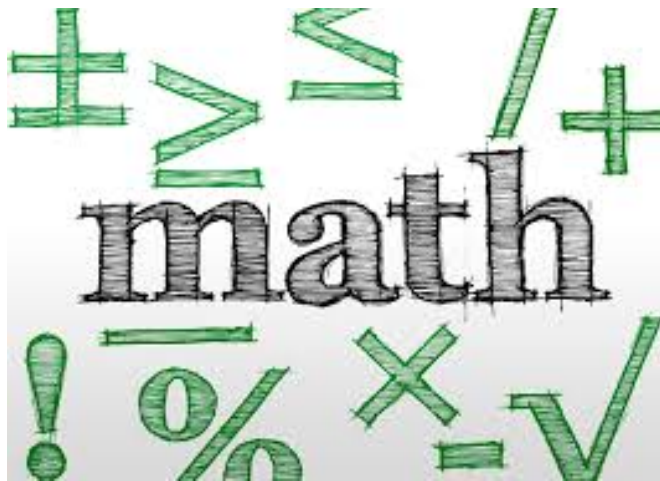


SALEM ACADEMY CHRISTIAN SCHOOLS

# MATHEMATICS STANDARDS 2023



This document includes the Oregon Department of Education Standards in Mathematics (2021), Salem Academy's additional standards, and Biblical integration connections. Additional standards are included and highlighted under each domain, and **priority standards are bolded**.



### **Philosophy:**

The teaching of mathematics is not neutral; instead, God is in all things (Malachi 3:6; Colossians 1:17). In our approach to teaching mathematics, we aim to instruct in a manner that illuminates how mathematics “only works because it holds the consistencies that God created in place” (Hannon, 2009, p. 7). Primarily mathematics reinforces the foundational truth that the universe is not the result of chance or randomness but of pattern and structure and evidence of a Divine Creator (Genesis 1). The patterns, mechanics, properties, and rules in mathematics further support God as creator and sustainer of life and testify to His faithfulness. We seek to see God's work everywhere in His creation (Romans 1:20) so that our students might know and serve God.

- ❖ Malachi 3:6, “For I, the Lord, do not change, and you, sons of Jacob, do not cease to be.”
- ❖ Colossians 1:17, “He is before all things, and in Him all things hold together.”
- ❖ Romans 1:20, “Ever since the creation of the world, His invisible attributes of eternal power and divinity have been able to be understood and perceived in what He has made. As a result, they have no excuse.”

Hannon, K. L. (2009). *Revealing arithmetic: Math concepts from a biblical worldview*. Master Books.

Nickel, J. (2001). *Mathematics: Is God silent?* Ross House Books.

### **Rationale:**

Through the teaching of Mathematics, Salem Academy teachers equip students to strive toward reaching the school's mission. Our curriculum is Biblically integrated, exceeds Oregon State Mathematics Standards and is aligned to the Mathematical Practice Standards and our Expected Student Outcomes.

Mathematical learning occurs when lessons are student-centered, built on prior knowledge, and rigorous (balance between conceptual understanding, procedural skills and fluency, and application). We believe all students can learn at high levels through quality instruction; a tiered support system is in place to provide targeted student interventions and extensions.

Mathematically proficient students can understand and efficiently solve authentic problems flexibly and fluently. Proficiency is seen through five indicators:

- Conceptual understanding: comprehension of mathematical concepts, operations, and relations.
- Procedural fluency: skill in carrying out procedures flexibly, accurately, efficiently, and appropriately.
- Adaptive reasoning: capacity for logical thought, reflection, explanation, and justification.
- Strategic competence: the ability to formulate, represent, and solve mathematical problems.
- Productive disposition: a habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's efficacy.

(The Five Strands of Mathematical Proficiency - Adding It Up, 2001)

### **Expected Student Outcomes:**

- Authentic Christ Followers: Disciples of Jesus Christ who have a faith built on a personal relationship with God that produces a transformed life.
- Servant Leaders: World changers that are equipped and committed to following God's call to lead in the humility and love of Christ.



- Life-Long Learners: Creative individuals that are engaged in acquiring new knowledge, wisdom, and understanding in every area of their lives.
- Community Builders: Selfless encouragers that are committed to building up the people in their lives, working towards justice and freedom for all.
- Ethical Decision-Makers: Biblically grounded moral beings that believe in the absolute truth of God's Word as the foundation for every belief and behavior.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

BP1 God is Creator of the universe and every living thing; we will celebrate His character and His power in the order of His design.

#### **BP 2 We Pursue Relationship with God.**

BP2 God created us to be in personal relations through Jesus Christ and to live holy lives; we will learn to enjoy His presence and to worship Him in word and deed.

#### **BP 3 We Seek God's Truth.**

BP3 God is the source of truth and wisdom; we will pursue knowledge and apply it in light of Scripture, defending our faith with gentleness and respect.

#### **BP 4 We Reflect God's Image.**

God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

#### **BP 5 We Live with Purpose.**

BP5 God redeemed us and gave us gifts, talents, abilities and resources to use for His glory and His Kingdom work; we will conserve and cultivate these gifts with grateful hearts.

#### **BP 6 We Lead by Serving.**

BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

#### **BP 7 We Build Authentic Relationships.**

BP7 God has placed us together at Salem Academy for His purposes; we will build up, honor and forgive one another, spreading his message of reconciliation and hope.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Committee Members:**

**Carrie Ferguson**  
Elementary Principal

**Michelle Heuberger**  
Director of Educational  
Support Services

**Alexis Smith**  
Intervention Teacher

**Jana Koning**  
Kindergarten Teacher

**Hannah Kendall**

**Ann Robinson**

**Jessica Mielke**



1st Grade Teacher

3rd Grade Teacher

6th Grade Math Teacher

## Kindergarten

### Overview:

#### **Algebraic Reasoning: Operations (K.OA)**

- Understand addition and subtraction.

#### **Numeric Reasoning: Counting and Cardinality (K.NCC)**

- Subitize numbers
- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

#### **Numeric Reasoning: Base Ten**

- Work with numbers 11-19 to gain foundations for place value.

#### **Geometric Reasoning and Measurement (K.GM)**

- Identify and describe shapes.
- Analyze, compare, create, and compose shapes.
- Describe and compare measurable attributes.

#### **Data Reasoning (K.DR)**

- Pose investigative questions and collect/consider data.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
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**Kindergarten Standards**

**Algebraic Reasoning: Operations (K.OA)**

**K.OA.A Understand addition and subtraction.**

- K.OA.A.1** Represent addition as putting together and adding to and subtraction as taking apart and taking from using objects, drawings, physical expressions, and numbers or equations.
- K.OA.A.2** Add and subtract within 10. Model authentic contexts and solve problems that use addition and subtraction within 10.
- K.OA.A.3** Using objects or drawings, and equations, decompose numbers less than or equal to 10 into pairs in more than one way.
- K.OA.A.4** By using objects, drawings, or equations, find the unknown number that makes 10 when added to a given number 1-9.
- K.OA.A.5** Fluently add and subtract within 5 with accurate, efficient, and flexible strategies.

**Numeric Reasoning: Counting and Cardinality (K.NCC)**

**K.NCC.A Know number names and the count sequence.**

- K.NCC.A.1** Orally count to 100 by ones and by tens in sequential order.
- K.NCC.A.2** Count forward beginning from a given number within 100 of a known sequence.
- K.NCC.A.3** Identify number names, write numbers, and the count sequence from 0-20. Represent a number of objects with a written number 1-20.

**K.NCC.B Count to tell the number of objects.**

- K.NCC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
- K.NCC.B.5** Count to answer, "how many?" questions using up to 20 objects arranged in a variety of configurations or as 10 objects in a scattered configuration. Given a number from 1-20, count out that many objects.



### **K.NCC.C Compare numbers.**

**K.NCC.C.6** Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.

**K.NCC.C.7** Compare two numbers between 1 and 10 presented as written numerals.

### **K.NCC.D Subitize numbers.**

**K.NCCD.1** Subitize numbers and sets of numbers within ten.

### **Numeric Reasoning: Base Ten Arithmetic (K.NBT)**

#### **K.NBT**

### **K.NBT.A Work with numbers 11-19 to gain foundations for place value.**

**K.NBT.A.1** Compose and decompose from 11-19 into groups of tens and ones and some further ones using objects, drawings, or equations.

### **Geometric Reasoning and Measurement (K.GM)**

#### **K.GM.A Identify and describe shapes.**

**K.GM.A.1** Describe objects in the environment using names of shapes and describe the relative positions of these objects in the environment.

**K.GM.A.2** Correctly name common two-dimensional and three-dimensional geometric shapes regardless of their orientations or overall size.

**K.GM.A.3** Identify shapes as two-dimensional or three-dimensional.

#### **K.GM.B Analyze, compare, create, and compose shapes.**

**K.GM.B.4** Analyze and compare two and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and attributes.

**K.GM.B.5** Represent shapes in the world by building shapes from components and drawing shapes.

**K.GM.B.6** Compose common shapes to form larger shapes.

#### **K.GM.C Describe and compare measurable attributes.**

**K.GM.C.7** Describe several measurable attributes of a single object using measurable terms, such as length or weight.

**K.GM.C.8** Directly compare two objects with a measurable attribute in common, and describe which object has “more” or “less” of an attribute.

### **Data Reasoning (K.DR)**



**K.DR.A Pose investigative questions and collect/consider data.**

K.DR.A.1           Generate questions to investigate situations within the classroom. Collect or consider data that can naturally answer questions by sorting and counting.

**K.DR.B Analyze, represent, and interpret data.**

K.DR.B.1           Analyze data sets by counting the number of objects in each category and interpret results by classifying and sorting objects by count.



## 1st Grade

### Overview:

#### **Algebraic Reasoning: Operations (1.OA)**

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

#### **Numeric Reasoning: Base Ten Arithmetic (1.NBT)**

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties to add and subtract.

#### **Geometric Reasoning and Measurement (1.GM)**

- Reason with shapes and their attributes.
- Describe and compare measurable attributes.
- Tell and write time and work with money.

#### **Data Reasoning (1.DR.1)**

- Pose investigative questions and collect/consider data.
- Analyze, represent, and interpret data.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

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#### **BP 5 We Live with Purpose.**

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**BP 6 We Lead by Serving.**

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**BP 7 We Build Authentic Relationships.**

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**1st Grade Standards**

**Algebraic Reasoning: Operations (1.OA)**

**1.OA.A Represent and solve problems involving addition and subtraction.**

- 1.OA.A.1** Use addition and subtraction within 20 to solve and represent problems in authentic contexts involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
- 1.OA.A.2** Solve problems that call for addition of three whole numbers whose sum is less than or equal to 20 using objects, drawings, or equations.

**1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction.**

- 1.OA.B.3** Apply properties of operations as strategies to add and subtract.
- 1.OA.B.4** Understand subtraction as an unknown-addend problem.

**1.OA.C Add and subtract within 20.**

- 1.OA.C.5** Relate counting to addition and subtraction.
- 1.OA.C.6** Add and subtract within 20, demonstrating fluently for addition and subtraction within 10 with accurate, efficient, and flexible strategies.

**1.OA.D Work with addition and subtraction equations.**

- 1.OA.D.7** Use the meaning of the equal sign to determine whether equations involving addition and subtraction are true.
- 1.OA.D.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

**Numeric Reasoning: Base Ten Arithmetic (1.NBT)**

**1.NBT.A Extend the counting sequence.**

- 1.NBT.A.1a** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.



**1.NBT.A.1b** Count within 100 by 2s, 3s, 5s, and 10s

**1.NBT.A.c** Understand the difference between odd and even numbers.

**1.NBT.B Understand place value.**

**1.NBT.B.2** Understand 10 as a bundle of ten ones and that the two digits of a two-digit number represent amounts of tens and ones.

**1.NBT.B.3** Compare two two-digit **and three-digit** numbers based on means of **hundreds**, tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ ,  $<$ .

**1.NBT.C Use place value understanding and properties of operations to add and subtract.**

**1.NBT.C.4** Add within 100 using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain why sometimes it is necessary to compose a ten.

**1.NBT.C.5** Without having to count, mentally find 10 more or 10 less than a given two-digit number and explain the reasoning used.

**1.NBT.C.6** Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range of 10-90 using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy and model used to a written method and explain the reasoning used.

**Geometric Reasoning and Measurement (1.GM)**

**1.GM.A Reason with shapes and their attributes.**

**1.GM.A.1** Distinguish between defining attributes versus non-defining attributes for a wide variety of shapes. Build and draw shapes to possess defining attributes.

**1.GM.A.2** Compose common two-dimensional shapes or three-dimensional shapes to create a composite shape, and create additional new shapes from composite shapes.

**1.GM.A.3** Partition circles and rectangles into two and four equal shares. Describe the equal shares and understand that partitioning into more equal shares creates smaller shares.

**1.GM.B Describe common measurable attributes**

**1.GM.B.4** Order three objects by length; compare the lengths of two objects indirectly by using a third object.

**1.GM.B.5** Express the lengths of an object as a whole number of non-standard length units, by laying multiple copies of a shorter object (the length unit) end to end.

**1.GM.C Tell and write time and work with **money**.**



- 1.GM.6.a Tell and write time to five minutes using analog and digital clocks.
- 1.GM.6.b Understand how time is organized into days, weeks, months, and years.
- 1.GM.6.c Identify and know the value of a penny, nickel, dime, and quarter.
- 1.GM.6.d Count a collection of coins.

## **Data Reasoning (1.DR)**

### **1.DR.A Pose investigative questions and collect/consider data.**

- 1.DR.A.1 Generate questions to investigate situations within the classroom. Collect or consider data that can naturally answer questions by representing data visually.

### **1.DR.B Analyze, represent, and interpret data.**

- 1.DR.B.2 Analyze data sets with up to three categories by representing data visually, such as with graphs and charts, and interpret information presented to answer investigative questions.



## 2nd Grade

### Overview:

#### **Algebraic Reasoning: Operations (2.OA)**

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

#### **Geometric Reasoning and Measurement (2.GM)**

- Reason with shapes and their attributes.
- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.

#### **Numeric Reasoning: Base Ten Arithmetic (2.NBT)**

- Understand place value.
- Use place value understanding properties of operations to add and subtract.

#### **Algebraic Reasoning: Operations (1.OA)**

- Pose investigative questions and collect/consider data.
- Analyze, represent, and interpret data.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

BP1 God is Creator of the universe and every living thing; we will celebrate His character and His power in the order of His design.

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#### **BP 3 We Seek God's Truth.**

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#### **BP 4 We Reflect God's Image.**

God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

#### **BP 5 We Live with Purpose.**

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#### **BP 6 We Lead by Serving.**



BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

**BP 7 We Build Authentic Relationships.**

BP7 God has placed us together at Salem Academy for His purposes; we will build up, honor and forgive one another, spreading his message of reconciliation and hope.

**2nd Grade Standards**

**Algebraic Reasoning: Operations (2.OA)**

**2.OA.A Represent and solve problems involving addition and subtraction.**

**2.OA.A.1** Use addition and subtraction within 100 to solve one- and two-step problems in authentic context by using drawings and equations with a symbol for the unknown.

**2.OA.B Add and subtract fluently within 20**

**2.OA.B.2** Fluently add and subtract within 20 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations. By end of second grade, know from memory, all sums of two one-digit numbers.

**2.OA.C Work with equal groups of objects to gain foundations for multiplication.**

**2.OA.C.3** Determine whether a group up to 20 objects has an odd or even number by pairing objects or counting them by 2s; record using drawings and equations including expressing an even number as a sum of two equal addends.

**2.OA.C.4** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

**2.OA.D Multiply and divide by 1s, 2s, 5s, and 10s**

**2.OA.D.5** Introduce: Represent and interpret multiplication of two factors as repeated addition of equal groups.

**2.OA.D.6** Fluently multiply and divide within 100 (1s, 2s, 5s, 10s) using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.

**Numeric Reasoning: Base Ten Arithmetic (2.NBT)**

**2.NBT.A Understand place value.**

**2.NBT.A.1** Understand 100 as a bundle of ten tens and that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.

**2.NBT.A.2** Count within 1000; skip-count by 2s, 3s, 5s, 10s, and 100s.

**2.NBT.A.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.



**2.NBT.A.4** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**2.NBT.B Use place value understanding and properties of operations to add and subtract.**

**2.NBT.B.5** Fluently add & subtract within 100 using accurate, efficient, & flexible strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

**2.NBT.B.6** Add up to four two-digit numbers using strategies based on place value and properties of operations and describe how two different strategies result in the same sum.

**2.NBT.B.7** Add and subtract within 1000 using concrete or visual representations and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain why sometimes it is necessary to compose or decompose tens or hundreds.

**2.NBT.B.8** Without having to count, mentally find 10 more or 10 less and 100 more and 100 less than a given three-digit number.

**2.NBT.B.9** Explain why strategies to add and subtract work using properties of operations and the relationship between addition and subtraction.

**2.NBT.B.9a** Select and apply efficient methods to estimate a sum and differences and calculate them mentally.

**Geometric Reasoning and Measurement (2.GM)**

**2.GM.A Reason with shapes and their attributes.**

**2.GM.A.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.

**2.GM.A.2** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

**2.GM.A.3** Partition circles and rectangles into two, three, or four equal parts. Recognize that equal parts of identical wholes need not have the same shape.

**2.GM.B Measure and estimate lengths in standard units.**

**2.GM.B.4** Measure the length of an object by selecting and using appropriate measurement tools.

**2.GM.B.5** Measure the length of an object using two different lengths units and describe how the measurements relate to the size of the unit chosen.

**2.GM.B.6** Estimate lengths using units of inches, feet, yards, centimeters, and meters.



**2.GM.B.7** Measure two objects and determine the difference in their lengths in terms of a standard length unit.

**2.GM.C Relate addition and subtraction to length.**

**2.GM.C.8** Use addition and subtraction within 100 to solve problems in authentic contexts involving lengths that are given in the same units.

**2.GM.C.9** Represent whole number lengths on a number line diagram; use number lines to find sums and differences within 100.

**2.GM.D Work with time and money.**

**2.GM.C.10a** **Introduce:** Tell and write time from analog and digital clocks to the nearest **minute**, using a.m. and p.m.

**2.GM.C.10b** **Introduce:** Solve problems in authentic context that involve the addition and subtraction of time intervals in minutes.

**2.GM.C.11a** Solve problems in authentic context involving dollar bills, quarters, dimes, nickels, and pennies, using \$ (dollars) and c (cents) symbols appropriately.

**2.GM.C.11b** **Identify coin equivalency and determine the value of a mixed collection of coins.**

**Data Reasoning (2.DR)**

**2.DR.A Pose investigative questions and collect/consider data.**

**2.DR.A.1** Distinguish between defining attributes versus non-defining attributes for a wide variety of shapes. Build and draw shapes to possess defining attributes.

**2.DR.B Analyze, represent, and interpret data.**

**2.DR.B.2** Analyze data with a single-unit scale and interpret information presented to answer investigative questions.



### 3rd Grade

#### Overview:

##### **Algebraic Reasoning: Operations (3.OA)**

- Represent and solve problems involving addition and subtraction.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

##### **Numeric Reasoning: Base Ten Arithmetic (3.NBT)**

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

##### **Numeric Reasoning: Fractions (3.NF)**

- Develop understanding of fractions as numbers

##### **Geometric Reasoning and Measurement (3.GM)**

- Reason with shapes and their attributes.
- Solve problems involving measurement and estimation.
- Geometric measurement: understand concepts of area and relate area to multiplication to addition.
- Geometric measurement: recognize perimeter.

##### **Data Reasoning (3.DR)**

- Pose investigative questions and collect/consider data.
- Analyze, represent, and interpret data.

#### **Mathematical Practice Standards:**

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2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
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BP3 God is the source of truth and wisdom; we will pursue knowledge and apply it in light of Scripture, defending our faith with gentleness and respect.

##### **BP 4 We Reflect God's Image.**





God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

**BP 5 We Live with Purpose.**

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**BP 6 We Lead by Serving.**

BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

**BP 7 We Build Authentic Relationships.**

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**3rd Grade Standards**

**Algebraic Reasoning: Operations (3.OA)**

**3.OA.A Represent and solve problems involving addition and subtraction.**

- 3.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step problems in authentic context by using drawings and equations with a symbol for the unknown.
- 3.OA.A.2 Represent and interpret multiplication of two factors as repeated addition of equal groups.
- 3.OA.A.3 Use multiplication and division within 100 to solve problems in authentic contexts involving equal groups, arrays, and/or measurement quantities.
- 3.OA.A.4 Determine the unknown number in a multiplication or division equation relating three whole numbers by applying the understanding of the inverse relationship of multiplication and division.

**3.OA.B Understand properties of multiplication and the relationship between multiplication and division.**

- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.
- 3.OA.B.6 Understand division as an unknown-factor in a multiplication problem.

**3.OA.C Work with equal groups of objects to gain foundations for multiplication.**

- 3.OA.C.7 Fluently multiply and divide within 100 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.

**3.OA.D Solve problems involving the four operations, and identify and explain patterns in arithmetic.**

- 3.OA.D.8 Solve two-step problems in authentic contexts that use addition, subtraction, multiplication, and division in equations with a letter standing for an unknown quantity.



**3.OA.D.9 Identify and explain arithmetic patterns using properties of operations, including patterns in the addition or multiplication table.**

#### **Numeric Reasoning: Base Ten Arithmetic (3.NBT)**

##### **3.NBT.A Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- 3.NBT.A.1** Use place value understanding to round whole numbers within 1000 to the nearest 10 or 100.
- 3.NBT.A.2** Fluently add and subtract within 1000 using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
- 3.NBT.A.3** Find the product of one-digit whole numbers by multiples of 10 in the range 10-90, such as  $9 \times 80$ . Students use a range of strategies and algorithms based on place value and properties of operations.

#### **Numeric Reasoning: Fractions (3.NF)**

##### **3.NF.A Develop understanding of fractions as numbers.**

- 3.NF.A.1** Understand the concept of a unit fraction and explain how multiple copies of a unit fraction form a non-unit fraction.
- 3.NF.A.2** Understand a fraction as a number on the number line; Represent fractions on a number line diagram.
- 3.NF.A.3** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

#### **Geometric Reasoning and Measurement (3.GM)**

##### **3.GM.A Reason with shapes and their attributes.**

- 3.GM.A.1** Understand that shapes in different categories may share attributes and that shared attributes can define a larger category.
- 3.GM.A.2** Partition shapes into parts with equal areas and express the area of each part of a unit fraction of the whole.

##### **3.GM.B Solve problems involving measurement and estimation.**

- 3.GM.B.3** Tell, write, and measure time to the nearest minute. Solve problems in authentic contexts that involve the addition and subtraction of time intervals in minutes.
- 3.GM.B.4** Measure, estimate and solve problems in authentic contexts that involve liquid volumes and masses of objects using standard units of grams (g), kilogram (kg), and liters (l).



**3.GM.C Geometric measurement: understand concepts of area and related area to multiplication and to addition.**

- 3.GM.C.5** Recognize area as an attribute of plane figures and understand concepts of area measurement presented in authentic context by tiling and counting unit squares.
- 3.GM.C.6** Measure areas by counting standard and non-standard unit squares.
- 3.GM.C.7** Relate area to multiplication and addition. Use relevant representations to solve problems in authentic contexts.

**3.GM.D Geometric measurement: recognize perimeter.**

- 3.GM.D.8** Solve problems involving authentic contexts for perimeters of polygons.

**3.GM.E Work with money.**

- 3.GM.D.9** Make change to a whole dollar.

**Data Reasoning (3.DR)**

**3.DR.A Pose investigative questions and collect/consider data.**

- 3.DR.A.1** Generate questions to investigate situations within the classroom, school or community. Collect or consider measurement data that can naturally answer questions by using information presented in a scaled picture and/or graph.

**3.DR.B Analyze, represent, and interpret data.**

- 3.DR.B.2** Analyze measurement data with a scaled picture graph or a scaled bar graph to represent a data set with several categories. Interpret information presented to answer investigative questions.



## 4th Grade

### Overview:

#### **Algebraic Reasoning: Operations (4.OA)**

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

#### **Numeric Reasoning: Base Ten Arithmetic (4.NBT)**

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

#### **Numeric Reasoning: Fractions (4.NF)**

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions.
- Understand decimal notation for fractions, and compare decimal fractions.

#### **Geometric Reasoning and Measurement (4.GM)**

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- Solve problems involving measurement and conversions of measurement.
- Geometric measurement: understand concepts of angle and measure angles.

#### **Data Reasoning (4.DR)**

- Pose investigative questions and collect/consider data.
- Analyze, represent, and interpret data.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

BP1 God is Creator of the universe and every living thing; we will celebrate His character and His power in the order of His design.

#### **BP 2 We Pursue Relationship with God.**

BP2 God created us to be in personal relations through Jesus Christ and to live holy lives; we will learn to enjoy His presence and to worship Him in word and deed.

#### **BP 3 We Seek God's Truth.**

BP3 God is the source of truth and wisdom; we will pursue knowledge and apply it in light of Scripture, defending our faith with gentleness and respect.



**BP 4 We Reflect God's Image.**

God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

**BP 5 We Live with Purpose.**

BP5 God redeemed us and gave us gifts, talents, abilities and resources to use for His glory and His Kingdom work; we will conserve and cultivate these gifts with grateful hearts.

**BP 6 We Lead by Serving.**

BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

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**4th Grade Standards**

**Algebraic Reasoning: Operations (4.OA)**

**4.OA.A Use the four operations with whole numbers to solve problems.**

- 4.OA.A.1** Interpret a multiplication equation as comparing quantities. Represent verbal statements of multiplicative comparison as equations.
- 4.OA.A.2** Multiply or divide to solve problems in authentic contexts involving multiplicative comparison, distinguishing multiplicative comparisons from additive comparisons.
- 4.OA.A.3a** Solve multistep problems in authentic context using whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
- 4.OA.A.3b** Perform order of operations with parenthesis to evaluate expressions.

**4.OA.B Gain familiarity with factors and multiples.**

- 4.OA.B.4** Find all factor pairs for a whole number in the range 1-100. Determine whether a given whole number in the range of 1-100 is a multiple of a given one-digit number, and whether it is prime or composite.

**4.OA.C Generate and analyze patterns**

- 4.OA.C.5** Analyze a number, visual, or contextual pattern that follows a given rule.

**Numeric Reasoning: Base Ten Arithmetic (4.NBT)**

**4.NBT.A Generalize place value understanding for multi-digit whole numbers.**



- 4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
- 4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Use understandings of place value within these forms to compare two multi-digit numbers using  $>$ ,  $=$ , and  $<$  symbols.
- 4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place value.

**4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- 4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
- 4.NBT.B.5 Use representations and strategies to multiply a whole number of up to four digits by a one-digit number, and a two-digit number by a two-digit number using strategies based on place value and the properties of operations.
- 4.NBT.B.6 Use representations and strategies to find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

**Numeric Reasoning: Fractions (4.NF)**

**4.NF.A Extend understanding of fractions equivalence and ordering.**

- 4.NF.A.1 Use visual fraction representations to recognize, generate, and explain relationships between equivalent fractions.
- 4.NF.A.2 Compare two fractions with different numerators and/or different denominators, record the results with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions.

**4.NF.B Build fractions from unit fractions.**

- 4.NF.B.3 Understand a fraction ( $a/b$ ) as the sum ( $a$ ) of fractions of the same denominator ( $1/b$ ). Solve problems in authentic contexts involving addition and subtraction of fractions referring to the same whole and having like denominators.
- 4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. Represent and solve problems in authentic contexts involving multiplication of a fraction by a whole number.

**4.NF.C Understand decimal notation for fractions, and compare decimal fractions.**

- 4.NF.C.5 Demonstrate and extend the concept of equivalent fractions with denominators of 10 and 100, using concrete materials and visual models. Add two fractions with



denominators of 10 and 100.

**4.NF.B.6** Use and interpret decimal notation for fractions with denominators 10 or 100.

**4.NF.B.7** Use decimal notation for fractions with denominators 10 or 100. Compare two decimals to the hundredth place by reasoning about their size, and record the comparison using the symbols  $>$ ,  $<$ , or  $=$ .

#### **Geometric Reasoning and Measurement (4.GM)**

##### **4.GM.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.**

**4.GM.A.1** Explore, investigate, and draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.GM.A.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specific size.

**4.GM.A.3** Recognize and draw a line of symmetry for a two dimensional figure.

##### **4.GM.B Solve problems involving measurement and conversions of measurement.**

**4.GM.B.4** Know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.

**4.GM.B.5** Apply knowledge of the four operations and relative size of measurement units to solve problems in authentic contexts that include familiar fractions or decimals.

**4.GM.A.6** Apply the area and perimeter formulas for rectangles in authentic contexts and mathematical problems.

##### **4.GM.C Geometric measurement: understanding concepts of angle and measure angles.**

**4.GM.C.7** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint. Understand and apply concepts of angle measurement.

**4.GM.C.8** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

**4.GM.C.9** Recognize angle measures as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.

##### **4.GM.D Work with money.**

**4.GM.D.1** Make change to any amount within one hundred dollars.

#### **Data Reasoning (4.DR)**



#### **4.DR.A Pose investigative questions and collect/consider data.**

- 4.DR.A.1      Generate questions to investigate situations within the classroom, school or community. Determine strategies for collecting or considering data involving addition and subtraction of fractions that can naturally answer questions by using information presented in line plots.

#### **4.DR.B Analyze, represent, and interpret data.**

- 4.DR.B.2      Analyze line plots to display a distribution of numerical measurement data, which include displays of data sets of fractional measurements with the same denominator. Interpret information presented to answer investigative questions.





## 5th Grade

### Overview:

#### **Algebraic Reasoning: Operations (5.OA)**

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

#### **Numeric Reasoning: Base Ten Arithmetic (5.NBT)**

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

#### **Numeric Reasoning: Fractions (5.NF)**

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understanding of multiplication and division.

#### **Geometric Reasoning and Measurement (5.GM)**

- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.
- Convert like measurement units within a given measurement system.
- Geometric measurement: understand concepts of volume.

#### **Data Reasoning (5.DR)**

- Pose investigative questions and collect/consider data.
- Analyze, represent, and interpret data.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

BP1 God is Creator of the universe and every living thing; we will celebrate His character and His power in the order of His design.

#### **BP 2 We Pursue Relationship with God.**

BP2 God created us to be in personal relations through Jesus Christ and to live holy lives; we will learn to enjoy His presence and to worship Him in word and deed.

#### **BP 3 We Seek God's Truth.**

BP3 God is the source of truth and wisdom; we will pursue knowledge and apply it in light of Scripture, defending our faith with gentleness and respect.

#### **BP 4 We Reflect God's Image.**

God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

#### **BP 5 We Live with Purpose.**



BP5 God redeemed us and gave us gifts, talents, abilities and resources to use for His glory and His Kingdom work; we will conserve and cultivate these gifts with grateful hearts.

**BP 6 We Lead by Serving.**

BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

**BP 7 We Build Authentic Relationships.**

BP7 God has placed us together at Salem Academy for His purposes; we will build up, honor and forgive one another, spreading his message of reconciliation and hope.

**5th Grade Standards**

**Algebraic Reasoning: Operations (5.OA)**

**5.OA.A Write and interpret numerical expressions.**

- 5.OA.A.1 Write and evaluate numerical expressions that include parentheses.
- 5.OA.A.2 Write expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

**5.OA.B Analyze patterns and relationships.**

- 5.OA.B.3 Generate two numerical patterns using two given rules. Identify and analyze relationships between two corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns and graph them on a coordinate plane.

**Numeric Reasoning: Base Ten Arithmetic (5.NBT)**

**5.NBT.A Understand the place value system.**

- 5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
- 5.NBT.A.2 Use whole number exponents to denote powers of 10 and explain the patterns in placement of digits that occur when multiplying and/or dividing whole numbers and decimals by powers of ten.
- 5.NBT.A.3 Read, write, and compare decimals to the thousandths.
- 5.NBT.A.4 Use place value understanding to round decimals to any place.

**5.NBT.B Perform operations with multi-digit whole numbers and with decimals to the hundredths.**

- 5.NBT.B.5 Fluently multiply and **divide** multi-digit whole numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
- 5.NBT.B.6 Use a variety of representations and strategies to find whole-number quotients of whole numbers with up to four-digits dividends and two-digit divisors.



- 5.NBT.B.7** Use a variety of representations and strategies to add, subtract, multiply, and divide decimals to the hundredths. Relate the strategy to a written method and explain the reasoning used.

**Numeric Reasoning: Fractions (5.NF)**

**5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.**

- 5.NF.A.1** Add and subtract fractions with unlike denominators, including common fractions larger than one and mixed numbers.
- 5.NF.A.2** Solve problems in authentic contexts involving addition and subtraction of fractions with unlike denominators, including common fractions larger than one and mixed numbers.

**5.NF.B Apply and extend previous understanding of multiplication and division.**

- 5.NF.B.3** Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve problems in authentic contexts involving division of whole numbers that result in answers that are common fractions or mixed numbers.
- 5.NF.B.4** Apply and extend previous understanding and strategies of multiplication to multiply a fraction or whole number by a fraction. Multiply fractional side lengths to find areas of rectangles, and represent fractional products as rectangular areas.
- 5.NF.B.5** Apply and extend previous understandings of multiplication and division to represent and calculate multiplication and division of fractions. Interpret multiplication as scaling (resizing) by comparing the size of products of two factors.
- 5.NF.B.6** Solve problems in authentic contexts involving multiplication of common fractions and mixed numbers.
- 5.NF.B.7** Apply and extend previous understanding of division to divide unit fractions by whole numbers and whole numbers by unit fractions, including solving problems in authentic contexts.

**Geometric Reasoning and Measurement (5.GM)**

**5.GM.A Graph points on the coordinate plane to solve real-world and mathematical problems.**

- 5.GM.A.1** Graph and name coordinate points in the first quadrant using the standard (x,y) notation. Understand the coordinate points values represent the distance traveled along the horizontal x-axis and vertical y-axis.
- 5.GM.A.2** Represent authentic contexts and mathematical problems by graphing points in the first quadrant of the coordinate plane. Interpret the meaning of the coordinate values based on the context of the given situation.

**5.GM.B Classify two-dimensional figures into categories based on their properties.**



- 5.GM.B.3 Classify two-dimensional figures within a hierarchy based on their geometric properties, and explain the relationship across and within different categories of these figures.

**5.GM.C Convert like measurement units within a given measurement system.**

- 5.GM.C.4 Convert between different-sized standard measurement units within a given measurement system. Use these conversions in solving multi-step problems in authentic contexts.

**5.GM.D Geometric measurement: Understand concepts of volume.**

- 5.GM.D.5 Recognize that volume is a measurable attribute of solid figures.

- 5.GM.D.6 Measure the volume of a rectangular prism by counting unit cubes using standard and non-standard units.

- 5.GM.D.7 Relate volume of rectangular prisms to the operations of multiplication and addition. Solve problems in authentic contexts involving volume using a variety of strategies.

**Data Reasoning (5.DR)**

**5.DR.A Pose investigative questions and collect/consider data.**

- 5.DR.A.1 Generate questions to investigate situations within the classroom, school, or community. Determine strategies for collecting or considering data involving operations with fractions for this grade that can naturally answer questions by using information presented in line plots.

**5.DR.B Analyze, represent, and interpret data.**

- 5.DR.B.2 Analyze graphical representations and describe the distribution of the numerical data through line plots or categorical data through bar graphs. Interpret information presented to answer investigative questions.



## 6th Grade

### Overview:

#### **Algebraic Reasoning: Expressions and Equations (6.AEE)**

- Apply and extend previous understanding of arithmetic to algebraic expressions.
- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

#### **Numeric Reasoning: Number Systems (6.NS)**

- Apply and extend previous understanding of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.
- Apply and extend previous understanding of numbers to the system of rational numbers.

#### **Geometric Reasoning and Measurement (6.GM)**

- Solve real-world and mathematical problems involving area, surface area, and volume.

#### **Proportional Reasoning: Ratios and Proportions (6.RP)**

- Understand ratio concepts and use ratio reasoning to solve problems.

#### **Data Reasoning (6.DR)**

- Formulate statistical investigative questions.
- Collect and consider data.
- Analyze, summarize, and describe data.
- Interpret data and answer investigative questions.

### **Mathematical Practice Standards:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Biblical Integration:**

#### **BP 1 We Worship our Creator.**

BP1 God is Creator of the universe and every living thing; we will celebrate His character and His power in the order of His design.

#### **BP 2 We Pursue Relationship with God.**

BP2 God created us to be in personal relations through Jesus Christ and to live holy lives; we will learn to enjoy His presence and to worship Him in word and deed.

#### **BP 3 We Seek God's Truth.**

BP3 God is the source of truth and wisdom; we will pursue knowledge and apply it in light of Scripture, defending our faith with gentleness and respect.

#### **BP 4 We Reflect God's Image.**



God created us in His image; we will honor His name by living with integrity, compassion and love, following the example of Jesus.

**BP 5 We Live with Purpose.**

BP5 God redeemed us and gave us gifts, talents, abilities and resources to use for His glory and His Kingdom work; we will conserve and cultivate these gifts with grateful hearts.

**BP 6 We Lead by Serving.**

BP6 God's Son, Jesus Christ, laid down His life to save us; we will follow his example and demonstrate his love by humbly serving others and respecting authority.

**BP 7 We Build Authentic Relationships.**

BP7 God has placed us together at Salem Academy for His purposes; we will build up, honor and forgive one another, spreading his message of reconciliation and hope.

**6th Grade Standards**

**Algebraic Reasoning: Expressions and Equations (6.AEE)**

**6.AEE.A Apply and extend previous understanding of arithmetic to algebraic expressions.**

**6.AEE.A.1** Write and evaluate numerical expressions involving whole-number bases and exponents.

**6.AEE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. Apply knowledge of common mathematical terms to move between the verbal and mathematical forms of an expression including expressions that arise from authentic contexts.

**6.AEE.A.3** Apply the properties of operations to generate equivalent expressions and to determine when two expressions are equivalent.

**6.AEE.B Reason about and solve one-variable equations and inequalities.**

**6.AEE.B.4** Understand solving an equation or inequality as a process of answering which values from a specific set, if any, make the equation or inequality true. Use substitution to determine which number(s) in a given set make an equation or inequality true.

**6.AEE.B.5** Use variables to represent numbers and write expressions when solving problems in authentic contexts.

**6.AEE.B.6** Write and solve equations of the form  $x + p = q$  and  $px = q$  in problems that arise from authentic contexts for cases in which  $p$ ,  $q$ , and  $x$  are all nonnegative rational numbers.

**6.AEE.B.7** Write and solve inequalities of the form  $x > c$  and  $x < c$  to represent constraints or conditions to solve problems in authentic contexts. Describe and graph on a number line solutions of inequalities of the form  $x > c$  and  $x < c$ .

**6.AEE.C Represent and analyze quantitative relationships between dependent and independent**



**variables.**

- 6.AEE.C.8** Use variables to represent and analyze two quantities to solve problems in authentic contexts. Including those that change in relationship to one another; write an equation to express one quantity in terms of the other quantity.

**Proportional Reasoning: Ratios and Proportions (6.RP)**

**6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.**

- 6.RP.A.1** Understand the concept of a ratio in authentic contexts, and use ratio language to describe a ratio relationship between two quantities.
- 6.RP.A.2** Understand the concept of a unit rate in authentic contexts and use rate language in the context of a ratio relationship.
- 6.RP.A.3** Use ratio and rate reasoning to solve problems in authentic contexts that use equivalent ratios, unit rates, percents, and/or measurement units.

**Numeric Reasoning: Number System (6.NS)**

**6.NS.A Apply and extend previous knowledge of multiplication and division to divide fractions by fractions.**

- 6.NS.A.1** Represent, interpret, and compute quotients of fractions to solve problems in authentic contexts involving division of fractions by fractions.

**6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples.**

- 6.NS.B.2** Fluently divide multi-digit numbers using accurate, efficient, and flexible strategies and algorithms based on place value and properties of operations.
- 6.NS.B.3** Fluently add, subtract, multiply, and divide positive rational numbers using accurate, efficient, and flexible strategies and algorithms.
- 6.NS.B.4** Determine greatest common factors and least common multiples using a variety of strategies. Apply the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

**6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.**

- 6.NS.C.5** Understand positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers to represent quantities in authentic contexts, explaining the meaning of zero in each situation.
- 6.NS.C.6** Represent a rational number as a point on the number line. Extend number line diagrams and coordinate axes to represent points on the line and in the coordinate plane with negative number coordinates.





- 6.NS.C.7** Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers and absolute values within authentic applications.
- 6.NS.C.8** Graph points in all four quadrants of the coordinate plane to solve problems in authentic contexts. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

### **Geometric Reasoning and Measurement (6.GM)**

#### **6.GM.A Solve real-world and mathematical problems involving area, surface area, and volume.**

- 6.GM.A.1** Find the area of triangles, quadrilaterals, and other polygons by composing into rectangles or decomposing into triangles and other shapes. Apply these techniques to solve problems in authentic contexts.
- 6.GM.A.2** Find the volume of a right rectangular prism with fractional edge length by filling it with unit cubes of appropriate unit fraction edge lengths. Connect and apply to the formulas  $V=(l)(w)(h)$  and  $V = B(h)$  to find volumes of right rectangular prisms with fractional edge lengths to solve problems in authentic contexts.
- 6.GM.A.3** Draw polygons in the four quadrant coordinate plane given coordinates for the vertices and find the length of a side. Apply these techniques to solve problems in authentic contexts.
- 6.GM.A.4** Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find surface area of these figures, including those in authentic contexts. .

### **Data Reasoning (6.DR)**

#### **6.DR.A Formulate Statistical Investigative Questions.**

- 6.DR.A.1** Formulate and recognize statistical investigative questions as those that anticipate changes in descriptive data related to the question and account for the answers.

#### **6.DR.B Collect and Consider Data.**

- 6.DR.B.2** Collect and record data with technology to identify and describe the characteristics of numerical data data sets using quantitative measures of center and variability.

#### **6.DR.C Analyze, summarize, and describe data.**

- 6.DR.C.3** Analyze data representations and describe measures of center and variability of quantitative data using appropriate displays.

#### **6.DR.D Interpret data and answer investigative questions.**

- 6.DR.D.4** Interpret quantitative measures of center to describe differences between groups from data collected to answer investigative questions.