| Wall Township Public Schools | Board Approval Date: 8/16/26 |
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| **Course Title: Grade 5 - Mathematics** | |
| **Course Description:** This course focuses on building fluency with multi-digit addition, subtraction, multiplication, and division; developing understanding of fractions and their equivalence; and applying concepts of area, perimeter, and measurement.. Aligned with the New Jersey Student Learning Standards, instruction emphasizes problem-solving, real-world applications, and mathematical reasoning to prepare students for success in upper elementary grades. | |

| Course Sequence & Pacing | |
|---|---|
| **Unit Title** | **MP/Weeks** |
| **Unit 1: Whole Numbers, Operations, & Applications**<br>This unit develops students' understanding of volume and extends fluency with multi-digit multiplication and division. Students investigate volume by building and decomposing rectangular prisms, apply volume formulas to solve real-world problems, multiply and divide multi-digit whole numbers using efficient strategies and standard algorithms, and apply estimation and mathematical reasoning to solve authentic application problems. | MP 1 - Wks 1 - 6<br>(22 days) |
| **Unit 2: Decimals & Fractions**<br>This unit develops students' understanding of decimal place value, powers of 10, decimal operations, and fraction operations with unlike denominators. Students read, write, compare, round, add, and subtract decimals through the thousandths place; apply powers of 10 to understand place value relationships; add and subtract fractions and mixed numbers with unlike denominators using equivalent fractions; and solve real-world problems involving fractions, decimals, estimation, and mathematical reasoning. | MP 1-2 - Wks 7 - 14<br>(37 days) |
| **Unit 3:More Decimals & Fractions**<br>This unit extends students' understanding of operations with decimals and fractions. Students multiply and divide decimals, interpret fractions as division, multiply fractions and mixed numbers, apply fraction multiplication to find area, understand multiplication as scaling, divide unit fractions and whole numbers, and solve authentic real-world problems using visual models, equations, estimation, and mathematical reasoning. | MP 2-3 -Wks 15 - 23<br>(41 days) |
| **Unit 4: Measurement, Data & Geometry**<br>This unit develops students' understanding of measurement conversions, data analysis, and geometric classification. Students convert customary and metric units within a measurement system, solve multi-step measurement problems, create and interpret line plots using fractional data, classify two-dimensional figures according to their attributes, and organize | MP 3-4 - Wks 24-28<br>(23 days) |

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| geometric relationships using hierarchies, tree diagrams, and Venn diagrams. Students apply mathematical reasoning to solve authentic measurement, data, and geometry problems. | |
| **Unit 5: Algebraic Thinking & the Coordinate Plane**<br>This unit introduces students to algebraic thinking through numerical expressions, the coordinate plane, graphing, and numerical patterns. Students evaluate, write, and interpret numerical expressions using grouping symbols, graph ordered pairs in the first quadrant of the coordinate plane, solve real-world problems using coordinate graphs, analyze relationships between numerical patterns, and represent mathematical relationships graphically. Students apply logical reasoning, algebraic thinking, and mathematical modeling to solve authentic problems | MP 4 - Wks 29-32<br>(18 days) |

# Unit 1

## Desired Results

**Unit 1 Title: Whole Numbers, Operations, & Applications**

**Unit Summary:** This unit develops students' understanding of volume and extends fluency with multi-digit multiplication and division. Students investigate volume by building and decomposing rectangular prisms, apply volume formulas to solve real-world problems, multiply and divide multi-digit whole numbers using efficient strategies and standard algorithms, and apply estimation and mathematical reasoning to solve authentic application problems.

## Learning Standards

**NJSLS**

- 5.NBT.B.5: With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.B.6: Find whole-number quotients of whole numbers 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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- 5.M.B.2: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
    - a: Recognize volume as an attribute of solid figures and understand concepts of volume measurement. - A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
    - b: A solid figure that can be packed without gaps or overlaps using *n* unit cubes has a volume of *n* cubic units.
- 5.M.B.3: Measure volumes by counting unit cubes using cubic centimeters, cubic inches, cubic feet, and improvised units.
- 5.M.B.4.a: Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
- 5.M.B.4.b: Apply the V = l x w x h formulas and V = B x h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
- 5.M.B.4.c: Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

## Interdisciplinary Connections

**Career Readiness, Life Literacies, & Key Skills**

- 9.4.5.CT.1: Identify and gather relevant information to support problem solving.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to academic and real-world situations.

**Computer Science & Design Thinking**

- 8.1.5.DA.1: Collect, organize, and display data in multiple ways to support problem solving.

- 8.1.5.AP.2: Create algorithms and explain how they can be used to solve problems.

**Interdisciplinary Connections:**

***NJSLS – ELA 2023***

- RI.CR.5.1: Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences.
- RI.IT.5.3: Explain relationships among ideas, concepts, or events in scientific or technical texts.
- W.IW.5.2: Write informative/explanatory texts that clearly develop mathematical ideas using facts, definitions, and precise language.
- SL.PE.5.1: Engage effectively in collaborative discussions by building on others' ideas and expressing ideas clearly.
- L.VL.5.6: Acquire and accurately use grade-level academic and domain-specific vocabulary.

***NJSLS – SCIENCE 2026***

- 3-5-ETS1-1: Define a simple design problem that reflects a need or want and includes specified criteria for success and constraints.
- 3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

**Amistad Connection:**

- Students explore the contributions of **Abraham "Abe" Nemeth**, whose work advanced mathematics accessibility for individuals who are blind. Students examine how mathematical innovation expands educational opportunities while applying concepts of volume and computation.

**Asian American and Pacific Islander (AAPI) Connection:**

- Students examine how engineers, architects, mathematicians, and scientists from Asian American and Pacific Islander communities use measurement, spatial reasoning, and computation to solve real-world problems involving design and technology.

**Climate Change Connection:**

**Science – 5-ESS3-1**

- Students investigate how mathematical models and measurements support responsible use of natural resources and environmental stewardship.
- Instructional Tie-In: Ask students to brainstorm environmental problems they care about (e.g., too much plastic, energy waste, endangered animals). (Math in Action-Composting)

**Mathematics – 4.OA.A.3**

- Students apply volume, measurement, multiplication, and division to analyze real-world environmental data such as rainwater collection, composting systems, storage capacity, recycling, and conservation projects.
- Activity Title: "Place Value for the Planet" – Students will explore real-world climate data (presented in age-appropriate, rounded numbers) to practice place value, number comparison, rounding, and multi-digit operations. The goal is to use math skills to

understand changes in Earth's temperature, sea levels, and $CO_2$ emissions over time — and reflect on how math can help us make sense of environmental data.

**DEI Connections**

- Students collaborate to solve complex problems, compare multiple solution strategies, justify mathematical reasoning with evidence, and recognize that innovation in mathematics benefits from diverse perspectives and lived experiences.

## Learning Targets

**Unit Essential Questions:**

- How can volume be measured, represented, and calculated in different ways?
- Why do mathematical formulas provide efficient methods for solving real-world problems?
- How do multiplication and division strategies support accurate and efficient computation?
- How can mathematical reasoning and estimation help determine whether a solution is reasonable?

**Unit Enduring Understandings:**

- Volume measures the amount of three-dimensional space occupied by a solid figure and can be determined using unit cubes and formulas.
- Efficient multiplication and division strategies support accurate computation and real-world problem solving.
- Mathematical models, formulas, estimation, and algorithms help solve increasingly complex problems.
- Mathematical reasoning allows multiple valid strategies to be compared, justified, and evaluated

**Mathematical Vocabulary**

- attribute
- category
- conversion
- customary system
- hierarchy
- line plot
- metric system

**Mathematical Vocabulary**

- scale (graph)
- subcategory
- trapezoid (exclusive)
- trapezoid (inclusive)
- tree diagram
- Venn diagram

**Academic Vocabulary**

- classify
- conversion
- convert
- display
- general
- label (noun)
- label (verb)
- method
- property
- region
- specific
- support

**Additional Vocabulary**

- equivalent measurement
- fraction data
- line-plot scale
- measurement unit
- multi-step problem
- parallel sides
- perpendicular sides
- polygon
- quadrilateral
- relationship
- two-dimensional figure
- unit conversion
- rectangular array
- solid figure
- unit square
- width

**Students will be able to:**

- Convert from a larger unit of measurement to a smaller unit within the same measurement system.
- Convert from a smaller unit of measurement to a larger unit within the same measurement system.
- Solve multi-step word problems involving customary and metric unit conversions.
- Express measurements given in different units using the same unit of measure.
- Create line plots displaying measurement data using fractions with unlike denominators.
- Interpret line plots to solve problems involving fractional measurement data.
- Analyze measurement data represented in line plots.
- Recognize that two-dimensional figures can be categorized based on their attributes.
- Explain that subcategories inherit all of the attributes of more general categories.
- Use tree diagrams and Venn diagrams to organize geometric relationships.
- Classify two-dimensional figures according to their properties.
- Draw and interpret Venn diagrams and tree diagrams showing geometric hierarchies.
- Explain mathematical reasoning using diagrams, data displays, equations, and precise mathematical vocabulary.

| Assessment Evidence | | |
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| **Formative Assessments:** | | |
| **Ongoing Classroom Assessments**<br>• Self Check<br>• Build Your Vocabulary<br>• STEM Story: **Swati Mohan**<br>• Teacher observation<br>• Guided practice<br>• Math discourse and partner discussions<br>• Whiteboard responses<br>• Exit tickets<br>• Lesson Checks | **Center Activities**<br>• Converting Units Vocabulary Match<br>• Measurement Match<br>• Line Plot Vocabulary Match<br>• Fractions as Data<br>• Classify Quadrilaterals<br>• Classify Triangles<br>• Organize Polygons on a Venn Diagram<br>• Organize Triangles on a Venn Diagram | **Enrichment Activities**<br>• Animal Races<br>• How Old Am I?<br>• Weighing Pumpkins<br>• Making New Shapes<br>• Sorting Shapes<br><br>**Math in Action Preparation**<br>• Students develop the skills needed to convert measurement units, solve multi-step measurement problems, interpret fractional data displayed in line plots, classify two-dimensional figures, and organize geometric relationships |

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| • Digital Comprehension Checks<br>• Interactive Tutorials<br>• Interactive Practice<br>• Lesson Checks<br>• Digital Comprehension Checks<br>• Interactive Tutorials<br>• Interactive Practice | | using Venn diagrams and tree diagrams. |

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| **Summative Assessments:**<br><br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Unit Assessment Form A<br>• Unit Assessment Form B<br>• Math in Action Performance Task<br>• Self Reflection | | **Math in Action Performance Task**<br>• Salad Dressing<br>• Soups<br>• Backyard Barbecue<br>• Hierarchy Hit<br><br>Students apply place value, comparison, rounding, addition, subtraction, estimation, and data interpretation to analyze information presented in tables and solve authentic real-world problems. | **Key Skills Assessed**<br>• Understand cups, quarts, and gallons.<br>• Understand converting units.<br>• Understand multiplying by a fraction.<br>• Convert units of measure.<br>• Add and subtract measurements.<br>• Draw a line plot.<br>• Use information in a line plot to solve a problem.<br>• Write equivalent fractions.<br>• Compute with ounces and pounds.<br>• Multiply and divide whole numbers.<br>• Multiply by a fraction.<br>• Know properties of quadrilaterals. |

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| | | | • Draw quadrilaterals.<br>• Order quadrilaterals in a hierarchy based on their properties. |
| **Common Benchmark Assessments:** BOY i-Ready Diagnostic, Universal Screener for Number Sense (USNS) | | | |

| Core Instructional & Supplemental Materials | | |
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| **Resources**<br>**Teacher:**<br>• i-Ready Classroom Mathematics Teacher Guide<br>• Teacher Toolbox<br>• Tools for Instruction<br>• Lesson-Level Differentiation Resources<br>• Prerequisite Lessons<br>• Build Your Vocabulary<br>• STEM Story: **Swati Mohan**<br>• Center Activities<br>• Enrichment Activities<br>**Student**:<br>• Student Worktext<br>• Self Check<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Math in Action Performance Task<br>• Self Reflection<br>• Unit Assessment (Forms A and B) | **Manipulatives**<br>• Rulers<br>• Measuring tapes<br>• Measurement conversion charts<br>• Fraction strips<br>• Line plot templates<br>• Pattern blocks<br>• Geometric shape sets<br><br>**Other Classroom Materials**<br>• Whiteboards and dry-erase markers<br>• Chart paper<br>• Recording sheets<br>• Graph paper<br>• Venn diagram templates<br>• Tree diagram organizers<br>• Measurement tools (rulers, meter sticks, measuring cups)<br>• Anchor charts for measurement conversions and geometric classification<br>• Pencils | **Technology**<br>• i-Ready Personalized Instruction<br>• Interactive Tutorials<br>• Interactive Practice and Reports<br>• Unit and Lesson Comprehension Checks and Reports<br>• Diagnostic Reports |

**Accommodations and Modifications:**
**Students with Disabilities, English Language Learners,**
**Students at Risk of Failure, Students with 504s, Gifted & Talented Students**

**Specific Strategies and Practices that Support Students with Disabilities:**

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one
- Additional time - Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts, Verbal and visual cues regarding directions and staying on task
- Preferential seating
- Follow a routine/schedule, Rest breaks
- Checklists, Immediate feedback

**Specific Strategies and Practices that Support English Language Learners**

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts, Teacher modeling
- Personal Glossary
- Extended Time
- Simplified/Verbal Instructions
- Visual learning- including graphic organizers

**Students at Risk of Failure**

- Home/School Connection
- Alternative Assessments
- Learning Contracts
- Leveled Rubrics and Tiered Activities
- Work Alone Choice, Group Work Choice

**Students with 504 Plans**

- Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.

- 504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way.
- Students' accommodations are outlined in their individual 504 plan.

**Specific Strategies and Practices that Support Gifted & Talented Students**

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

- Homogeneous Grouping
- Small Group In-Depth Instruction
- Differentiated Online Practice
- Alternative Assessments
- Pre-Assess to provide Differentiated Instruction to Accelerate Learning
- Supplemental Reading
- Engaging projects

# Unit 2

## Desired Results

**Unit 2 Title:** Decimals and Fractions

**Unit Summary:** This unit develops students' understanding of decimal place value, powers of 10, decimal operations, and fraction operations with unlike denominators. Students read, write, compare, round, add, and subtract decimals through the thousandths place; apply powers of 10 to understand place value relationships; add and subtract fractions and mixed numbers with unlike denominators using equivalent fractions; and solve real-world problems involving fractions, decimals, estimation, and mathematical reasoning.

## Learning Standards

**NJSLS:**

- 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: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- 5.NBT.A.3: Read, write, and compare decimals to the thousandths using:
    - a: Read, write, and compare decimals to thousandths.
    - b: Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- 5.NBT.A.4: Use place value understanding to round decimals to any place.
- 5.NBT.B.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings 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 the reasoning used.
- 5.NF.A.1: Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
- 5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

## Interdisciplinary Connections

**Career Readiness, Life Literacies, & Key Skills**

- 9.4.5.CT.1: Identify and gather relevant information to support problem solving.

- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to academic and real-world situations.

**Computer Science & Design Thinking**

- 8.1.5.AP.2: Create and test algorithms to solve computational problems efficiently.
- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

**Interdisciplinary Connections:**

***NJSLS – ELA 2023***

- RI.CR.5.1: Quote accurately from a text and make relevant connections when explaining explicit ideas and drawing inferences.
- RI.IT.5.3: Explain relationships among ideas, concepts, and information presented in scientific or technical texts.
- W.IW.5.2: Write informative/explanatory texts that clearly develop mathematical thinking using facts, definitions, concrete details, and precise language.
- SL.PE.5.1:. Engage effectively in collaborative discussions by building on others' ideas and expressing ideas clearly.
- L.VL.5.6: Acquire and accurately use grade-level academic and domain-specific vocabulary.

***NJSLS – SCIENCE 2026***

- 3-5 ETSI-1: Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints.
- 3-5 ETSI-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

**Amistad Connection:**

- Students apply multiplicative reasoning and problem-solving skills while examining quantitative data related to the achievements and contributions of African American mathematicians, scientists, engineers, and inventors. Opportunities may include analyzing historical data, inventions, and scientific discoveries through mathematical investigations.

**Asian American and Pacific Islander (AAPI) Connection:**

- Students explore mathematical patterns and quantitative reasoning while learning about the contributions of Asian American and Pacific Islander mathematicians, scientists, engineers, and innovators whose work relies on mathematical modeling, computation, and data analysis.
- Activity Title: “Mathematicians Who Made a Difference” - In this project-based activity, students take on the role of mathematician researchers to explore the lives and contributions of diverse figures in STEM, including individuals with disabilities and those from the LGBTQ+ community, in alignment with NJ Law S4021. Each student or group is assigned a historical or contemporary mathematician and completes a math challenge based on that person’s real-world impact—such as calculating rocket trajectories like Katherine Johnson, analyzing patterns like Maryam Mirzakhani, or solving multiplicative comparisons inspired by Temple Grandin’s animal science work. Students apply 4.OA skills through word problems, equations, factors, and patterns, then present their work in a “Mathematicians Who Made a Difference” showcase that highlights both their math reasoning and what they learned about their assigned figure’s identity and legacy.

**Climate Change Connection:**

**Mathematics - 4.OA.A.3**

- Students apply decimal and fraction operations to analyze authentic environmental data such as rainfall totals, recycling rates, water usage, energy consumption, and conservation efforts.

**Science - 5-ESS3-1**

- Students use quantitative data to investigate how communities conserve natural resources and make informed environmental decisions.
- Instructional Tie-In: Ask students to brainstorm environmental problems they care about (e.g., too much plastic, energy waste, endangered animals). (Literacy Connection-Hydroelectric Power)

**DEI Connections**

- Students justify multiple solution strategies, engage in collaborative mathematical discourse, and recognize that mathematical reasoning and innovation benefit from diverse perspectives, experiences, and approaches to problem solving.
- Read and discuss Explore session Lesson 7, 8

## Learning Targets

**Unit Essential Questions:**

- How does place value help us understand decimals and powers of 10?
- Why are equivalent fractions necessary when adding and subtracting fractions with unlike denominators?
- How do decimals and fractions help us solve real-world problems?
- How can estimation and mathematical reasoning help us determine whether an answer is reasonable?

**Unit Enduring Understandings:**

- Place value relationships extend to decimals and provide the foundation for understanding powers of 10 and decimal operations.
- Equivalent fractions make it possible to add and subtract fractions with unlike denominators.
- Decimals and fractions are related representations of numbers that can be compared, estimated, and used to solve real-world problems.
- Estimation, mathematical models, and precise reasoning help determine whether solutions are reasonable.

**Mathematical Vocabulary**

- base (of a power)
- base-ten system
- benchmark fraction
- common denominator
- decimal
- denominator

**Mathematical Vocabulary**

- hundredths
- inequality
- mixed number
- numerator
- place value

**Academic Vocabulary**

- actual
- approximate
- complete
- determine
- justify

**Additional Vocabulary**

- compare
- decimal point
- estimate
- equivalent decimals
- expression
- fraction model

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|---|---|---|---|
| • difference<br>• equivalent fraction<br>• exponent<br>• expanded form | • power of 10<br>• sum<br>• tenths<br>• thousandths | • partially completed<br>• placement<br>• position<br>• previous<br>• reasonable<br>• relate<br>• relationship<br>• represent<br>• set<br>• unlike<br>• vertically | • greater than (>)<br>• less than (<)<br>• number line<br>• place-value chart<br>• round<br>• standard form<br>• unit fraction |

**Students will be able to:**

- Explain that a digit in one place represents 10 times the value of the place to its right and one-tenth the value of the place to its left.
- Explain patterns when multiplying and dividing by powers of 10.
- Use exponents to represent powers of 10.
- Read and write decimals through the thousandths using standard form, word form, and expanded form.
- Compare decimals through the thousandths using >, <, and =.
- Round decimals to the nearest whole number, tenth, and hundredth.
- Add decimals through the hundredths using a variety of strategies.
- Subtract decimals through the hundredths using a variety of strategies.
- Explain the reasoning used to add and subtract decimals.
- Generate equivalent fractions with common denominators.
- Add fractions and mixed numbers with unlike denominators.
- Subtract fractions and mixed numbers with unlike denominators.
- Use visual fraction models and equations to justify fraction operations.
- Solve real-world word problems involving fraction and decimal addition and subtraction.
- Estimate decimal and fraction sums and differences using benchmark fractions and rounding.
- Determine whether solutions are reasonable using estimation and mathematical reasoning.
- Explain mathematical reasoning using models, equations, place-value understanding, and precise mathematical vocabulary.

## Assessment Evidence

### Formative Assessments:

**Ongoing Classroom Assessments**

- Self Check
- Build Your Vocabulary
- STEM Story: **Dolores "Dolly" Garza**
- Teacher observation
- Guided practice
- Math discourse and partner discussions
- Whiteboard responses
- Exit tickets
- Lesson Checks
- Digital Comprehension Checks
- Interactive Tutorials
- Interactive Practice

**Center Activities**

- 10 Times as Much as or One-Tenth Of?
- Values of Digits
- Powers of Ten Vocabulary Match
- Pattern of Zeros
- Decimal Number Forms
- Round Decimal Numbers
- Use Comparing and Rounding Vocabulary
- Decimal Addition Match
- Decimal Subtraction Match
- Fraction Addition: True or False!
- Fraction Subtraction: True or False!
- Estimate Fraction Sums and Differences
- Use Fraction Vocabulary

**Enrichment Activities**

- Line It Up
- Broken Calculator
- True or False?
- Mystery Number
- Addition Grids
- Shopping Spree
- Race Training
- Baking Cookies

**Math in Action Planning Activities**

- Students develop the skills needed to read, write, compare, round, add, and subtract decimals; add and subtract fractions and mixed numbers with unlike denominators; estimate solutions; and solve authentic real-world problems involving decimals and fractions.

### Summative Assessments:

- Vocabulary Review
- Unit Review and Performance Task
- Cumulative Practice
- Unit Assessment Form A & B

- **Math in Action Performance Tasks**
  - Dog Collars
  - Farm Animals
  - Barely Used
  - Ring Toss

**Key Skills Assessed**

- Understand rounding to estimate.
- Understand decimal addition and subtraction.
- Add and subtract decimals.
- Round decimals to estimate.
- Add whole numbers, fractions, and mixed numbers.
- Compare fractions.

| | | |
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| • Math in Action Performance Task<br>• Self Reflection | | • Find equivalent fractions. |
| **Common Benchmark Assessments:** MOY i-Ready Diagnostic, Universal Screener for Number Sense (USNS) | | |

| Core Instructional & Supplemental Materials | | |
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| **Resources**<br>**Teacher:**<br>• i-Ready Classroom Mathematics Teacher Guide<br>• Teacher Toolbox<br>• Tools for Instruction<br>• Lesson-Level Differentiation Resources<br>• Prerequisite Lessons<br>• Build Your Vocabulary<br>• STEM Story: **Dolores "Dolly" Garza**<br>• Center Activities<br>• Enrichment Activities<br>**Student**:<br>• Student Worktext<br>• Self Check<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Math in Action Performance Task<br>• Self Reflection<br>• Unit Assessment (Forms A and B) | **Manipulatives**<br>• Base-Ten Blocks<br>• Fraction Models<br>• Number Line<br>• Place-Value Charts<br><br>**Other Classroom Materials**<br>• Whiteboards and dry-erase markers<br>• Place-value charts<br>• Decimal grids<br>• Fraction strips or fraction circles<br>• Number lines<br>• Recording sheets<br>• Graph paper<br>• Chart paper<br>• Anchor charts<br>• Pencils | **Technology**<br>• i-Ready Personalized Instruction<br>• Interactive Tutorials<br>• Interactive Practice and Reports<br>• Unit and Lesson Comprehension Checks and Reports<br>• Diagnostic Reports<br><br>**Learning Games**<br>• Bounce<br>• Cloud Machine<br>• Cupcake<br>• Pizza<br>• Zoom<br><br>**Digital Math Tools**<br>• Base-Ten Blocks<br>• Fraction Models<br>• Number Line |

## Accommodations and Modifications:
## Students with Disabilities, English Language Learners,
## Students at Risk of Failure, Students with 504s, Gifted & Talented Students

**Specific Strategies and Practices that Support Students with Disabilities:**

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one
- Additional time - Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts, Verbal and visual cues regarding directions and staying on task
- Preferential seating
- Follow a routine/schedule, Rest breaks
- Checklists, Immediate feedback

**Specific Strategies and Practices that Support English Language Learners**

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts, Teacher modeling
- Personal Glossary
- Extended Time
- Simplified/Verbal Instructions
- Visual learning- including graphic organizers

**Students at Risk of Failure**

- Home/School Connection
- Alternative Assessments
- Learning Contracts
- Leveled Rubrics and Tiered Activities
- Work Alone Choice, Group Work Choice

**Students with 504 Plans**

- Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
- 504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way.
- Students' accommodations are outlined in their individual 504 plan.

**Specific Strategies and Practices that Support Gifted & Talented Students**

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

- Homogeneous Grouping
- Small Group In-Depth Instruction
- Differentiated Online Practice
- Alternative Assessments
- Pre-Assess to provide Differentiated Instruction to Accelerate Learning
- Supplemental Reading
- Engaging projects

# Unit 3

## Desired Results

**Unit 3 Title: More Decimals and Fractions**

**Unit Summary:** This unit extends students' understanding of operations with decimals and fractions. Students multiply and divide decimals, interpret fractions as division, multiply fractions and mixed numbers, apply fraction multiplication to find area, understand multiplication as scaling, divide unit fractions and whole numbers, and solve authentic real-world problems using visual models, equations, estimation, and mathematical reasoning.

## Learning Standards

**NJSLS**:

- 5.NBT.B.7: Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations; relate the strategy to a written method and explain the reasoning used.
- 5.NF.B.3: Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- 5.NF.B.5: Interpret multiplication as scaling (resizing):
  - a: Compare the size of a product to the size of one factor based on the size of the other factor.
  - b: Explain why multiplying by a fraction greater than 1 results in a greater product and multiplying by a fraction less than 1 results in a smaller product.
- 5.NF.B.6: Solve real-world problems involving multiplication of fractions and mixed numbers using visual fraction models or equations.
- 5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions using visual fraction models and equations.

## Interdisciplinary Connections

**Career Readiness, Life Literacies, & Key Skills**

- 9.4.5.CT.1: Identify and gather relevant information to support problem solving.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to academic and real-world situations.

**Computer Science & Design Thinking**

- 8.1.5.AP.2: Create and test algorithms to solve computational problems efficiently.
- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

**Interdisciplinary Connections:**

***NJSLS - ELA 2023***

- RI.CR.5.1: Quote accurately from a text and make relevant connections when explaining explicit ideas and drawing inferences.
- RI.IT.5.3: Explain relationships among ideas, concepts, and information presented in scientific or technical texts.
- W.IW.5.2: Write informative/explanatory texts that clearly develop mathematical thinking using facts, definitions, concrete details, and precise language.
- SL.PE.5.1:. Engage effectively in collaborative discussions by building on others' ideas and expressing ideas clearly.
- L.VL.5.6: Acquire and accurately use grade-level academic and domain-specific vocabulary.

***NJSLS - SCIENCE 2026***

- 3-5 ETSI-1: Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints.
- 3-5 ETSI-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

**Amistad Connection:**

- Students examine the contributions of **Gerald "Jerry" Lawson**, an African American engineer and pioneer of modern video game technology, whose innovations demonstrate the importance of mathematical reasoning, computation, engineering design, and problem solving in STEM careers.

**Asian American and Pacific Islander (AAPI) Connection:**

- Students explore how mathematicians, engineers, scientists, and innovators from Asian American and Pacific Islander communities apply proportional reasoning, fractions, decimals, measurement, and quantitative analysis to solve authentic problems in science, technology, medicine, and engineering.

**Climate Change Connection:**.

**Science - 5-ESS3-1**

- Students use mathematical models and quantitative reasoning to investigate how communities manage natural resources and make environmentally responsible decisions.

**DEI Connections**

- Promote inclusive collaboration
  Emphasize team roles, respectful communication, and diverse thinking in hands-on tasks. Encourage students to notice and respect diverse approaches during group planning and problem-solving.
    - STEM Story: Gerald “Jerry” Lawson- Electronics Engineer
    - Connect to Culture (Tap dance, Variety of dance early 20th century, The Ocarina- type of flute played by Incas, Ancient Instruments)
    - Literacy Connection (Ancient Saharan Trade Routes)

## Learning Targets

**Unit Essential Questions:**

- How do models and place-value relationships help us multiply and divide decimals?
- In what ways can fractions represent division and multiplication?
- How does multiplication as scaling help us predict the size of a product?
- How can visual models, equations, and mathematical reasoning help us solve real-world problems involving fractions and decimals?

**Unit Enduring Understandings:**

- Decimals and fractions can be multiplied and divided using place value, visual models, and properties of operations.
- Fractions represent division and provide another way to describe equal sharing and partitioning.
- Multiplication can be interpreted as scaling, helping predict the size of a product without computation.
- Mathematical models, estimation, and reasoning support efficient problem solving and justify solutions to real-world problems.

**Mathematical Vocabulary**

- area
- decimal
- denominator
- dividend
- divisor
- equation
- factor
- fraction

**Mathematical Vocabulary**

- mixed number
- numerator
- partial products
- product
- quotient
- remainder
- scaling
- unit fraction

**Academic Vocabulary**

- column
- confidence
- explanation
- given
- interpret
- method
- original
- overlap
- reasoning
- represent
- row
- section
- shrink
- statement
- suppose
- tile (noun)
- tile (verb)

**Additional Vocabulary**

- decimal multiplication
- decimal division
- fraction model
- fraction as division
- inverse relationship
- multiplication as scaling
- number line
- partial quotient
- place value
- quotient greater than 1
- quotient less than 1
- visual model
- whole-number quotient

**Students will be able to:**

- Estimate products involving whole numbers and decimals.

- Multiply decimals by whole numbers.
- Multiply decimals to the thousandths.
- Explain strategies used to multiply decimals.
- Divide decimals to the hundredths.
- Explain strategies used to divide decimals.
- Interpret a fraction as division of the numerator by the denominator.
- Solve division problems whose quotients are fractions or mixed numbers.
- Multiply a whole number by a fraction using visual models.
- Multiply a fraction by a fraction using visual models.
- Find the area of rectangles with fractional side lengths by multiplying side lengths.
- Explain why multiplying side lengths produces the area of a rectangle.
- Interpret multiplication as scaling (resizing).
- Predict whether a product will be greater than or less than a factor without calculating.
- Solve real-world problems involving multiplication of fractions and mixed numbers.
- Divide unit fractions by whole numbers.
- Divide whole numbers by unit fractions.
- Use the inverse relationship between multiplication and division to justify fraction division.
- Solve real-world problems involving division of unit fractions.
- Explain mathematical reasoning using visual models, equations, number lines, and precise mathematical vocabulary.

| Assessment Evidence | | |
|---|---|---|
| **Formative Assessments:** | | |
| **Ongoing Classroom Assessments**<br>• Self Check<br>• Build Your Vocabulary<br>• STEM Story: **Gerald "Jerry" Lawson**<br>• Teacher observation<br>• Guided practice<br>• Math discourse and partner discussions<br>• Whiteboard responses<br>• Exit tickets<br>• Lesson Checks<br>• Digital Comprehension Checks<br>• Interactive Tutorials<br>• Interactive Practice | **Center Activities**<br>• Cover Up Multiply<br>• Decimal Multiplication Slam<br>• Represent Decimal Products<br>• Cover Up Division<br>• Fractions as Quotients<br>• Relate Situations to Fractional Quotients<br>• Fraction Area Models<br>• Tile Dimensions<br>• Multiplication as Scaling<br>• Multiplication as Scaling Vocabulary<br>• Write a Word Problem<br>• Real-World Multiplication Situations<br>• Quotients: Greater Than 1 or Less Than 1?<br>• Find the Division Expression | **Enrichment Activities**<br>• Recycling Center<br>• Designing a Garden<br>• Building Projects<br>• Pizza Party<br>• Flower Garden<br>• Colorful Quilts<br>• Stretching and Shrinking<br>• Plant Growth<br>• Mystery Equation<br>• Switching Place<br><br>**Math in Action Preparation**<br>• Students develop the skills needed to multiply and divide decimals, interpret fractions as division, multiply fractions, determine area with fractional side lengths, understand multiplication as scaling, divide unit fractions, and solve authentic real-world problems involving fractions and decimals. |

| Summative Assessments: | | |
|---|---|---|
| Vocabulary Review<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Unit Assessment Form A & B<br>• Math in Action Performance Task<br>• Self Reflection | **Math in Action Performance Task Options**<br>• Solar Lights<br>• Plant Shrubs<br>• Water Shrubs<br>• Use Compost | **Skills Assessed**<br>Students will:<br>• Understand comparing unlike fractions.<br>• Understand multiplying fractions.<br>• Understand fractions on a number line.<br>• Multiply a fraction by a fraction.<br>• Draw and label a number line with fractions.<br>• Find the area of a rectangle.<br>• Multiply a fraction by a whole number.<br>• Recognize a fraction as division.<br>• Multiply fractions to find area.<br>• Multiply a whole number by a decimal greater than 1.<br>• Compare fractions.<br>• Divide a whole number by a unit fraction |
| **Common Benchmark Assessments:** MOY i-Ready Diagnostic, Universal Screener for Number Sense (USNS) | | |

| Core Instructional & Supplemental Materials | | |
|---|---|---|
| **Resources**<br>**Teacher:**<br>• i-Ready Classroom Mathematics Teacher Guide<br>• Teacher Toolbox<br>• Tools for Instruction<br>• Lesson-Level Differentiation Resources<br>• Prerequisite Lessons<br>• Build Your Vocabulary<br>• STEM Story: **Gerald "Jerry" Lawson**<br>• Center Activities<br>• Enrichment Activities | **Manipulatives**<br>• Fraction Models<br>• Multiplication Models<br>• Number Line<br><br>**Other Classroom Materials**<br>• Whiteboards and dry-erase markers<br>• Fraction strips or fraction circles<br>• Decimal grids<br>• Number lines<br>• Graph paper<br>• Grid paper<br>• Recording sheets<br>• Chart paper | **Technology**<br>• i-Ready Personalized Instruction<br>• Interactive Tutorials<br>• Interactive Practice and Reports<br>• Unit and Lesson Comprehension Checks and Reports<br>• Diagnostic Reports<br><br>**Learning Games**<br>• Cupcake<br>• Pizza<br><br>**Digital Math Tools**<br>• Fraction Models |

| | | |
|---|---|---|
| **Student**:<br>• Student Worktext<br>• Self Check<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Math in Action Performance Task<br>• Self Reflection<br>• Unit Assessment (Forms A and B) | • Anchor charts<br>• Pencils | • Multiplication Models<br>• Number Line |

**Accommodations and Modifications:**
**Students with Disabilities, English Language Learners,**
**Students at Risk of Failure, Students with 504s, Gifted & Talented Students**

**Specific Strategies and Practices that Support Students with Disabilities:**

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one
- Additional time - Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts, Verbal and visual cues regarding directions and staying on task
- Preferential seating
- Follow a routine/schedule, Rest breaks
- Checklists, Immediate feedback

**Specific Strategies and Practices that Support English Language Learners**

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts, Teacher modeling
- Personal Glossary
- Extended Time
- Simplified/Verbal Instructions
- Visual learning- including graphic organizers

**Students at Risk of Failure**

- Home/School Connection
- Alternative Assessments
- Learning Contracts
- Leveled Rubrics and Tiered Activities
- Work Alone Choice, Group Work Choice

**Students with 504 Plans**

- Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
- 504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way.
- Students' accommodations are outlined in their individual 504 plan.

**Specific Strategies and Practices that Support Gifted & Talented Students**

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

- Homogeneous Grouping
- Small Group In-Depth Instruction
- Differentiated Online Practice
- Alternative Assessments
- Pre-Assess to provide Differentiated Instruction to Accelerate Learning
- Supplemental Reading
- Engaging projects

# Unit 4

## Desired Results

**Unit 4 Title: Measurement, Data & Geometry**

**Unit Summary:** This unit develops students' understanding of measurement conversions, data analysis, and geometric classification. Students convert customary and metric units within a measurement system, solve multi-step measurement problems, create and interpret line plots using fractional data, classify two-dimensional figures according to their attributes, and organize geometric relationships using hierarchies, tree diagrams, and Venn diagrams. Students apply mathematical reasoning to solve authentic measurement, data, and geometry problems.

## Learning Standards

**NJSLS:**

- 5.M.A.1: Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real-world problems.
- 5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, using visual fraction models or equations to represent the problem.
- 5.DL.B.4: Represent and interpret data using line plots to display measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions to solve problems involving information presented in line plots.
- 5.G.B.3: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
- 5.G.B.4: Classify two-dimensional figures in a hierarchy based on their properties.

## Interdisciplinary Connections

**Career Readiness, Life Literacies, & Key Skills**

- 9.4.5.CT.1: Identify and gather relevant information to support problem solving.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to academic and real-world situations.

**Computer Science & Design Thinking**

- 8.1.5.AP.2: Create and test algorithms to solve computational problems efficiently.
- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

**Interdisciplinary Connections:**

***NJSLS - ELA 2023***

- ***NJSLS - ELA 2023***

- RI.CR.5.1: Quote accurately from a text and make relevant connections when explaining explicit ideas and drawing inferences.
- RI.IT.5.3: Explain relationships among ideas, concepts, and information presented in scientific or technical texts.
- W.IW.5.2: Write informative/explanatory texts that clearly develop mathematical thinking using facts, definitions, concrete details, and precise language.
- SL.PE.5.1:. Engage effectively in collaborative discussions by building on others' ideas and expressing ideas clearly.
- L.VL.5.6: Acquire and accurately use grade-level academic and domain-specific vocabulary.

***NJSLS - SCIENCE 2026***

- 3-5 ETSI-1: Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints.
- 3-5 ETSI-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

**Amistad Connection:**

- Students examine the contributions of Swati Mohan, whose work as a NASA aerospace engineer demonstrates the importance of measurement, data analysis, precision, and mathematical modeling in scientific discovery and engineering. Students connect mathematical reasoning to careers in aerospace and STEM.

**Asian American and Pacific Islander (AAPI) Connection:**

- Students explore how scientists, engineers, architects, and mathematicians from Asian American and Pacific Islander communities use measurement, geometry, classification, and data analysis to solve real-world problems involving technology, engineering, and scientific research.

**Climate Change Connection:**

**Mathematics - 5.M.A.1**

- Students analyze authentic environmental data by converting units of rainfall, water usage, recycling totals, land area, and other measurements to solve real-world conservation problems.

**Science - 5 -ESS3-1**

- Students use measurement, data analysis, and mathematical reasoning to investigate how communities conserve resources and protect the environment.

**DEI Connections**

- Students collaborate to solve measurement and geometry problems, justify multiple solution strategies, organize geometric relationships using different representations, and recognize that mathematical thinking benefits from diverse perspectives and approaches to problem solving.

## Learning Targets

**Unit Essential Questions:**

- How do measurement conversions help us solve real-world problems?
- How can data displays help us interpret and communicate information?
- Why do geometric figures belong to multiple categories based on their attributes?
- How do mathematical models and logical organization help us solve problems?

**Unit Enduring Understandings:**

- Measurement units can be converted within a system to solve authentic real-world problems.
- Data displays help organize, interpret, and communicate mathematical information.
- Geometric figures can be classified into categories and subcategories based on shared attributes.
- Mathematical reasoning, organization, and representation help solve increasingly complex problems.

**Mathematical Vocabulary**

- benchmark fraction
- common denominator
- decimal
- decimal point
- denominator
- equivalent fraction
- fraction
- line plot

**Mathematical Vocabulary**

- mixed number
- numerator
- product
- tenths
- hundredths
- unit fraction
- weight

**Academic Vocabulary**

- altogether
- batch
- compare
- confidence
- connection
- construct
- counterexample
- discuss
- farther
- given
- location
- model (noun)
- model (verb)
- occur
- rest
- shade

**Additional Vocabulary**

- common numerator
- decompose
- equation
- expression
- improper fraction
- like denominators
- measurement conversion
- number line
- simplify
- whole number

**Students will be able to:**

- Explain why two fractions are equivalent using visual fraction models.
- Generate equivalent fractions by multiplying or dividing the numerator and denominator by the same number.

- Compare fractions with different numerators and denominators using benchmark fractions, common denominators, and visual models.
- Explain why fractions must refer to the same whole when making comparisons.
- Add and subtract fractions with like denominators.
- Decompose fractions into sums of unit fractions in more than one way.
- Add and subtract mixed numbers with like denominators.
- Represent fraction addition and subtraction using models, number lines, and equations.
- Interpret and solve word problems involving fraction addition and subtraction.
- Construct and interpret line plots using fractional units.
- Solve addition and subtraction problems using data displayed on line plots.
- Multiply a unit fraction and a non-unit fraction by a whole number.
- Solve real-world problems involving multiplication of fractions by whole numbers.
- Write fractions with denominators of 10 as equivalent fractions with denominators of 100.
- Explain the relationship between tenths and hundredths.
- Add fractions with denominators of 10 and 100.
- Write fractions as decimals and decimals as fractions with denominators of 10 or 100.
- Compare decimals to the hundredths using >, <, and =.
- Solve real-world problems involving time, money, length, liquid volume, mass, and weight.
- Convert larger units to smaller units to solve measurement problems.
- Explain mathematical reasoning using models, equations, line plots, and precise mathematical vocabulary.
- Explain mathematical reasoning using equations, models, formulas, and precise mathematical vocabulary.

| Assessment Evidence | | |
|---|---|---|
| **Formative Assessments:** | | |
| **Ongoing Classroom Assessments**<br>• Self Check<br>• Build Your Vocabulary<br>• STEM Story: **Sylvia Acevedo**<br>• Teacher observation<br>• Guided practice<br>• Math discourse and partner discussions<br>• Whiteboard responses<br>• Exit tickets<br>• Lesson Checks<br>• Digital Comprehension Checks<br>• Interactive Tutorials<br>• Interactive Practice | **Center Activities**<br>• Find Equivalent Fractions<br>• Find the Missing Number in Equivalent Fractions<br>• Use Fraction Vocabulary<br>• Comparing Fractions<br>• Match It!<br>• Make a Whole!<br>• Different Ways to Show Sums<br>• Add and Subtract Mixed Numbers<br>• Line Plots<br>• Using Line Plots<br>• Multiplying with Fractions<br>• Fraction Word Problems<br>• Tenths to Hundredths<br>• Adding Tenths and Hundredths<br>• Modeling Decimals and Fractions | **Enrichment Activities**<br>• Water Stations<br>• Colorful Quilts<br>• Relay Race<br>• Addition Grids<br>• Filling a Tank<br>• How Much Fabric?<br>• Mystery Equation<br>• Fill in the Blanks<br>• How Much Farther?<br>• What's the Cost?<br>• Mystery Comparisons<br>• Carnival<br>• Mass Matters<br><br>**Math in Action Preparation**<br>• Students develop the skills needed to represent, compare, add, subtract, and multiply fractions; relate fractions and decimals; interpret fractional data on line plots; compare decimals; and solve real-world problems involving measurement, time, money, mass, liquid volume, and weight. |

| | | |
|---|---|---|
| | • Decimals and Fractions on a Number Line<br>• Comparing Decimals<br>• Greater Than and Less Than<br>• Multi-Step Money Problems<br>• Distance Problems<br>• | |

| **Summative Assessments:** | | |
|---|---|---|
| Vocabulary Review<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Unit Assessment Form A & B<br>• Math in Action Performance Task<br>• Self Reflection | **Math in Action Performance Task Options**<br>• Sand Jars<br>• Coin Purses<br>• Hair Ribbons<br>• Picture Frame | **Skills Assessed**<br>Students will:<br>• Understand decimals as fractions.<br>• Understand comparing fractions.<br>• Write fractions as decimals.<br>• Compare decimals.<br>• Add and subtract like fractions.<br>• Find the perimeter of a rectangle.<br>• Add and subtract mixed numbers with like denominators.<br>• Subtract fractions from whole numbers.<br>• Multiply a fraction by a whole number.<br>• Write a mixed number as a fraction. |
| **Common Benchmark Assessments:** EOY i-Ready Diagnostic, Universal Screener for Number Sense (USNS) | | |

| **Core Instructional & Supplemental Materials** | | |
|---|---|---|
| **Resources**<br>**Teacher:**<br>• i-Ready Classroom Mathematics Teacher Guide | **Manipulatives**<br>• Fraction Models<br>• Number Line<br>• Base-Ten Blocks | **Technology**<br>• i-Ready Personalized Instruction<br>• Interactive Tutorials<br>• Interactive Practice and Reports |

| | | |
|---|---|---|
| • Teacher Toolbox<br>• Tools for Instruction<br>• Lesson-Level Differentiation Resources<br>• Prerequisite Lessons<br>• Build Your Vocabulary<br>• STEM Story: **Sylvia Acevedo**<br>• Center Activities<br>• Enrichment Activities<br>**Student**:<br>• Student Worktext<br>• Self Check<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Math in Action Performance Task<br>• Self Reflection<br>• Unit Assessment (Forms A and B) | **Other Classroom Materials**<br>• Fraction strips or fraction circles<br>• Decimal grids (10 × 10)<br>• Number lines<br>• Rulers and measuring tools<br>• Coins and play money<br>• Clocks<br>• Whiteboards and dry-erase markers<br>• Chart paper<br>• Recording sheets<br>• Line plot templates | • Unit and Lesson Comprehension Checks and Reports<br>• Diagnostic Reports<br>**Learning Games**<br>• Bounce<br>• Cloud Machine<br>• Cupcake<br>• Match<br>• Zoom<br>**Digital Math Tools**<br>• Base-Ten Blocks<br>• Fraction Models<br>• Number Line |

**Accommodations and Modifications:**
**Students with Disabilities, English Language Learners,**
**Students at Risk of Failure, Students with 504s, Gifted & Talented Students**

**Specific Strategies and Practices that Support Students with Disabilities:**
Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one
- Additional time - Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts, Verbal and visual cues regarding directions and staying on task
- Preferential seating
- Follow a routine/schedule, Rest breaks

- Checklists, Immediate feedback

**Specific Strategies and Practices that Support English Language Learners**

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts, Teacher modeling
- Personal Glossary
- Extended Time
- Simplified/Verbal Instructions
- Visual learning- including graphic organizers

**Students at Risk of Failure**

- Home/School Connection
- Alternative Assessments
- Learning Contracts
- Leveled Rubrics and Tiered Activities
- Work Alone Choice, Group Work Choice

**Students with 504 Plans**

- Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
- 504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way.
- Students' accommodations are outlined in their individual 504 plan.

**Specific Strategies and Practices that Support Gifted & Talented Students**

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

- Homogeneous Grouping
- Small Group In-Depth Instruction
- Differentiated Online Practice
- Alternative Assessments
- Pre-Assess to provide Differentiated Instruction to Accelerate Learning
- Supplemental Reading
- Engaging projects

# Unit 5

## Desired Results

**Unit 5 Title: Algebraic Thinking & the Coordinate Plane**

**Unit Summary:** This unit introduces students to algebraic thinking through numerical expressions, the coordinate plane, graphing, and numerical patterns. Students evaluate, write, and interpret numerical expressions using grouping symbols, graph ordered pairs in the first quadrant of the coordinate plane, solve real-world problems using coordinate graphs, analyze relationships between numerical patterns, and represent mathematical relationships graphically. Students apply logical reasoning, algebraic thinking, and mathematical modeling to solve authentic problems

## Learning Standards

**NJSLS:**

- 5.OA.A.1 - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- 5.OA.A.2 - Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
- 5.OA.B.3 - Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.
- 5.G.A.1 - Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).
- 5.G.A.2 -Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

## Interdisciplinary Connections

**Career Readiness, Life Literacies, & Key Skills**

- 9.4.5.CT.1: Identify and gather relevant information to support problem solving.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to academic and real-world situations.

**Computer Science & Design Thinking**

- 8.1.5.AP.2: Create and test algorithms to solve computational problems efficiently.
- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

**Interdisciplinary Connections:**

***NJSLS - ELA 2023***

- ***NJSLS - ELA 2023***
- RI.CR.5.1: Quote accurately from a text and make relevant connections when explaining explicit ideas and drawing inferences.
- RI.IT.5.3: Explain relationships among ideas, concepts, and information presented in scientific or technical texts.
- W.IW.5.2: Write informative/explanatory texts that clearly develop mathematical thinking using facts, definitions, concrete details, and precise language.
- SL.PE.5.1:. Engage effectively in collaborative discussions by building on others' ideas and expressing ideas clearly.
- L.VL.5.6: Acquire and accurately use grade-level academic and domain-specific vocabulary.

***NJSLS - SCIENCE 2026***

- 3-5 ETSI-1: Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints.
- 3-5 ETSI-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints.
- 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment.

**Amistad Connection:**

- Students examine the contributions of **José Celso Barbosa**, physician, educator, and civic leader, whose commitment to education, leadership, and innovation illustrates how analytical thinking and problem solving contribute to societal progress. Students connect mathematical reasoning and data analysis to leadership and informed decision making.

**Asian American and Pacific Islander (AAPI) Connection:**

- Students explore how scientists, engineers, mathematicians, and computer scientists from Asian American and Pacific Islander communities use coordinate systems, graphing, algebraic reasoning, and pattern recognition to solve problems in technology, engineering, and scientific research.

**Climate Change Connection:**

- Students use coordinate graphs, numerical patterns, and algebraic reasoning to represent and analyze authentic environmental data such as changes in temperature, rainfall, energy consumption, recycling trends, and conservation efforts.
- Students organize and interpret quantitative environmental data to investigate how communities use science and mathematics to conserve natural resources and reduce environmental impacts.
- Instructional Tie-In: Ask students to brainstorm environmental problems they care about (e.g., too much plastic, energy waste, endangered animals). (Math in Action-Composting)

**DEI Connections**

- Students collaborate to solve problems, compare multiple solution strategies, communicate mathematical reasoning using evidence, and recognize that innovation and mathematical discovery benefit from diverse perspectives and experiences.
- Connect to Culture (Mexican families often set up special areas in homes such as flowers and objects to remember loved ones, Tuskegee Airman-1st African American Fighter Pilots)

## Learning Targets

**Unit Essential Questions:**

- How do numerical expressions help us represent and interpret mathematical situations?
- How does the coordinate plane help us model and solve real-world problems?
- What can numerical patterns tell us about mathematical relationships?
- How do graphs, tables, expressions, and patterns help us communicate mathematical thinking?

**Unit Enduring Understandings:**

- Numerical expressions provide an efficient way to represent and communicate mathematical calculations.
- Coordinate planes provide a visual model for representing mathematical relationships and solving real-world problems.
- Numerical patterns reveal relationships that can be represented using tables, graphs, ordered pairs, and rules.
- Mathematical reasoning, graphing, and algebraic thinking help identify relationships, solve problems, and communicate solutions.

**Mathematical Vocabulary**

- coordinate plane
- corresponding terms
- evaluate
- expression
- grouping symbol
- ordered pair
- origin
- pattern

**Mathematical Vocabulary**

- term
- x-axis
- x-coordinate
- y-axis
- y-coordinate

**Academic Vocabulary**

- determine
- following
- generate
- horizontal
- locate
- numerical
- plot
- position
- situation
- vertical

**Additional Vocabulary**

- axes
- coordinate grid
- first quadrant
- graph
- numerical expression
- order of operations
- parentheses
- relationship
- rule
- sequence
- variable
- vertex

**Students will be able to:**

- Evaluate numerical expressions containing grouping symbols.
- Write numerical expressions containing grouping symbols to represent calculations.
- Interpret numerical expressions without evaluating them.
- Explain the order of operations when evaluating expressions with parentheses.
- Recognize the coordinate plane as a two-dimensional space formed by two perpendicular number lines.
- Identify the x-coordinate and y-coordinate of a point.
- Plot ordered pairs in the first quadrant of the coordinate plane.

- Graph points to represent real-world mathematical situations.
- Determine horizontal and vertical distances between two points in the first quadrant.
- Interpret the coordinates of points within the context of real-world situations.
- Generate numerical patterns using a given rule.
- Identify relationships between corresponding terms in two numerical patterns.
- Graph corresponding terms as ordered pairs on the coordinate plane.
- Explain mathematical relationships represented in tables, graphs, coordinate planes, and numerical expressions.
- Use mathematical reasoning to solve authentic algebraic and graphing problems.

## Assessment Evidence

**Formative Assessments:**

**Ongoing Classroom Assessments**

- Self Check
- Build Your Vocabulary
- STEM Story: **José Celso Barbosa**
- Teacher observation
- Guided practice
- Math discourse and partner discussions
- Whiteboard responses
- Exit tickets
- Lesson Checks
- Digital Comprehension Checks
- Interactive Tutorials
- Interactive Practice

**Center Activities**

- Less Than, Equal To, Greater Than
- Make It True
- Write a Numerical Expression
- Find the Expression
- Shapes on the Coordinate Plane
- Find the Point
- Moves on a Coordinate Plane
- Use Graphs to Answer Questions
- Use Number Sequence Vocabulary
- Plot Points

**Enrichment Activities**

- Mystery Expression
- Mystery Picture
- The Race
- Class Fundraiser

**Math in Action Preparation**

- Students develop the skills needed to represent, compare, add, subtract, and multiply fractions; relate fractions and decimals; interpret fractional data on line plots; compare decimals; and solve real-world problems involving measurement, time, money, mass, liquid volume, and weight.

**Summative Assessments:**

| | | |
|---|---|---|
| • Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Unit Assessment Form A & B<br>• Math in Action Performance Task<br>• Self Reflection | **Math in Action Performance Task Options**<br>• Octagon Trap<br>• Rectangle Maze<br>• The Plunging Parallelogram<br>• Game Booklets | **Skills Assessed**<br>Students will:<br>• Evaluate numerical expressions using parentheses.<br>• Write and interpret numerical expressions.<br>• Plot ordered pairs in the first quadrant of the coordinate plane.<br>• Describe and interpret the location of points.<br>• Find horizontal and vertical distances between two points.<br>• Label the coordinates of vertices of geometric figures.<br>• Generate and graph numerical patterns.<br>• Identify relationships between corresponding terms in two patterns.<br>• Represent horizontal and vertical movement using changes in x- and y-coordinates.<br>• Multiply a whole number by a decimal.<br>• Subtract whole numbers and decimals.<br>• Apply properties of quadrilaterals while solving coordinate-plane problems. |
| **Common Benchmark Assessments:** EOY i-Ready Diagnostic, Universal Screener for Number Sense (USNS) | | |

| Core Instructional & Supplemental Materials | | |
|---|---|---|
| **Resources**<br>**Teacher:**<br>• i-Ready Classroom Mathematics Teacher Guide<br>• Teacher Toolbox<br>• Tools for Instruction<br>• Lesson-Level Differentiation Resources<br>• Prerequisite Lessons<br>• Build Your Vocabulary<br>• STEM Story: **José Celso Barbosa** | **Manipulatives**<br>• Coordinate grids<br>• Graph paper<br>• Number lines<br>• Rulers<br>• Geometric shape templates<br><br>**Other Classroom Materials**<br>• Whiteboards and dry-erase markers<br>• Coordinate grid paper | **Technology**<br>• i-Ready Personalized Instruction<br>• Interactive Tutorials<br>• Interactive Practice and Reports<br>• Unit and Lesson Comprehension Checks and Reports<br>• Diagnostic Reports<br>**Learning Games**<br>• Cupcake |

| | | |
|---|---|---|
| • Center Activities<br>• Enrichment Activities<br>**Student**:<br>• Student Worktext<br>• Self Check<br>• Vocabulary Review<br>• Unit Review and Performance Task<br>• Cumulative Practice<br>• Math in Action Performance Task<br>• Self Reflection<br>• Unit Assessment (Forms A and B) | • Graph paper<br>• Colored pencils or markers<br>• Recording sheets<br>• Chart paper<br>• Anchor charts for order of operations and the coordinate plane<br>• Pencils<br>• Straightedges | |

**Accommodations and Modifications:**
**Students with Disabilities, English Language Learners,**
**Students at Risk of Failure, Students with 504s, Gifted & Talented Students**

**Specific Strategies and Practices that Support Students with Disabilities:**

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one
- Additional time - Review of directions
- Student restates information
- Space for movement or breaks
- Extra visual and verbal cues and prompts, Verbal and visual cues regarding directions and staying on task
- Preferential seating
- Follow a routine/schedule, Rest breaks
- Checklists, Immediate feedback

**Specific Strategies and Practices that Support English Language Learners**

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts, Teacher modeling
- Personal Glossary
- Extended Time

- Simplified/Verbal Instructions
- Visual learning- including graphic organizers

**Students at Risk of Failure**

- Home/School Connection
- Alternative Assessments
- Learning Contracts
- Leveled Rubrics and Tiered Activities
- Work Alone Choice, Group Work Choice

**Students with 504 Plans**

- Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
- 504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way.
- Students' accommodations are outlined in their individual 504 plan.

**Specific Strategies and Practices that Support Gifted & Talented Students**

It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

- Homogeneous Grouping
- Small Group In-Depth Instruction
- Differentiated Online Practice
- Alternative Assessments
- Pre-Assess to provide Differentiated Instruction to Accelerate Learning
- Supplemental Reading
- Engaging projects