223J, 236, 235A-235B, 235-236, 237A-237B, 237-238, 239B, 269A-269B, 269-270



**2. explain and solve story and picture problems using manipulatives.**

70, 97A-97B, 152, 217A-217B, 217-218, 220

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.**

**K - 2 Benchmarks:**

- a. explore place value concepts using grouping and substitution.
- b. describe the impact of adding and subtracting on the magnitude of numbers.
- c. model order and value for commonly used fractions, decimals, and whole numbers.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. explore place value by grouping objects by tens and ones.**

111A-111B, 111-112, 115A-115B, 115-116, 117A, 285I, 287A-287B, 287-288, 291A-291B, 291-292

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS:**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.**

**K - 2 Benchmarks:**

- a. explore the relationship between two variables.
- b. recognize and explain the constants of a relationship.
- c. explore the properties of various relations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. sort and classify objects according to similar attributes, e.g., size, shape, or color.**

13A-13B, 13-14, 15B, 17B, 19B

**Indicator 2: Apply relations and functions to complex problem solving situations.****K - 2 Benchmarks:**

- a. observe and describe patterns found in everyday events and experiences.
- b. use tables and graphs to explore solutions to problems.
- c. create rules to extend patterns and relationships.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. explore effects of change on a pattern.**

41A-41B, 41-42, 43A-43B, 43-44, 95A-95B, 95-96, 98

**2. identify and create repeating patterns found in common objects, sounds, and movements.**

25J, 35A-35B, 35-36, 108, 126

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.****K - 2 Benchmarks:**

- a. use data gathered from the environment to create tallies, tables, and graphs of information.
- b. compare and discuss relationships of categories for classified collections of objects.
- c. make convincing arguments to support simple conclusions drawn from collected data.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. describe ways to sort and/or group given sets of objects or data.**

13A-13B, 13-14, 15A-15B, 15-16, 17A-17B, 17-18, 19A-19B, 19-20, 259B

**2. collect and record information using tallies, picture graphs, or other strategies.**

29A-29B, 29-30, 31A-31B, 31-32, 33A-33B, 33-34, 47A-47B, 47, 168, 212

**Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.**

**K - 2 Benchmarks:**

- a. gather and compare sets of data based on chance events.
- b. explain consistency of results that occur in repeated experimental trials.
- c. predict outcomes, draw simple conclusions, and report results based on collected data.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

- 1. explore the concept of probability through the use of chance events, e.g., coin toss, dice, spinners.**

125A-125B, 125-126, 136, 278

**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Grade One**

**Goal 1 – ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**K - 2 Benchmarks:**

- a. identify equalities and inequalities.
- b. explore elements of sets.
- c. write mathematical statements to show relationships.

**GRADE LEVEL STANDARDS**

**THE STUDENT WILL:**

**1. extend a variety of patterns and generalize relationships using symbols and objects.**

1I, 3A-3B, 3-4, 5A-5B, 5-6, 7A-7B, 7-8, 33A-33B, 33-34, 91A, 93A, 243A, 299A, 319A, 419A

**2. identify number sentences that represent the commutative property of addition.**

89I, 93A-93B, 93-94, 139A-139B, 139-140, 415J, 437A-437B, 437-438

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**K - 2 Benchmarks:**

- a. create algebraic expressions that represent problem situations.
- b. recognize various representations of a number sentence.
- c. use the number line to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS**

**THE STUDENT WILL:**

**1. use +, -, and = symbols to write number sentences and solve problems.**

49A-49B, 49-50, 51A-51B, 51-52, 57A-57B, 57-58, 65A-65B, 65-66, 67A-67B, 67-68, 77A-77B, 77-78, 79A-79B, 99A-99B, 99-100, 133A-133B, 133-134, 141A, 383A, 387A, 445A, 445-446, 447-448, 483

**2. describe problem situations that require addition and subtraction.**

43I-43J, 45A-45B, 45-46, 47A-47B, 47-48, 61A-61B, 61-62, 63A-63B, 75A-75B, 79A-79B, 79-80, 89I-89J, 97A-97B, 99A-99B, 113A, 113-114, 123I-123J, 125A-125B, 137A-137B, 145A-145B, 417A-417B, 419A-419B, 423A-423B, 425A-425B, 435A, 439B, 445A-445B, 463A-463B

**Indicator 3: Analyze and describe situations that involve one or more variables.****K - 2 Benchmarks:**

- a. identify the variables in open sentences.
- b. explore various representations of a given number.
- c. describe processes used to find answers to open sentences.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. given a set of objects, determine all the ways to divide a set of objects into equal groups.**

155J, 191A-191B, 191-192

**2. determine all possible addition and subtraction combinations for a given number.**

1J, 11A-11B, 11-12, 13A-13B, 13-14, 15A-15B, 15-16, 17A-17B, 17-18, 57A, 61A, 89J, 107A-107B, 107-108, 207A, 339A

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****K - 2 Benchmarks:**

- a. identify characteristics of two- and three-dimensional shapes.
- b. use geometric properties to identify shapes.
- c. investigate relationships between various geometric shapes.

**GRADE LEVEL STANDARDS**

**THE STUDENT WILL:**

**1. identify, describe, and draw plane figures according to number of sides, corners, and square corners.**

133A, 155I, 165A-165B, 165-166, 167A-167B, 167-168, 169A, 211A, 307A, 373A

**2. identify and describe solid and plane figures in the environment.**

7A, 75A, 111A, 157A-157B, 157-158, 193-194, 347A

**Indicator 2: Analyze geometric figures from a variety of perspectives.****K - 2 Benchmarks:**

a. explore concepts of perspective using geometric shapes and figures.

b. describe spatial arrangements or positions of shapes and figures.

c. explore ways to arrange and/or transform geometric shapes.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. identify ways in which shapes can be divided into equal pieces.**

171A-171B, 171-172, 181A-181B, 181-182, 183-184, 431A

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****K - 2 Benchmarks:**

a. explore various types of measurement used.

b. recognize specific standard measurement units.

c. use non-standard units to explore measurement in unique situations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. measure time to the nearest half hour, and hour.**

5A, 207A-207B, 207-208, 209A-209B, 209-210, 211A-211B, 211-212, 215A-215B, 215-216, 229A-229B, 257A, 369A

**2. use specific units of measure to explore length, weight, volume, and temperature.**

365A-365B, 365-366, 371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 377A-377B, 377-378, 383A-383B, 383-384, 385A-385B, 385-386, 387A-387B, 387-388, 389A-389B, 389-390, 391A-391B, 391-392, 393A-393B, 393-394, 395A-395B, 395-396, 405A-405B, 405-406

**3. identify the value of coins; count collections of dimes, nickels and pennies.**

329I-329J, 331-332, 333A-333B, 333-334, 335A-335B, 335-336, 337A-337B, 337-338, 343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 351A-351B, 351-352, 353A-353B, 353-354

**Indicator 2: Apply measurement concepts in practical applications.****K - 2 Benchmarks:**

- a. explore various tools that provide accurate measurements.
- b. apply physical senses in making measurements and estimations of measurements.
- c. explore the use of measurement in various situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify various tools used to solve measurement problems.**

397A-397B, 397-398, 411

**2. read scales of length, weight, and temperature for measurement.**

371A-371B, 371-372, 373A-373B, 373-374, 375A-375B, 375-376, 379A, 389-390, 395A-395B

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.****K - 2 Benchmarks:**

- a. explore the structure and applications of the rational number system.
- b. use physical materials to understand the rational number system.
- c. explore connections of the whole number system to the rational number system.

## **GRADE LEVEL STANDARDS**

### **THE STUDENT WILL:**

**1. count numbers by 2s, 5s, and 10s.**

255A-255B, 255-256, 257A-257B, 257-258, 267A, 269A-269B, 269

**2. write corresponding numbers for given sets.**

243-244, 247A-247B, 247-248, 281-282, 283A-283B, 283-284, 303-304

**3. identify ordinal positions using an ordered set of objects, 1 st through 20 th .**

267A-267B, 267-268, 269, 301A

**4. classify and model numbers as even or odd.**

265A-265B, 265-266, 269

### **Indicator 2: Apply number operations with real numbers and other number systems.**

#### **K - 2 Benchmarks:**

- a. model operations of addition and subtraction using rational numbers.
- b. construct meaning for whole numbers, common fractions, and decimals.
- c. apply the number operations of addition and subtraction in problem-solving situations.

## **GRADE LEVEL STANDARDS**

### **THE STUDENT WILL:**

**1. recall basic addition and subtraction facts through the 9s written in horizontal or vertical form.**

53A-53B, 53-54, 69A-69B, 69-70, 95-96, 97-98, 104, 106, 125-126, 127-128, 129-130, 137-138, 417-418, 419-420, 426

**2. select the appropriate operation to solve specific problems involving whole numbers.**

71A-71B, 71-72, 107A, 129A, 137A, 143A-143B, 143-144, 209A, 255A, 333A, 483



**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****K - 2 Benchmarks:**

- a. explore properties of the whole number system.
- b. explore various problem-solving rules.
- c. estimate and/or predict results of various calculations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. solve problems using concrete materials, drawings, or words.**

11A, 21A-21B, 21-22, 25A, 45A, 103A-103B, 105A-105B, 107A-107B, 111A-111B, 111-112, 127A-127B, 129A-129B, 139A, 171A, 239I, 291A-291B, 291-292, 317A-317B, 317-318, 415I-415J, 421A-421B, 423A-423B, 441A-441B, 457I-457J, 459A-459B, 463A-463B, 465A-465B, 475A-475B, 477A-477B, 483A

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.****K - 2 Benchmarks:**

- a. explore place value concepts using grouping and substitution.
- b. describe the impact of adding and subtracting on the magnitude of numbers.
- c. model order and value for commonly used fractions, decimals, and whole numbers.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use words, models, and expanded notation to represent two-digit numbers.**

241A-241B, 241-242, 279I, 285A-285B, 285-286, 287A-287B, 287-288, 459A, 461B, 463A-463B, 465A-465B, 475A-475B, 477A-477B, 483A

**2. order and compare whole numbers up to 100.**

25A-25B, 27A-27B, 27-28, 29A-29B, 29-30, 31A-31B, 31-32, 33A, 71A, 187A, 239J, 245A-245B, 245-246, 263A-263B, 263-264, 279J, 295A-295B, 295-296, 297A-297B, 297-298, 299A-299B, 299-300, 301A-301B, 301-302

**3. identify and represent common fractions using concrete materials.**

183A-183B, 185A-185B, 187A-187B, 189A-189B

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS:**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.****K - 2 Benchmarks:**

- a. explore the relationship between two variables.
- b. recognize and explain the constants of a relationship.
- c. explore the properties of various relations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

1. determine common attributes in a given group and identify those objects that do not belong.

3A, 308

**Indicator 2: Apply relations and functions to complex problem solving situations.****K - 2 Benchmarks:**

- a. observe and describe patterns found in everyday events and experiences.
- b. use tables and graphs to explore solutions to problems.
- c. create rules to extend patterns and relationships.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

1. find patterns or relations in data organized in tables or charts to determine what should come next.

1J, 205A, 261A-261B, 261-262, 270, 309A, 353A, 431A-431B, 431-432, 465A

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.**

**K - 2 Benchmarks:**

- a. use data gathered from the environment to create tallies, tables, and graphs of information.
- b. compare and discuss relationships of categories for classified collections of objects.
- c. make convincing arguments to support simple conclusions drawn from collected data.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. gather, organize and record data from various sources or situations including surveys and simple experiments**

69A, 219A, 251A-251B, 309A-309B, 309-310, 311A-311B, 311-312, 319A, 389A, 435A, 481A-481B, 481-482, 483A

**Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.**

**K – 2 Benchmarks:**

- a. gather and compare sets of data based on chance events.
- b. explain consistency of results that occur in repeated experimental trials.
- c. predict outcomes, draw simple conclusions, and report results based on collected data.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. generate data from probability experiments using spinners, tiles, or dice.**

313A-313B, 313, 363J, 403A-403B, 403

**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Grade Two**

**Goal 1 – ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**K - 2 Benchmarks:**

- a. identify equalities and inequalities.
- b. explore elements of sets.
- c. write mathematical statements to show relationships.

**GRADE LEVEL STANDARDS**

**THE STUDENT WILL:**

**1. identify equations that represent the inverse operation of given number sentences.**

27A-27B, 27-28, 31A-31B, 63A-63B, 63-64, 65A-65B, 65-66, 227A-227B, 227-228

**2. apply the addition properties of zero and one.**

43A-43B, 43-44, 59, 77

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**K - 2 Benchmarks:**

- a. create algebraic expressions that represent problem situations.
- b. recognize various representations of a number sentence.
- c. use the number line to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS**

**THE STUDENT WILL:**

**1. describe strategies used in adding and subtracting numbers, e.g.,  $18 + 8$  is the same as  $18 + 2 + 6$ .**

23A-23B, 41I-41J, 43A-43B, 45A-45B, 45-46, 47A-47B, 49A-49B, 51A-51B, 53A-53B, 61A-61B, 163B, 193A-193B, 193-194, 209I, 231A-231B, 231-232, 425I-425J

**2. identify problem situations that match or do not match a given equation.**

5B, 5-6, 9A-9B, 9-10, 17B, 17-18, 31-32, 69-70, 135A, 161B, 199-200, 221A-221B, 221-222, 369A, 377-378, 487A-487B, 487-488, 489-490

**Indicator 3: Analyze and describe situations that involve one or more variables.****K - 2 Benchmarks:**

- a. identify the variables in open sentences.
- b. explore various representations of a given number.
- c. describe processes used to find answers to open sentences.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use informal methods to solve everyday problems requiring open sentences with one unknown.**

29A-29B, 29-30, 67A-67B, 67-68, 159A-159B, 159-160, 227A, 275A, 291A, 315A, 355A, 401A

**2. solve addition and subtraction equations using data from simple charts, picture graphs, and number sentences.**

31B, 45A, 57B, 57-58, 83A, 189A-189B, 189-190, 225A, 357A

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****K - 2 Benchmarks:**

- a. identify characteristics of two- and three-dimensional shapes.
- b. use geometric properties to identify shapes.
- c. investigate relationships between various geometric shapes.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify, describe, and compare solid figures according to faces, edges, bases and corners.**

245I, 247A-247B, 247-248, 379A, 475A

**2. compare plane and solid figures.**

249A-249B, 249-250, 251A-251B, 251-252

**Indicator 2: Analyze geometric figures from a variety of perspectives.****K - 2 Benchmarks:**

- a. explore concepts of perspective using geometric shapes and figures.
- b. describe spatial arrangements or positions of shapes and figures.
- c. explore ways to arrange and/or transform geometric shapes.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify geometric figures regardless of position and orientation in space.**

51A, 155A, 257A-257B, 257-258

**2. identify lines of symmetry in a variety of shapes and figures.**

261A-261B, 261-262, 455A

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****K - 2 Benchmarks:**

- a. explore various types of measurement used.
- b. recognize specific standard measurement units.
- c. use non-standard units to explore measurement in unique situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. measure time to the nearest five- minute interval.**

291A-291B, 291-292, 293A-293B, 293-294, 295A-295B, 295-296, 299A-299B, 299-300, 301A, 303A, 329A-329B, 329-330, 439A, 479A

**2. count and trade collections of coins up to \$1.00.**

19A, 79J, 109A-109B, 109-110, 111A-111B, 111-112, 113A-113B, 113-114, 115A-115B, 115-116, 117A-117B, 117-118, 119A-119B, 119-120, 121A-121B, 121-122, 123A-123B, 145A, 149A, 391A

**Indicator 2: Apply measurement concepts in practical applications.****K - 2 Benchmarks:**

- a. explore various tools that provide accurate measurements.
- b. apply physical senses in making measurements and estimations of measurements.
- c. explore the use of measurement in various situations.

**GRADE LEVEL STANDARDS****1. use appropriate tools and units of measure to solve problems.**

343A-343B, 343-344, 345A-345B, 345-346, 347A-347B, 347-348, 351A-351B, 351-352, 359A-359B, 367A-367B, 369A-369B, 369-370, 379-380, 405A

**2. record and compare various measurement situations, e.g., temperature to the nearest degree, precipitation to the nearest inch.**

339I, 341A-341B, 343B, 343-344, 345B, 345-346, 347A-347B, 347-348, 351A-351B, 351-352, 353A-353B, 353-354, 355A-355B, 355-356, 357A-357B, 357-358, 359A-359B, 359-360, 363A-363B, 363-364, 365A-365B, 365-366, 367A-367B, 367-368, 369-370, 373A, 379A-379B, 379-380

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.****K - 2 Benchmarks:**

- a. explore the structure and applications of the rational number system.
- b. use physical materials to understand the rational number system.
- c. explore connections of the whole number system to the rational number system.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. count numbers by 2s, 5s and 10s to 100.**

99A-99B, 99-100, 107

**2. associate verbal names, written word names, and standard numerals with whole numbers less than 1000.**

85A-85B, 85-86, 164, 415B

**3. explain concept of even and odd numbers.**

101A-101B, 101-102, 126, 132

**Indicator 2: Apply number operations with real numbers and other number systems.****K - 2 Benchmarks:**

- a. model operations of addition and subtraction using rational numbers.
- b. construct meaning for whole numbers, common fractions, and decimals.
- c. apply the number operations of addition and subtraction in problem-solving situations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. solve two-digit addition and subtraction problems with and without regrouping.**

133I-133J, 135A-135B, 135-136, 137A-137B, 137-138, 139A-139B, 139-140, 145A-145B, 145-146, 147A-147B, 147-148, 155A-155B, 155-156, 173I-173J, 175A-175B, 175-176, 177A-177B, 177-178, 179A-179B, 179-180, 181A-181B, 181-182, 185A-185B, 185-186, 187A-187B, 187-188, 191A, 197A-197B, 197-198, 199A-199B, 211A-211B, 211-212, 213A-213B, 213-214, 215A-215B, 215-216, 217A-217B, 217-218, 225A-225B, 225-226, 227A, 233A-233B, 233-234, 235A-235B, 247A, 257A, 265A, 273A, 275A, 277A, 291A, 293A, 315A, 319A, 323A, 351A, 355A, 363A, 401A, 407A, 415A

**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****K - 2 Benchmarks:**

- a. explore properties of the whole number system.
- b. explore various problem-solving rules.
- c. estimate and/or predict results of various calculations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. model problems in a variety of ways, e.g. concrete materials, tables, charts, drawings, words.**

1I-1J, 3A-3B, 3-4, 15A-15B, 19A-19B, 25A, 27A, 47A, 135A-135B, 137A-137B, 139A-139B, 141A, 145A-145B, 147A-147B, 163A, 175A-175B, 209J, 427B, 431A-431B, 433A, 435-435B, 447A-447B, 447-448, 449A, 451A-451B, 465I-465J, 467B, 467-468, 469A-469B, 471A-471B, 471, 473A-473B, 479A-479B, 479-480, 483A-483B, 483, 485A-485B, 485-486



**2. solve story problems involving single-step operations.**

5-6, 9A-9B, 9-10, 13A-13B, 17-18, 19-20, 23A, 29A, 31A, 31-32, 49A, 65A, 113A, 121A, 123A, 135A, 145A, 159A, 161-162, 175A, 235-236, 401-402, 443A, 445A, 455-456, 471A, 473A, 487A

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.****K - 2 Benchmarks:**

- explore place value concepts using grouping and substitution.
- describe the impact of adding and subtracting on the magnitude of numbers.
- model order and value for commonly used fractions, decimals, and whole numbers.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. use words, models, and expanded notation to represent numbers with two or more digits.**

79I, 81A-81B, 83A-83B, 179A, 211A-211B, 215A-215B, 271A, 389I, 391-392, 393A-393B, 393-394, 395A-395B, 395-396, 397A, 425I-425J

**2. identify and represent fractions of a group.**

277A-277B, 277-278, 279B, 305A, 327A

**3. order and compare whole numbers up to 1000.**

91A-91B, 91-92, 95A-95B, 95-96, 97A-97B, 97-98, 105A-105B, 105-106, 389J, 391B, 399A-399B, 399-400, 407A-407B, 407-408, 409A-409B, 409-410, 415-416, 433A

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS:**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.****K - 2 Benchmarks:**

- explore the relationship between two variables.
- recognize and explain the constants of a relationship.
- explore the properties of various relations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. describe relationships present in a given set of data.**

61A, 320, 327-328, 395A, 405A-405B, 405-406, 409A, 413A, 427A, 439A-439B

**Indicator 2: Apply relations and functions to complex problem solving situations.****K - 2 Benchmarks:**

- a. observe and describe patterns found in everyday events and experiences.
- b. use tables and graphs to explore solutions to problems.
- c. create rules to extend patterns and relationships.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. find patterns and relationships in sequences of numbers, e.g., doubles in learning addition; given three numbers, find the next number in the sequence.**

45, 89A-89B, 89-90, 91A, 157A-157B, 157-158, 229A, 297A, 413A-413B, 413-414, 431A

**2. describe and represent patterns that are growing and/or repeating.**

95A, 231A, 413B

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.****K - 2 Benchmarks:**

- a. use data gathered from the environment to create tallies, tables, and graphs of information.
- b. compare and discuss relationships of categories for classified collections of objects.
- c. make convincing arguments to support simple conclusions drawn from collected data.

## **GRADE LEVEL STANDARDS**

### ***THE STUDENT WILL:***

**1. represent data sets in more than one way, e.g., charts, line graphs, bar graphs.**

69A, 289J, 315B, 319B, 327A, 439B, 489A

**2. form questions about and generate explanations of data given in tables and graphs.**

17A, 63A, 89A, 119A, 157A, 311A-311B, 311-312, 313-314, 321A, 321A, 321-322, 323A-323B, 323-324, 375A, 405A-405B, 405-406, 439A-439B, 439-440

### **Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.**

#### **K - 2 Benchmarks:**

a. gather and compare sets of data based on chance events.

b. explain consistency of results that occur in repeated experimental trials.

c. predict outcomes, draw simple conclusions, and report results based on collected data.

## **GRADE LEVEL STANDARDS**

### ***THE STUDENT WILL:***

**1. use concepts of chance and certainty to discuss the probability of actual events.**

339J, 373A-373B, 373-374, 375A-375B, 375-376, 377A

**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Grade Three**

**Goal 1 - ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**3 - 5 Benchmarks:**

- a. explore properties of equality and inequality.
- b. explore various relationships among elements of a set.
- c. create equivalent algebraic statements using inverse operations and order of operations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. explain the relationship between repeated addition and multiplication.**

258I, 260A, 260-261, 262A, 262-263, 276A-276B, 276-279, 324A-324B, 324-325, 348A

**2. recognize and use the commutative and associative properties of multiplication, e.g., if  $6 \times 7 = 42$ , then what is  $7 \times 6$ ?**

258J, 262A-262B, 263-264, 276A-276B, 280A, 294A, 342A-342B, 342-343, 348B

**3. identify special properties of 0 and 1 with respect to arithmetic operations**

86A, 286A-286B, 286-287, 396A-396B, 396-397

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**3 - 5 Benchmarks:**

- a. use algebraic expressions to represent problems.
- b. create various representations for the same number sentence.
- c. use graphic representations to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. select appropriate operational and relational symbols to make expressions true, e.g.,  $4 \_ 3 = 12$ .**

169, 291, 404A-404B, 404-405, 406A, 460A, 472A, 474A, 568A, 616A, 684A

**Indicator 3: Analyze and describe situations that involve one or more variables.****3 - 5 Benchmarks:**

- a. determine solution sets for simple open sentences.
- b. model relationships between sets of numbers.
- c. explore how changing one variable can cause a change in another.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. explain the relationship between multiplication and division to compute and check results, e.g.,  $3 \times 7 = 21$ , so  $21 \div 7 = 3$ .**

384A-384B, 384-385, 386A, 388A-388B, 390-391, 392-393, 406A-406B

**2. determine various multiplication and division sentences for a given number.**

260A, 320B, 368I, 380A

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****3 - 5 Benchmarks:**

- a. describe properties of geometric figures using geometric terms.
- b. classify objects using geometric properties.
- c. use geometric properties to solve problems.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. analyze and classify plane and solid geometric figures using relevant properties, e.g., number of corners, square corners, shape of faces, and edges.**  
192A, 276A, 402A, 426I, 428A-428B, 428-431, 432A-432B, 432-433, 446A-446B, 446-449, 450A-450B, 450-453, 454A-454B, 454-455, 474A-474B, 474-475, 498A, 650A, 690A, 696A

**Indicator 2: Analyze geometric figures from a variety of perspectives.****3 - 5 Benchmarks:**

- a. use perspective to create or identify geometric shapes and figures.
- b. visualize and illustrate ways objects can be oriented in space.
- c. determine methods to transform objects.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. predict, illustrate, and verify which figures could result from a flip or slide or turn of a given figure.**

456A-456B, 456-459, 462-463, 485, 490, 494

**2. demonstrate relationships between and among figures using symmetry, similarity, and congruence.**

102A, 204A, 402A, 460A-460B, 460-461, 468A, 476B

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****3 - 5 Benchmarks:**

- a. identify the referents used in different measurement scales.
- b. investigate appropriateness of scales selected for measurement situations.
- c. investigate scales that can be used in unique measurement situations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. count, compare, make change, and solve problems using a collection of coins and bills.**

36A-36B, 36-39, 40A-40B, 40-41, 44A, 90A, 146A, 536A

**2. measure time within fractions of a second (example stop watch).**

Opportunity to meet this objective can be found on pages 190I, 192-193, 198A-198B, 198-199.

**Indicator 2: Apply measurement concepts in practical applications.****3 - 5 Benchmarks:**

- a. use various tools to make accurate measurements.
- b. apply measurement tools that assist the physical senses in making measurements.
- c. investigate the effectiveness of specific measurement systems.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. determine the appropriate tools of measurement for problem solving.**

584B, 690B, 696B

**2. estimate and measure length to the nearest  $\frac{1}{4}$  inch or the nearest centimeter.**

534A-534B, 534-535, 582A-582B, 582-583

**3. estimate and measure perimeter, area, and volume of irregular objects.**

426J, 464A-464B, 464-467, 468A-468B, 468-471, 472-473, 678I, 680A-680B, 680-682, 684A-684B, 684-685

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.**

**3 - 5 Benchmarks:**

- a. examine the structure of the rational number system and investigate its appropriate applications and limitations.
- b. use physical materials and real- life experiences to understand the rational number system.
- c. model the connections of subsystems in the rational number system.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. name, represent, and write fractions and decimals.**

502A-502B, 502-503, 504A-504B, 504-505, 516A-516B, 516-517, 518A-518B, 518-519, 540A, 542A, 542-543, 562I, 564A-564B, 564-565, 566A-566B, 566-567, 590A-590B

**2. demonstrate that a mixed number is a whole number plus a fraction.**

522A-522B, 522-525, 530-531, 544-545, 550-551, 556, 560-561

**Indicator 2: Apply number operations with real numbers and other number systems.****3 - 5 Benchmarks:**

- a. model the operations of addition, subtraction, multiplication, and division on rational numbers.
- b. represent numbers in a variety of equivalent ways.
- c. apply number operations in problem solving situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. add and subtract multi-digit whole numbers using various computational methods.**

4A, 70A, 80A-80B, 80-81, 82A-82B, 82-85, 94-95, 96A-96B, 96-97, 98A, 104A-104B, 124I-124J, 126A-126B, 126-127, 128A-128B, 128-131, 132A-132B, 132-135, 136A-136B, 136-137, 146A-146B, 146-147, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-155, 156A-156B, 156-157, 162A-162B, 162-165, 166A-166B, 166-167, 170A, 238A, 266A

**2. recall multiplication and division facts through the nines.**

292A-292B, 292-293, 294B, 316-317, 318-319, 326-327, 328A-328B, 328-329, 386-387, 388-389



**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****3 - 5 Benchmarks:**

- a. explore the properties of the rational number system.
- b. apply various problem-solving rules.
- c. use estimation to test reasonableness of calculations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. solve problems using addition, subtraction, and multiplication.**

6A, 12A, 14A, 32A-32B, 32-33, 66A, 72A, 76A, 82A, 104-105, 198A, 212A, 226A, 228A, 238-239, 260B, 266A-266B, 266-267, 284A-284B, 284-285, 288A, 294-295, 314I, 316B, 317, 318B, 320A, 322-323, 332A, 338A-338B, 338-339, 340A, 346A-346B, 346-347, 348-349, 370A, 380A, 386A, 406-407, 432A, 436A-436B, 438-439, 442A, 454A, 456A, 502A, 520A, 578A, 590-591, 618A, 628-629, 634-635, 637, 638A, 639, 644A, 688A-688B, 702A, 708A

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.****3 - 5 Benchmarks:**

- a. model the concept of magnitude using concrete materials.
- b. explore the effect of operations on magnitudes.
- c. describe order and value relationships of common decimals, fractions, and whole numbers.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. order and compare whole numbers using appropriate words and symbols, e.g., < , greater than.**

18A-18B, 18-21, 22A-22B, 22-23, 28A-28B, 28-31, 44A-44B, 572A

**2. recognize that fractions and decimals are parts of a whole.**

260A, 496I, 498A-498B, 498-501, 510A-510B, 510-511, 512A, 710B

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.****3 - 5 Benchmarks:**

- a. explore relationships between and among different variables.
- b. recognize the effects of change in coefficients on graphs of relations.
- c. identify the general properties and behaviors of a set of relations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

- 1. determine total costs as a function of the number of units and the per unit cost.**  
102-103, 272, 279, 347, 349

**Indicator 2: Apply relations and functions to complex problem solving situations.****3 - 5 Benchmarks:**

- a. describe and reproduce patterns from real experiences.
- b. use tables, graphs, and open sentences to explain solutions to problems.
- c. apply pattern and relationship rules to solve problems.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

- 1. use number patterns and relationships to learn basic facts, e.g., nines tables.**  
276A-276B, 276-279, 280A-280B, 280-281, 282A-282B, 282-283, 288A-288B, 288-290, 314J, 340A-340B, 340-341
- 2. extend linear patterns by their rules, e.g., the number of legs on  $n$  horses can be calculated by counting by fours.**  
72A-72B, 72-73, 270A-270B, 270-273, 332A-332B, 332-335, 344A-344B, 344-345, 374A, 506A, 588A-588B, 588-589

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.****3 - 5 Benchmarks:**

- a. investigate the different uses of various sampling techniques.
- b. determine mode, median, and mean for various sets of data.
- c. make and support inferences through data collection.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. represent data in line plots, bar graphs, tables, or tally charts using appropriate form and scales for the data.**

190J, 204A-204B, 208A-208B, 212A-212B, 226A-226B, 226-227, 228A-228B, 228-230, 232A-232B, 232-233, 236A-236B, 236-237, 344A, 680A

**2. ask and answer relevant questions from data represented in charts, tables, and graphs.**

8A, 94A, 96A, 140A, 204-207, 208-211, 212-215, 216A-216B, 216-217, 222A-222B, 222-223, 232A, 284A, 286A, 342A, 396A, 428A, 516A, 584A, 640A

**Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.****3 - 5 Benchmarks:**

- a. compare sample data sets to group data.
- b. explore the relationship between experimental and theoretical probabilities.
- c. predict and report possible combinations and arrangements of probability in chance situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use results of probability experiments to make predictions about future events.**

104A, 136A, 318A, 384A, 626A, 678J, 702A-702B, 702-703, 704A-704B, 704-707, 708A-708B, 708-709

**2. describe events that are certain or impossible.**

200A, 700A-700B, 700-701

**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Grade Four**

**Goal 1 - ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**3 - 5 Benchmarks:**

- a. explore properties of equality and inequality.
- b. explore various relationships among elements of a set.
- c. create equivalent algebraic statements using inverse operations and order of operations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. use appropriate terms in mathematical explanations, e.g., multiple, factor, product, divisor, dividend, quotient.**

124A-124B, 128A-128B, 146A-146B, 146-147, 342A-342B, 342-343, 460A-460B, 460-461, 538A-538B, 538-539

**2. create mathematical sentences that are true using three given numbers.**

149, 158, 392A

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**3 - 5 Benchmarks:**

- a. use algebraic expressions to represent problems.
- b. create various representations for the same number sentence.
- c. use graphic representations to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. use variables as place holders in number sentences, e.g.,  $m + w = 6$ ;  $3 * K = 12$ .**  
100A-100B, 100-101, 166A-166B, 166-167, 478A, 690A-690B, 690-691

**2. write and solve number sentences that represent word problems.**

32A, 64A, 96A-96B, 96-97, 102-103, 150A, 222A, 226A, 234-235, 278A-278B, 278-281, 290A-290B, 290-291, 292-293, 314A, 326A, 336A, 344-345, 384A-384B, 384-385, 396A-396B, 396-399, 402A, 404A, 412-413, 452A, 464A, 500A, 536A, 596A, 602-603, 632A, 636A, 700A, 716-717

**Indicator 3: Analyze and describe situations that involve one or more variables.****3 - 5 Benchmarks:**

- a. determine solution sets for simple open sentences.
- b. model relationships between sets of numbers.
- c. explore how changing one variable can cause a change in another.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. explain the process used to simplify a two step problem.**

156A-156B, 158, 182, 186

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****3 - 5 Benchmarks:**

- a. describe properties of geometric figures using geometric terms.
- b. classify objects using geometric properties.
- c. use geometric properties to solve problems.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. investigate, describe, and identify the relationships between points, lines, and line segments.**

440A-440B, 440-443, 488, 490, 494, 496

**Indicator 2: Analyze geometric figures from a variety of perspectives.****3 - 5 Benchmarks:**

- a. use perspective to create or identify geometric shapes and figures.
- b. visualize and illustrate ways objects can be oriented in space.
- c. determine methods to transform objects.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. analyze geometric figures using size, shape, orientation, congruence, and similarity.**

28A, 258A, 368A, 434A-434B, 434-437, 438A-438B, 438-439, 444A-444B, 444-447, 448A-448B, 448-449, 452A-452B, 452-455, 456A, 458A-458B, 458-459, 460A-460B, , 460-461, 504A

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****3 - 5 Benchmarks:**

- a. identify the referents used in different measurement scales.
- b. investigate appropriateness of scales selected for measurement situations.
- c. investigate scales that can be used in unique measurement situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. measure time using fractions (ex. Fractions of an hour, fractions of a year.)**

188I, 512B, 563

**2. solve problems involving money, e.g., use of proper notation and unit conversions.**

2J, 28A-28B, 28-29, 30A-30B, 30-31, 32A-32B, 32-33, 40A, 80B, 102A, 200A, 206A

**3. select and use the most appropriate units for given measurement situations.**

588A, 588-589, 592B, 592-593, 594-595, 653, 656A-656B, 657, 660

**Indicator 2: Apply measurement concepts in practical applications.****3 - 5 Benchmarks:**

- a. use various tools to make accurate measurements.
- b. apply measurement tools that assist the physical senses in making measurements.
- c. investigate the effectiveness of specific measurement systems.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. measure length to the nearest  $\frac{1}{8}$  inch or to the nearest millimeter.**

590A-590B, 590-591, 622J, 652A-652B

**2. estimate and measure liquids in a variety of ways, e.g., cups, pints, quarts, gallons.**

592A-592B, 592, 654A-654B, 654-655

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.****3 - 5 Benchmarks:**

- a. examine the structure of the rational number system and investigate its appropriate applications and limitations.
- b. use physical materials and real- life experiences to understand the rational number system.
- c. model the connections of subsystems in the rational number system.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1.demonstrate that the value of a fraction is not changed when the numerator and denominator are multiplied by the same number.**

516A-516B, 516-519, 524A-524B, 524-527, 533, 534

**Indicator 2: Apply number operations with real numbers and other number systems.**

**3 - 5 Benchmarks:**

a. model the operations of addition, subtraction, multiplication, and division on rational numbers.

b. represent numbers in a variety of equivalent ways.

c. apply number operations in problem solving situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. apply multiplication and division facts through the 12s.**

124A-124B, 124-127, 132A-132B, 132-135, 136A-136B, 148A-148B, 148-149, 150A-150B, 150-151, 152A-152B, 152-153, 168A

**2. find the product of multi-digit factors.**

254I-254J, 256A-256B, 256-257, 258A-258B, 258-261, 262A-262B, 262-263, 264A-264B, 264-267, 270A-270B, 270-273, 274A-274B, 274-275, 292A-292B, 312J, 314A-314B, 314-315, 320A-320B, 320-323, 332A-332B, 332-335, 336A-336B, 336-337, 344A-344B

**3. find the quotient of two whole numbers.**

146A-146B, 146-147, 364I-364J, 366A-366B, 366-367, 372A-372B, 372-373, 374A-374B, 374-377, 380A-380B, 380-383, 386A-386B, 386-389, 390A-390B, 390-391, 406A-406B, 406-407, 412A-412B

**4. use the four operations with fractions and decimals.**

286A-286B, 286-287, 340A-340B, 340-341, 366A, 392A-392B, 392-393, 502A, 560I, 562A-562B, 564A-564B, 564-567, 568A-568B, 568-571, 574A-574B, 574-577, 578A-578B, 578-581, 594A, 602A, 638A-638B, 638-641, 642A-642B, 642-645



**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****3 - 5 Benchmarks:**

- a. explore the properties of the rational number system.
- b. apply various problem-solving rules.
- c. use estimation to test reasonableness of calculations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify and use the appropriate arithmetic operations in multi-step problem situations.**

24A, 38A, 72A, 90A, 140A, 156A-156B, 156-157, 164A, 216A, 230A, 270A, 320A, 340A, 390A, 440A, 524A, 578A

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.****3 - 5 Benchmarks:**

- a. model the concept of magnitude using concrete materials.
- b. explore the effect of operations on magnitudes.
- c. describe order and value relationships of common decimals, fractions, and whole numbers.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use a number line to compare numerical value of fractions or mixed numbers.**

498J, 504A-504B, 504-507, 508A-508B, 508-509, 524A, 525, 534-535, 538B, 540B

**2. read, write, order, and compare numbers from .001 to 1,000,000.**

8A-8B, 8-9, 16A-16B, 16-19, 20A-20B, 20-21, 34A-34B, 34-36, 40B, 40-41, 68A, 408A, 628A-628B, 628-629, 630A-630B, 630-631, 666A-666B

**3. associate verbal names, written word names, and the appropriate symbols in mathematical sentences.**

4B, 4-6, 8B, 8-9, 28B, 40A, 94A-94B, 94-95, 136A, 478B, 628A-628B, 628-629

**Goal 5 – PATTERNS, RELATIONS, AND FUNCTIONS**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.****3 – 5 Benchmarks:**

- a. explore relationships between and among different variables.
- b. recognize the effects of change in coefficients on graphs of relations.
- c. identify the general properties and behaviors of a set of relations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. determine per unit cost based on number of units and the total cost.**

157, 393, 398, 691

**Indicator 2: Apply relations and functions to complex problem solving situations.****3 – 5 Benchmarks:**

- a. describe and reproduce patterns from real experiences.
- b. use tables, graphs, and open sentences to explain solutions to problems.
- c. apply pattern and relationship rules to solve problems.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. solve problems involving pattern identification and completion of patterns.**

90A-90B, 90-91, 124A, 128A-128B, 128-129, 274A, 312I, 374A, 584A, 686I

**2. describe a rule for simple patterns.**

60J, 122I, 136, 164A-164B, 164-165, 380A, 402A-402B, 402-403, 710A

**Goal 6 – STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.****3 – 5 Benchmarks:**

- a. investigate the different uses of various sampling techniques.
- b. determine mode, median, and mean for various sets of data.
- c. make and support inferences through data collection.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. interpret and analyze data from graphical representations and draw justifiable conclusions.**

94A, 96A, 166A, 188J, 204A-204B, 204-205, 206A-206B, 206-207, 208A-208B, 208-211, 216A-216B, 216-219, 222A-222B, 222-223, 344A, 536A-536B, 536-537, 688A, 704A

**2. use mode, mean, median, and range to describe results and support predictions**

188J, 226A-226B, 226-229, 234B, 404A-404B, 404-405, 406A, 411, 412B, 540A, 658A

**Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.****3 – 5 Benchmarks:**

- a. compare sample data sets to group data.
- b. explore the relationship between experimental and theoretical probabilities.
- c. predict and report possible combinations and arrangements of probability in chance situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. determine the probability of simple events using a variety of materials, e.g., coins, spinners, dice, computer programs.**

22A, 154A, 232A, 286A, 386A, 522A, 590A, 642A, 686J, 700A-700B, 700-703, 706A, 706B, 706709, 710A-710B, 710-711

**Scott Foresman – Addison Wesley Mathematics  
to the  
SOUTH DAKOTA  
ESSENTIAL CORE MATHEMATICS STANDARDS  
Grade Five**

**Goal 1 - ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**3 - 5 Benchmarks:**

- a. explore properties of equality and inequality.
- b. explore various relationships among elements of a set.
- c. create equivalent algebraic statements using inverse operations and order of operations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. use variables, expressions, equations and inequalities to solve problems.**

38A, 100A-100B, 100-103, 104B, 104-105, 108A-108B, 108-109, 110A, 134, 138A, 172A-172B, 172-173, 224A, 226A, 230-231, 286A, 398A, 460A, 484A, 490A, 622A, 668A, 694I, 696A-696B, 698, 700A, 700A-700B, 700-701, 706A-706B, 706-709, 716A, 718A, 728-729

**2. create equivalent number sentences that use the inverse operation**

481, 484A-484B, 484-485, 502B, 696A-696B, 698, 702A-702B, 702-703

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**3 - 5 Benchmarks:**

- a. use algebraic expressions to represent problems.
- b. create various representations for the same number sentence.
- c. use graphic representations to solve problems involving positive and negative quantities.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. analyze tables and graphs to identify properties and relationships.**

8A, 80A, 92A, 144A, 152A, 176A-176B, 176-179, 262-265, 266A-266B, 266-269, 277-278, 286A, 286-287, 288A-288B, 288-291, 292A-292B, 292-293, 426A, 430A, 505, 602A, 644I, 652A-652B, 652-653, 660A-660B, 660-661, 728A-728B

**Indicator 3: Analyze and describe situations that involve one or more variables.****3 - 5 Benchmarks:**

- a. determine solution sets for simple open sentences.
- b. model relationships between sets of numbers.
- c. explore how changing one variable can cause a change in another.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. solve open sentences using the four basic operations.**

134, 224A, 226A, 230-231, 286A, 475, 484A, 490A, 622A, 668A, 694I, 696B, 700A-700B, 700-701, 706A-706B, 706-709, 716A

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****3 - 5 Benchmarks:**

- a. describe properties of geometric figures using geometric terms.
- b. classify objects using geometric properties.
- c. use geometric properties to solve problems.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. state and use properties of squares, rectangles, isosceles and equilateral triangles, circles, and other regular polygons to solve problems.**

238A, 282A, 326I-326J, 336A-336B, 336-337, 340A-340B, 340-341, 342A-342B, 342-345, 346A-346B, 346-348, 356B, 356-357, 372A-372B, 372-373, 542A-542B, 542-545

**Indicator 2: Analyze geometric figures from a variety of perspectives.****3 - 5 Benchmarks:**

- a. use perspective to create or identify geometric shapes and figures.
- b. visualize and illustrate ways objects can be oriented in space.
- c. determine methods to transform objects.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. use two-dimensional coordinate grids to find locations and represent points and simple figures.**

174A-174B, 174-175, 652A-652B, 652-653, 724A-724B, 724-727, 728A-728B, 728

**2. recognize and describe bilateral and rotational symmetry in two-and three-dimensional figures.**

14A, 164A, 368A-368B, 368-370, 372B, 372, 438

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****3 - 5 Benchmarks:**

- a. identify the referents used in different measurement scales.
- b. investigate appropriateness of scales selected for measurement situations.
- c. investigate scales that can be used in unique measurement situations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. solve problems involving money, e.g., use of proper notation, unit conversions, and making change.**

42A, 139, 148A-148B, 148-151, 160A-160B, 160-161, 202A, 205-206, 232A-232B, 232-233, 406A, 701, 708-709, 717

**2. use and convert measurement units, e.g., inches to feet.**

40A, 68A, 84A, 168A, 218A, 221, 266A, 400A, 414A, 472A, 528A-528B, 528-531, 536A-536B, 536-539, 562A-562B, 562-563, 614A-614B, 614-615, 616B, 616-617, 620A, 621, 622A-622B, 622-623, 626A

**Indicator 2: Apply measurement concepts in practical applications.****3 - 5 Benchmarks:**

- a. use various tools to make accurate measurements.
- b. apply measurement tools that assist the physical senses in making measurements.
- c. investigate the effectiveness of specific measurement systems.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. use appropriate tools to measure length, weight, and temperature, volume and area.**

531, 532A-532B, 532-533, 534B, 535, 548A-548B, 548-549, 568A, 570A-570B, 610A-610B, 620, 626A-626B

**2. use and evaluate strategies to make measurement estimates.**

18A, 526I, 571, 592J, 603, 613, 615, 616A, 616, 620B, 624A-624B, 624-625

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.**

**3 - 5 Benchmarks:**

- a. examine the structure of the rational number system and investigate its appropriate applications and limitations.
- b. use physical materials and real- life experiences to understand the rational number system.
- c. model the connections of subsystems in the rational number system.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. represent numbers in a variety of equivalent forms.**

14A-14B, 14-17, 400A-400B, 400-401, 410A-410B, 410-411, 412A-412B, 412-413, 416A-416B, 416-417, 426A-426B, 426-429, 458I, 668A-668B, 669, 670A-670B, 670, 676A

**2. use place-value concepts of grouping based upon powers of ten within the decimal number system.**

4A-4B, 4-5, 14A-14B, 14-17, 207

**Indicator 2: Apply number operations with real numbers and other number systems.**

**3 - 5 Benchmarks:**

- a. model the operations of addition, subtraction, multiplication, and division on rational numbers.
- b. represent numbers in a variety of equivalent ways.
- c. apply number operations in problem solving situations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. use inverse relationships of multiplication and division to explain the effects of division.**

130I, 133-134, 153, 158, 214B, 214-216, 502B



**2. compute with rational numbers using the four arithmetic operations. (ex.  $\frac{1}{4}$ ,  $\frac{1}{2} = \underline{\hspace{1cm}}$ ,  $3.2 \times 1.5 = \underline{\hspace{1cm}}$ )**

2J, 6A, 22A, 36A-36B, 36-37, 38A-38B, 38-39, 40A-40B, 40-41, 44-45, 64I-64J, 66A-66B, 66-67, 70A-70B, 70-71, 72A-72B, 72-75, 76A-76B, 76-77, 84A-84B, 84-85, 88A-88B, 88-91, 92A-92B, 92-93, 94A-94B, 94-97, 100A, 110A-110B, 110-111, 132A-132B, 133-135, 136A-136B, 136-137, 148A-148B, 148-151, 152A-152B, 152-155, 156A-156B, 156-157, 158A-158B, 158-159, 160A-160B, 160-161, 180A-180B, 180, 200I-200J, 202A-202B, 202-203, 214A-214B, 214-217, 218A-218B, 218-221, 222A-222B, 222-223, 224A-224B, 224-225, 230A-230B, 230-231, 232A-232B, 232-233, 234A-234B, 234-237, 238A-238B, 302A, 332A, 340A, 342A, 364A, 420A, 458J, 460A-460B, 460-461, 462A-462B, 462-463, 466A-466B, 466-468, 472A-472B, 472-473, 476A-476B, 476-477, 478A-478B, 478-481, 490A-490B, 490-493, 494A-494B, 494-495, 496A-496B, 496-499, 500A-500B, 500-501, 502A-502B, 502-503, 504A-504B, 504-505, 506A-506B, 506-507, 542A, 572-573, 606A, 624A, 702A, 716A-716B, 716-717, 718A-718B, 718-719, 720A, 730A-730B

**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.**

**3 - 5 Benchmarks:**

- explore the properties of the rational number system.
- apply various problem-solving rules.
- use estimation to test reasonableness of calculations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. select and use appropriate arithmetic operations for multi-step problem situations.**

8A, 26A, 70A, 86A, 94A, 104A, 136A, 156A, 202A, 210A, 222A, 26A-226B, 226-227, 234A, 262A, 292A, 328A, 336A, 402A, 466A, 532A, 548A, 614A, 660A

**Indicator 4: Analyze the concept of value, magnitude, and relative magnitude of real numbers.**

**3 - 5 Benchmarks:**

- model the concept of magnitude using concrete materials.
- explore the effect of operations on magnitudes.
- describe order and value relationships of common decimals, fractions, and whole numbers.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. understand relative size of whole numbers, commonly used fractions, decimals, and percents.**

2I, 398B, 402A-402B, 402-403, 418A-418B, 418-419, 420A-420B, 420-423, 430A-430B, 430-431, 644J

**2. read, write, order, and compare numbers from .0001 to over 1,000,000,000.**

4A-4B, 4-5, 6A-6B, 6-7, 8A-8B, 8-11, 12A-12B, 12-13, 26A-26B, 26-27, 44A-44B, 438

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.****3 - 5 Benchmarks:**

- a. explore relationships between and among different variables.
- b. recognize the effects of change in coefficients on graphs of relations.
- c. identify the general properties and behaviors of a set of relations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. solve problems involving variable of speed, unit cost and unit weight.**

93, 140, 181, 216, 227, 233, 236, 238-239, 285, 355, 538, 654A-654B, 654-655

**Indicator 2: Apply relations and functions to complex problem solving situations.****3 - 5 Benchmarks:**

- a. describe and reproduce patterns from real experiences.
- b. use tables, graphs, and open sentences to explain solutions to problems.
- c. apply pattern and relationship rules to solve problems.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. write open sentences using variables to represent a given mathematical relationship.**

100-102, 108B, 109, 176B, 224A, 226A, 286A, 484A-484B, 696, 700A-700B, 702A, 706A-706B, 706-708, 716A

**2. use a constant function to construct tables of input and output numbers and express the relationship as an open sentence.**

106A-106B, 109, 270A, 694J

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Use various statistical models to gather data, study problems, and draw conclusions.****3 - 5 Benchmarks:**

- a. investigate the different uses of various sampling techniques.
- b. determine mode, median, and mean for various sets of data.
- c. make and support inferences through data collection.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. use statistical data about life situations to make predictions and justify reasoning.**

260A, 293, 352A, 568A, 664A-664B, 664-665

**2. analyze data to determine the appropriate use of measures of central tendency.**

258I, 270B, 271, 282A-282B, 282-285

**Indicator 2: Apply the laws of probability to predict events/outcomes and solve problems.****3 - 5 Benchmarks:**

- a. compare sample data sets to group data.
- b. explore the relationship between experimental and theoretical probabilities.
- c. predict and report possible combinations and arrangements of probability in chance situations.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

- 1. classify probability of simple events as certain, likely, unlikely, or impossible.**  
296A-296B, 296-299, 314

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**Goal 1 - ALGEBRA**

Students will use the language of algebra to explore, describe, represent, and analyze number expressions and relations that represent variable quantities.

**Indicator 1: Analyze procedures to transform algebraic expressions.**

**6 - 8 Benchmarks:**

- a. describe the properties of equality and inequality and indicate life-related applications.
- b. determine common solution sets for algebraic statements.
- c. transform various algebraic expressions.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. explore various properties of equality and inequality.**

28A-28B, 28-29, 30A-30B, 30-31, 32, 44A-44B, 44-47, 48A-48B, 48-51, 112A-112B, 112-113, 274A-274B, 274-275, 276A-276B, 276-277, 430A-430B, 430-431, 696I-696J, 698A-698B, 698-699, 700A-700B, 700-703, 712A-712B, 712-715

**2. use order of operations to solve problems**

24A-24B, 24-27, 38-39, 712B, 712-713

**Indicator 2: Use a variety of algebraic concepts and methods to solve problems.**

**6 - 8 Benchmarks:**

- a. formulate an algebraic sentence from available data.
- b. explain the process used in solving algebraic sentences.
- c. use graphs to solve algebraic problems.

**GRADE LEVEL STANDARDS**

***THE STUDENT WILL:***

**1. identify and graph ordered pairs in a coordinate plane (quadrant I).**

440A-440B, 440-443, 448A-448B, 448-449, 510-511, 722A

**Indicator 3: Analyze and describe situations that involve one or more variables.****6 - 8 Benchmarks:**

- a. simulate life-related situations using algebraic statements.
- b. investigate mathematical simulations to interpret the results of change, e.g., position, slope.
- c. investigate equations that represent various characteristics of graphs.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. solve problems involving rate of speed, unit cost, or unit weight.**

83, 96, 99, 116B, 227, 229, 248A, 307-308, 320, 328A, 370A, 371, 388, 421, 444A, 496A, 544

**Goal 2 - GEOMETRY**

Students will use the language of geometry to discover, analyze, and communicate geometric concepts, properties, and relationships.

**Indicator 1: Apply deductive and inductive reasoning to analyze geometric properties to solve problems.****6 - 8 Benchmarks:**

- a. determine properties of geometric figures using inductive reasoning.
- b. explain conjectures related to or associated with geometric figures.
- c. apply geometric properties to investigate problem situations and produce solutions.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify, classify, and describe the characteristics of plane figures, e.g., similarities and differences.**

470J, 494A, 494-495, 496A-496B, 497-499, 500A-500B, 500-501, 512A-512B, 512-513, 520A, 540I, 576A-576B, 576-579, 598A

**2. identify, describe, and classify angles.**

470I, 476A-476B, 476-479, 480A-480B, 480-483, 496-498, 500A

**Indicator 2: Analyze geometric figures from a variety of perspectives.****6 - 8 Benchmarks:**

- a. develop representations that demonstrate various perspectives of geometric shapes and figures.
- b. visualize and represent geometric figures from various orientations.
- c. create and analyze transformations of geometric figures.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. explore ways that shapes can be combined, subdivided, and changed using geometric concepts including symmetry, reflections, congruency, similarity, perpendicularity, and parallelism.**

16A, 506A-506B, 506-509, 510A-510B, 510-511, 514A-514B, 514-515, 516A-516B, 516-519, 520A, 564A

**Goal 3 - MEASUREMENT**

Students will apply systems of measurement and use appropriate measurement tools to describe and analyze the world around them.

**Indicator 1: Use various units of measure within a system of measurement.****6 - 8 Benchmarks:**

- a. describe the referents used in relating different measurement scales.
- b. analyze the appropriateness of a scale selected for measurement situations.
- c. apply a scale with referents that fit unique measurement situations.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:***

**1. convert unit of measure within a measurement system.**

54A, 212A, 256A, 450A, 542A-542B, 542-545, 546B, 546-549, 560A, 576A, 586A

**Indicator 2: Apply measurement concepts in practical applications.****6 - 8 Benchmarks:**

- a. choose measurement tools to achieve specific degrees of accuracy or precision.
- b. select mathematical techniques that provide indirect measurement in specific situations.
- c. apply units of measurement that are usable for specific situations or applications.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. use the most appropriate tool to measure length, temperature, and angle in customary and metric systems.**

476A-476B, 476-479, 480A-480B, 546A, 550A-550B, 550-551

**2. use area formulas to solve problems**

110A, 160A, 380A, 568A-568B, 568-569, 570A-570B, 570-571, 572A-572B, 572-575, 580A-580B, 580-581, 582A, 586A, 590A-590B, 590-593, 620A, 628A, 724B

**3. apply units or combinations of units for various measurement situations.**

30A, 270A, 516A, 542A-542B, 542-545, 546A-546B, 548-549, 550A-550B, 550-551, 552A-552B, 552-553, 594A-594B, 596-597, 598B

**Goal 4 - NUMBER SENSE**

Students will develop and use number sense to investigate the characteristics of numbers in a variety of forms and modes of operation.

**Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems.****6 - 8 Benchmarks:**

- a. investigate the structure, applications, and limitations of the rational number system.
- b. use physical representations to demonstrate various number concepts.
- c. determine the characteristics of subsystems in the real number system.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. represent numbers in a variety of equivalent forms, fractions, decimals, percent.**

140J, 164A-164B, 164-165, 168A-168B, 168-169, 172A-172B, 172-175, 228A, 251, 352I, 354A-354B, 354-355, 358A-358B, 358-361, 366A-366B

**2. use concepts about numbers to build number sequences, e.g., primes, factors, multiples.**

140I, 142A-142B, 142-145, 146A-146B, 146-149, 150A-150B, 150-151, 152A-152B, 152-153



**Indicator 2: Apply number operations with real numbers and other number systems.****6 - 8 Benchmarks:**

- a. apply computation strategies in the real number system.
- b. represent real numbers in a variety of equivalent forms.
- c. extend number operations to include roots and exponents.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. solve problems involving arithmetic operations with fractions and mixed numbers.**

202I-202J, 204A-204B, 204-205, 206A-206B, 206-209, 218A-218B, 218-219, 220A-220B, 220-223, 224A-224B, 224-225, 246I-246J, 248A-248B, 248-251, 252A-252B, 252-255, 258A-258B, 258-259, 264A, 266A-266B, 266-269, 270A-270B, 270-271, 274A, 276A, 278A, 280A-280B, 280-281, 302A, 322A, 330A, 334A, 414A, 428A, 448A, 472A, 554A

**2. select appropriate operations to solve problems involving rational numbers, ratios, proportions, and percent.**

8A, 12A, 20A-20B, 20-21, 36A, 78A, 82A, 106A, 116A-116B, 116-119, 142A, 146A, 156A, 164A, 180A-180B, 180-181, 218A, 220A, 226A, 252A, 298J, 302A-302B, 302-305, 312A, 316A-316B, 316-317, 318A-318B, 318-321, 322A-322B, 322-323, 324A-324B, 324-325, 330A-330B, 330-333, 334B, 334-335, 352J, 358A, 362A, 366-367, 370A-370B, 370-371, 374A-374B, 374-377, 380A-380B, 380-383, 384A-384B, 384-385, 388A-388B, 388-389, 406J, 408A, 410A, 412A, 414A-414B, 414-415, 418A-418B, 418-421, 422A-422B, 422-425, 426A-426B, 426-427, 428A-428B, 429, 434A-434B, 434-437, 450A-450B, 450-451, 480A, 484A, 490A, 506A, 514A, 520, 542A, 598, 624A, 638A, 650A, 664A, 676-677, 724-725

**Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.****6 - 8 Benchmarks:**

- a. apply, test, and explain conjectures about properties of a number system.
- b. create rules for various problem solving purposes.
- c. determine the reasonableness of solutions to various problems derived from calculations.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. use estimation strategies to help solve multi- step problems involving rational numbers.**

2I, 119, 227, 228A, 381, 599, 723

**Indicator 4: Apply the concept of value, magnitude, and relative magnitude of real numbers.**

**6 - 8 Benchmarks:**

- a. express large and small numbers using appropriate notation.
- b. describe the effect of operations on magnitudes.
- c. explain real number relationships.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:**

**1. identify, represent, compare, and order rational numbers and represent them in a number line.**

4A-4B, 4-6, 12A-12B, 12-13, 14A-14B, 14-15, 54A-54B, 78A-78B, 78-79, 80A-80B, 80-81, 112A, 176A-176B, 176-179, 408A-408B, 408-409, 410A-410B, 410-411, 412A-412B, 412-413, 422A

**Goal 5 - PATTERNS, RELATIONS, AND FUNCTIONS**

Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms.

**Indicator 1: Analyze and describe the properties and behaviors of relations, functions, and their inverses.**

**6 - 8 Benchmarks:**

- a. investigate relationships between dependent and independent variables.
- b. determine the effects of change in coefficients on graphs of functions or relations.
- c. interpret the general properties and behaviors of a set of related functions.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. solve simple problems involving rates, average speed, distance, and time.**

108, 157, 223, 306A-306B, 306-309, 320, 328A-328B, 328-329, 354A, 370A, 386A-386B, 386-387, 388, 421, 444A, 496A, 720-721, 724B

**Indicator 2: Apply relations and functions to complex problem solving situations.****6 - 8 Benchmarks:**

- a. investigate real- life events that model relations and/or functions.
- b. determine solutions to problems using various patterns, functions, or relations.
- c. explain patterns and relationships rules used to solve problems.

**GRADE LEVEL STANDARDS****THE STUDENT WILL:****1. recognize, describe and extend a variety of numeric and geometric patterns.**

116A, 156A-156B, 156-157, 212A-212B, 212-213, 298I-298J, 384A, 386A, 444A-444B, 444-447, 590A, 716A-716B, 716-717

**Goal 6 - STATISTICS & PROBABILITY**

Students will apply statistical methods to analyze data and explore probability for making decisions and predictions.

**Indicator 1: Students will use various statistical models to gather data, study problems, and draw conclusions.****6 - 8 Benchmarks:**

- a. select and use various data gathering strategies.
- b. investigate the impact of variability of data on measures of central tendency.
- c. make inferences and draw conclusions through data collection and analysis.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. analyze how data is displayed and its impact on conclusions reached.**

363, 637, 641, 648A-648B, 648-649, 650A-650B, 650-651, 674A-674B, 674-675, 676B

**Indicator 2: Apply the laws of probability to predict outcomes and solve problems.****6 - 8 Benchmarks:**

- a. recognize equally likely outcomes, establish sample spaces, and determine probabilities of events.
- b. make predictions and compare results based on experimental or theoretical probabilities.
- c. predict the results of a series of trials once the probability of one trial is known.

**GRADE LEVEL STANDARDS*****THE STUDENT WILL:*****1. identify probabilities of events and predict outcomes.**

176A, 324A, 374A, 440A, 476A, 662A-662B, 662-663, 664A-664B, 664-667, 668A-668B, 668-671, 672A-672B, 672-673, 674A, 710A

**2. represent all possible outcomes for compound events in an organized manner, e.g., tables, tree diagrams.**

264A-264B, 264-265, 316A, 572A, 618J, 654A-654B, 654-657