

**Englewood on the Palisades Charter School**

**Mathematics Curriculum**

**Grade Three**

**Aligned With the 2023 New Jersey Student Learning Standards**

## **The Vision for Mathematics Education in New Jersey**

A New Jersey education in Mathematics builds quantitatively and analytically literate citizens prepared to meet the demands of college and career, and to engage productively in an information-driven society. All students will have access to a high-quality mathematics education that fosters a population that:

- leverages data in decision-making and as a lens for discussing, analyzing, and responding to practical questions.
- persists to make sense of and model problems arising in everyday life, society, and the workplace.
- thinks critically and strategically to assess quantitative relationships and to solutions to complex problems.
- employs precise reasoning and constructs viable arguments to deduce conclusions, recognize false statements and assess peers' reasoning.
- interprets, evaluates and critiques the mathematics embedded in social, scientific and commercial systems, as well as the claims made in the private and public sectors.
- communicates precisely when conveying, representing, and justifying both qualitative and quantitative perspectives.

(NJ DOE, 2024)

### Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

| Standard                                                           | Mathematically Proficient Students ...                                                                                                                                                                                                                  |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Make sense of problems and persevere in solving them            | start by explaining to themselves the meaning of a problem and looking for entry points to its solution.<br><br>check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?”                  |
| 2. Reason abstractly and quantitatively                            | make sense of quantities and their relationships in problem situations.                                                                                                                                                                                 |
| 3. Construct viable arguments and critique the reasoning of others | understand and use stated assumptions, definitions, and previously established results in constructing arguments.                                                                                                                                       |
| 4. Model with mathematics                                          | apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.<br><br>are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. |
| 5. Use appropriate tools strategically                             | are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful,                                                                                                     |

|                                                          |                                                                                           |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------|
|                                                          | recognizing both the insight to be gained and their limitations.                          |
| 6. Attend to precision                                   | try to communicate precisely to others.                                                   |
| 7. Look for and make use of structure                    | look closely to discern a pattern or structure                                            |
| 8. Look for and express regularity in repeated reasoning | notice if calculations are repeated, and look both for general methods and for shortcuts. |

(NJ DOE, 2024)

### New Jersey Legislative Statutes and Administrative Code Mathematics

Amistad Law: *N.J.S.A. 18A 52:16A-88*

[Radical Math](#): includes lessons on topics for social justice in mathematics  
[African American Mathematician Bios](#)

Holocaust Law: *N.J.S.A. 18A:35-28*

<https://www.bbc.com/future/article/20191031-hilda-geiringer-mathematician-who-fled-the-nazis>

LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*

<https://prideinstem.org/>  
[LGBTQ+ Mathematician Bios](#)  
<https://www.ngpf.org/blog/math/math-monday-celebrating-disabled-mathematicians/>

[Mathematicians with Disabilities](#)

Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*

<http://www.ams.org/about-us/diversity>

<https://mathematicallygiftedandblack.com/>

Standards in Action: *Climate Change*

New Jersey became the first state in the nation to include climate change across content areas with the adoption of the 2020 New Jersey Student Learning Standards (NJSLS). The goal of inclusion of climate change education implementation is to foster generations of New Jersey students that can analyze, question, interpret, to think independently, and bring critical deduction to fulfill, and to lead in jobs created by burgeoning industries of the future green economy.

Suggestions for how to incorporate climate change examples into math instruction will be noted in **green text** throughout the units.

### **Math Curriculum Grade Three**

This third grade math curriculum aligns with the 2023 New Jersey Student Learning Standards (NJSLS) and provides a solid foundation for learners to develop understanding in four critical areas this year. Instruction in grade three focuses broadly on:

- developing understanding of multiplication and division and strategies for multiplication and division within 100;
- developing understanding of fractions, especially unit fractions (fractions with numerator 1);
- developing understanding of the structure of rectangular arrays and of area; and
- describing and analyzing two-dimensional shapes.

Throughout the year, lessons should include hands-on activities, games, and manipulatives to engage students and make learning math fun and interactive. Formative assessments, observations, and ongoing progress monitoring should be used to ensure that students are

meeting the learning objectives. Instruction should be flexible and adaptable to meet the individual needs and learning styles of the students.

### **Domains and Cluster Areas**

- **Operations and Algebraic Thinking**
  - Represent and solve problems involving multiplication and division.
  - 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.
- **Number and Operations in Base Ten**
  - Use place value understanding and properties of operations to perform multi-digit arithmetic.
- **Number and Operations - Fractions**
  - Develop understanding of fractions as numbers.
- **Measurement**
  - Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
  - Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
  - Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- **Data Literacy**
  - Understand data-based questions and data collection.
  - Represent and interpret data.
- **Geometry**
  - Reason with shapes and their attributes.

Emphases are given at the cluster level. Refer to the New Jersey Student Learning Standards for Mathematics for the specific standards that fall within each cluster. Even though the clusters have different levels of emphasis, this does not mean that standards can be omitted. All standards must be included in instruction throughout a grade level to ensure that students will be prepared for instruction at higher grade levels.

| Indicator | Type | Cluster Heading |
|-----------|------|-----------------|
|-----------|------|-----------------|

|         |   |                                                                                                                 |
|---------|---|-----------------------------------------------------------------------------------------------------------------|
| 3.OA.A  | M | Represent and solve problems involving multiplication and division                                              |
| 3.OA.B  | M | Understand properties of multiplication and the relationship between multiplication and division                |
| 3.OA.C  | M | Multiply and divide within 100                                                                                  |
| 3.OA.D  | M | Solve arithmetic problems involving the 4 operations, and identify and explain patterns in arithmetic           |
| 3.NBT.A | A | Use place value and properties of operations to perform multi-digit arithmetic                                  |
| 3.NF.A  | M | Develop understanding of fractions as numbers                                                                   |
| 3.M.A   | M | Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects |
| 3.M.B   | M | Understand concepts of area and relate area to multiplication and addition                                      |
| 3.M.C   | A | Recognize perimeter as an attribute of plane figures and distinguish between linear and area measurements       |
| 3.DL.A  | A | Understand data-based questions and data collection                                                             |
| 3.DL.B  | S | Represent and interpret data                                                                                    |
| 3.G.A   | S | Reason with shapes and their attributes                                                                         |

**Key:** M — Major, S — Supporting Clusters, A — Additional Clusters

**Required Fluencies in Grade 3:**

- **3.OA.C.7** Multiply and divide within 100; Know single digit products from memory
- **3.NBT.A.2** Add and subtract within 1000

| Grade 3 Units and Pacing                                  |          |
|-----------------------------------------------------------|----------|
| Unit 1: Introducing Multiplication                        | 5 weeks  |
| Unit 2: Area and Multiplication                           | 4 weeks  |
| Unit 3: Wrapping Up Addition and SubtractionThrough 1,000 | 5 weeks  |
| Unit 4: Relating Multiplication to Division               | 5 weeks  |
| Unit 5: Fractions as Numbers                              | 4 weeks  |
| Unit 6: Measurement                                       | 5 weeks  |
| Unit 7: Two-Dimensional Shapes and Perimeter              | 4 weeks  |
| Unit 8: Integrating Math Skills                           | 3 weeks  |
| Total Number of Weeks:                                    | 35 weeks |

**Unit 1: Introducing Multiplication**

|                                                                                                                                                                                                                                                                                          |
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| <b>Unit Goal:</b> Students represent and solve multiplication problems through the context of picture and bar graphs that represent categorical data.                                                                                                                                    |
| <b>Duration:</b> 5 weeks                                                                                                                                                                                                                                                                 |
| <b>Essential Questions:</b> <ul style="list-style-type: none"><li>• How can modeling with equal groups help us in understanding multiplication situations?</li><li>• How can Properties of Operations help in performing computation as well as in problem-solving situations?</li></ul> |

- How can the strategy of breaking apart (decomposing) numbers make multiplication easier to understand? • How can we use multiplication to solve division problems?
- What are some strategies that can make multiplication easier to understand?

### Enduring Understandings:

- Some real-world problems that involve joining or separating equal groups or making comparisons can be solved using multiplication.
- Arrays are special cases of equal-group situations involving finding the total number based on the number of rows and the number in each row.

### Key NJSLS Strands:

- **3.OA.A** Represent and solve problems involving multiplication and division
  - **3.OA.A.1** Interpret products of whole numbers, e.g., interpret as the total number of objects in 5 groups of 7 objects each.
  - **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. *Climate Change Example: Students may solve multiplication and division word problems involving measurement quantities related to glacier retreat.*
  - **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- **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. Examples: If is known, then is also known. (Commutative property of multiplication.) can be found by , then , or by , then . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as . (Distributive property.) {Clarification: Students need not use formal terms for these properties}.
- **3.OA.C** Multiply and divide within 100
  - **3.OA.C.7** With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that , one knows ) or properties of operations. **By the end of Grade 3, know from memory all products of two one-digit numbers.**
- **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic

- **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.
- **3.DL.B** Represent and interpret data
  - **3.DL.B.3** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
- **3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic
  - **3.NBT.A.2** With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

### Interdisciplinary Connections

- **NJSLSA.R1** Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### 21st-Century Skills

- **9.4.2.IML.3** Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults.

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| <b>Career Ready Practices</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>● <b>CRP 8</b> Utilize critical thinking to make sense of problems and persevere in solving problem solving problems.</li> <li>● <b>CRP 11</b> Use technology to enhance productivity by accessing various online skill based websites.</li> </ul>                                                                                                                                                                       |
| <b>Technology Integration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>● <b>TECH.8.1.2</b> All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</li> <li>● <b>TECH.8.1.2.A.CS2</b> Select and use applications effectively and productively .</li> <li>● <b>TECH.8.2.2.C</b> The design process is a systematic approach to solving problems.</li> </ul> |

| Skills                                                                                                                                                                                                                              | Instructional Topics                                                                                                                                                                                 | Assessment                                                                                                                                                                                                                                                      | Resources                                                                                                                                                                                                        | Vocabulary                                                                                                                                         |
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| <p>Interpret scaled picture and bar graphs.</p> <p>Represent data using scaled pictures and bar graphs.</p> <p>Solve one- and two-step story problems using addition and subtraction.</p> <p>Represent and solve multiplication</p> | <p>Make Sense of Data</p> <p>Represent Data and Solve Problems</p> <p>Scaled Picture Graphs</p> <p>Create Scaled Picture Graphs</p> <p>Represent Data in Scaled Bar Graphs</p> <p>Choose a Scale</p> | <p><b>Formative Assessments:</b></p> <p>Diagnostic Assessment</p> <p>Mid-topic Checkpoint</p> <p>Lesson Quizzes</p> <p>Lesson Self-assessment</p> <p>Teacher Observations</p> <p>Class Discussions</p> <p>Classwork/ Homework</p> <p>Exit Slips/Google Form</p> | <p><b>Materials:</b></p> <p>Sticky notes</p> <p>Connecting cubes</p> <p>Counters</p> <p>Card Sort Equal Groups</p> <p>Card Sort Unknown Numbers</p> <p>Inch tiles</p> <p>Tools for creating a visual display</p> | <p>Array</p> <p>Bar graph</p> <p>Equation</p> <p>Expression</p> <p>Factor</p> <p>Key</p> <p>Multiplication</p> <p>Picture graph</p> <p>Product</p> |

|                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                     |
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| <p>problems involving equal groups.</p> <p>Understand multiplication in terms of equal groups.</p> <p>Represent and solve multiplication problems involving arrays.</p> | <p>Answer Questions about Scaled Bar Graphs</p> <p>From Graphs to Multiplication</p> <p>Multiplication as Equal Groups</p> <p>Drawings, Situations, and Diagrams, Oh My!</p> <p>Multiplication Expressions</p> <p>Represent and Solve Multiplication Problems</p> <p>Multiplication Equations</p> <p>Write and Solve Equations with Unknowns</p> <p>More Factors, More Problems</p> <p>Represent Multiplication with Arrays and the Commutative Property</p> | <p><b>Summative Assessments:</b><br/>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b><br/>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Two-color counters</p> <p>Snap cubes</p> <p>Place value blocks</p> <p>Index cards</p> <p>Number lines</p> <p>Centimeter grid paper</p> <p><b>Activities:</b></p> <p>Number Talks</p> <p>Survey classmates and make a graph</p> <p>1-2 step story problems</p> <p>Hole punch arrays</p> <p><b>Mentor Texts:</b></p> <p><i>Minnie's Diner</i> by Dayle Ann Dodds</p> <p><i>The King's Chessboard</i> by David Birch</p> | <p>Scaled bar graph</p> <p>Scaled picture graph</p> |
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|  |                                                                                                                                                                                 |  |                                                                                                                                                                          |  |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <p>Arrange Objects Into Arrays</p> <p>Match and Draw Arrays</p> <p>Represent Arrays with Expressions</p> <p>Solve Problems Involving Arrays</p> <p>The Commutative Property</p> |  | <p><i>The King's Commissioners</i> by Aileen Friedman</p> <p><i>Too Many Kangaroo Things to Do!</i> by Stuart J. Murphy</p> <p><i>The Best of Times</i> by Greg Tang</p> |  |
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| Modifications and Accommodations  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <b>Tier II and III Strategies</b> | <p>Small group instruction (Tier II)</p> <ul style="list-style-type: none"> <li>● Explicit instruction</li> <li>● Schema-based instruction</li> <li>● Use visuals</li> <li>● Use manipulatives</li> <li>● Use a multi-sensory approach</li> <li>● Guided notes and/or scaffold outline for written assignments</li> <li>● Introduce key vocabulary before lesson</li> <li>● Lesson taught again using a differentiated approach</li> </ul> <p>Small group or Individual instruction (Tier III)</p> <ul style="list-style-type: none"> <li>● Intensive instruction</li> <li>● Practice fact retrieval</li> </ul> |

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|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                         | <ul style="list-style-type: none"> <li>• Lesson taught again using a differentiated approach</li> <li>• Allow answers to be given orally or dictated</li> <li>• Use visuals / Anchor Charts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Students with IEPs and 504 Plans</b> | <p><a href="#"><u>Universal Design for Learning and Access for Students with Disabilities</u></a></p> <p><a href="#"><u>Movematics (dyscalculia.org)</u></a></p> <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> |

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|                                | <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p> |
| <b>Multi-language Learners</b> | <p><a href="#"><u>Mathematical Language Development and Access for English Learners</u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key</p>                                                                                        |

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                              | <p>Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p>                                                                                                                                   |
| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |

## Unit 2: Area

**Unit Goal:** Students learn about area concepts and relate area to multiplication and to addition.

**Duration:** 4 weeks

**Essential Questions:**

- How can area be measured and found?
- Why do we need standard units of measure?
- How does what we measure influence how we measure?

**Enduring Understandings:**

- The amount of space inside a shape is its area, and area can be found or estimated using unit squares.
- Area can be measured using nonstandard units, including unit squares of different sizes.
- Standard measurement units are used for consistency in finding and communicating measurements.
- The amount of space inside a region is its area, and area can be found by counting unit squares or by multiplying the side lengths.
- The areas of rectangles can be used to model the distributive property of multiplication.
- The area of some irregular shapes can be found by dividing the original shape into rectangles, finding the area of each rectangle, and adding all the areas.
- Good math thinkers look for relationships in math to help solve problems.

**Key NJSLS Strands:**

- **3.OA.A** Represent and solve problems involving multiplication and division
  - **3.OA.A.1** Interpret products of whole numbers, e.g., interpret as the total number of objects in 5 groups of 7 objects each.
- **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. Examples: If is known, then is also known. (Commutative property of multiplication.) can be found by , then , or by , then . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as . (Distributive property.) {Clarification: Students need not use formal terms for these properties}.

- **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic
  - **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.
- **3.M.B** Geometric measurement: understand concepts of area and relate area to multiplication and to addition
  - **3.M.B.3** Recognize area as an attribute of plane figures and understand concepts of area measurement.
    - **3.M.B.3.a** A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
    - **3.M.B.3.b** A plane figure which can be covered without gaps or overlaps by  $n$  unit squares is said to have an area of  $n$  square units.
  - **3.M.B.4** Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
  - **3.M.B.5** Relate area to the operations of multiplication and addition.
    - **3.M.B.5.a** Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.
    - **3.M.B.5.b** Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
    - **3.M.B.5.c** Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths  $a$  and  $b + c$  is the sum of  $a \times b$  and  $a \times c$ . Use area models to represent the distributive property in mathematical reasoning.
    - **3.M.B.5.d** Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
- **3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic
  - **3.NBT.A.2** With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

### Interdisciplinary Connections

- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### 21st-Century Skills

- **9.4.5.CT.4** Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

### Career Ready Practices

- **CRP 4** Communicate clearly and effectively and with reason while working on groups on the Solve and Share portion of the lesson.
- **CRP 11** Use technology to enhance productivity.

## Technology Integration

- TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- TECH.8.1.2.A.CS2 Select and use applications effectively and productively.

| Skills                                                                                           | Instructional Topics              | Assessment                    | Resources                                               | Vocabulary           |
|--------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------|---------------------------------------------------------|----------------------|
| Describe area as the number of unit squares that cover a plane figure without gaps and overlaps. | What is Area?                     | <b>Formative Assessments:</b> | <b>Materials:</b>                                       | Area                 |
|                                                                                                  | How Do We Measure Area?           | Diagnostic Assessment         | Base-ten blocks                                         | Array                |
|                                                                                                  | Tile Rectangles                   | Mid-topic Checkpoint          | Card Sort: Numbers in Their Different Forms             | Bar graph            |
| Measure the area of rectangles by counting unit squares.                                         | Area of Rectangles                | Lesson Quizzes                | Base-ten blocks                                         | Equation             |
|                                                                                                  | Relate Area to Multiplication     | Lesson Self-assessment        | Tools for creating a visual display                     | Expression           |
| Explain why the area of a rectangle can be determined by multiplying the side lengths.           | Represent Products as Areas       | Teacher Observations          | Paper clips                                             | Factor               |
|                                                                                                  | Different Square Units            | Class Discussions             | Pencils                                                 | Key                  |
|                                                                                                  |                                   | Classwork/ Homework           | Index cards                                             | Multiplication       |
| Solve problems involving the area of rectangles.                                                 | Area of Rectangles Without a Grid | Exit Slips/Google Form        | Situations, Equations, and Diagrams                     | Parentheses          |
|                                                                                                  | Measure to Find the Area          | <b>Summative Assessments:</b> |                                                         | Picture graph        |
| Find the area of figures composed of rectangles.                                                 | Solve Area Problems               | Topic/Unit Assessments        | <b>Activities:</b>                                      | Product              |
|                                                                                                  | Area and the                      |                               | Use unit squares to find the area of a shape or figure. | Scaled bar graph     |
|                                                                                                  |                                   |                               |                                                         | Scaled picture graph |

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|  | <p>Multiplication Table</p> <p>Find Area of Figures Composed of Rectangles</p> <p>Area and Addition</p> <p>Find the Area of Figures</p> <p>Find the Area of Figures with Missing Sides</p> | <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b></p> <p>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Use standard units to measure the area of a shape.</p> <p>Use unit squares and multiplication to find the areas of squares and rectangles.</p> <p>Use areas of rectangles to model the distributive property</p> <p><b>Mentor Texts:</b><br/> <i>Spaghetti and Meatballs For All</i> by Marilyn Burns<br/><br/> <i>BIGGER, BETTER, BEST!</i> by Stuart J. Murphy</p> | <p>Square centimeter</p> <p>Square foot</p> <p>Square inch</p> <p>Square meter</p> |
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| Students with IEPS and 504 Plans | <p><a href="#">Universal Design for Learning and Access for Students with Disabilities</a></p> <p><a href="#">Movematics (dyscalculia.org)</a></p> |
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|  | <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to</p> |
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|                                | <p>share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Multi-language Learners</b> | <p><a href="#"><u>Mathematical Language Development and Access for English Learners</u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p> |

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| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |
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### Unit 3: Addition and Subtraction Within 1,000

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| <p><b>Unit Goal:</b> Students use place value understanding to round whole numbers and add and subtract within 1,000. They also represent and solve two-step word problems using addition, subtraction, and multiplication and assess the reasonableness of answers.</p>                                                             |
| <p><b>Duration:</b> 5 weeks</p>                                                                                                                                                                                                                                                                                                      |
| <p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>• How can the sum and difference be estimated and computed using mental math?</li> <li>• How can the properties of addition or subtraction help to solve real-world problems?</li> <li>• How can algebraic thinking help when memorizing facts?</li> </ul> |

### Enduring Understandings:

- Some real-world problems that involve joining, separating, part-part whole, or comparing can be solved using addition.
- Generalizations about how addition works emerge from investigating patterns and reasoning about mathematical relationships.
- Rounding is a process for finding multiples of 10 and 100, closest to a given number.
- There is more than one way to do mental math. Techniques involve changing the numbers or the expressions so that calculations are easy to do mentally.
- There is more than one way to estimate a sum. Two ways to estimate are rounding and using compatible numbers.
- Addition and subtraction have an inverse relationship. That relationship can be used to solve problems.
- Good math thinkers choose and apply math they know to show and solve problems from everyday life.

### Key NJSLS Strands:

- **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 to the nearest 10 or 100.
  - **3.NBT.A.2** With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **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. Examples: If  $a \times b = c$  is known, then  $c \div b = a$  is also known. (Commutative property of multiplication.)  $a \times (b \times c) = (a \times b) \times c$  can be found by  $a \times b$ , then  $\times c$ , or by  $a \times c$ , then  $\times b$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $40 + 16$ . (Distributive property.) {Clarification: Students need not use formal terms for these properties}.
- **3.OA.C** Multiply and divide within 100
  - **3.OA.C.7** With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $3 \times 4 = 12$ , one knows  $12 \div 3 = 4$ ) or properties of operations. **By the end of Grade 3, know from memory all products of two one-digit numbers.**
- **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic
  - **3.OA.D.8** Solve two-step word problems, including problems involving money, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers

using mental computation and estimation strategies including rounding. (Clarification: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order). **Climate Change Example: Students may use the four operations to solve two-step word problems related to glacier retreat.**

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

### Interdisciplinary Connections

- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words
- **3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### 21st-Century Skills

- **9.4.5.IML.2** Create a visual representation to organize information about a problem or issue.
- **9.4.5.IML.3** Represent the same data in multiple visual formats in order to tell a story about the data.

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| <b>Career Ready Practices</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>• <b>CRP 4</b> Communicate clearly and effectively and with reason during the Solve and Share portion of the lesson.</li> <li>• <b>CRP 8</b> Utilize critical thinking to make sense of problems and persevere in solving independent practice problems.</li> <li>• <b>CRP 11</b> Use technology to enhance productivity.</li> </ul>                                                                                    |
| <b>Technology Integration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>• <b>TECH.8.1.2</b> All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</li> <li>• <b>TECH.8.1.2.A.CS2</b> Select and use applications effectively and productively.</li> <li>• <b>TECH.8.2.2.C</b> The design process is a systematic approach to solving problems.</li> </ul> |

| <b>Skills</b>                                                                                                                                                                                                                                            | <b>Instructional Topics</b>                                                                                                                                                                                                                                             | <b>Assessment</b>                                                                                                                                                                                                                                               | <b>Resources</b>                                                                                                                                                                                                       | <b>Vocabulary</b>                                                                                                                                                    |
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| <p>Fluently add within 1,000 using algorithms based on place value and properties of operations.</p> <p>Use place value understanding to compose and decompose numbers.</p> <p>Fluently subtract within 1,000 using algorithms based on place value,</p> | <p>Decimals with Tenths and Hundredths</p> <p>Decimal Numbers</p> <p>Equivalent Decimals</p> <p>Decimals on Number Lines</p> <p>Compare and Order Decimals</p> <p>Compare and Order Decimals and Fractions</p> <p>How Much is 10,000?</p> <p>Numbers Within 100,000</p> | <p><b>Formative Assessments:</b></p> <p>Diagnostic Assessment</p> <p>Mid-topic Checkpoint</p> <p>Lesson Quizzes</p> <p>Lesson Self-assessment</p> <p>Teacher Observations</p> <p>Class Discussions</p> <p>Classwork/ Homework</p> <p>Exit Slips/Google Form</p> | <p><b>Materials:</b></p> <p>Base-ten blocks</p> <p>Numbers in Different Forms Cards</p> <p>Tools for creating a visual display</p> <p>Diagrams and Algorithms</p> <p>Paper clips</p> <p>Pencils</p> <p>Index cards</p> | <p>Algorithm</p> <p>Array</p> <p>Equation</p> <p>Expanded form</p> <p>Expression</p> <p>Parentheses</p> <p>Picture graph</p> <p>Rounding</p> <p>Scaled bar graph</p> |

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| <p>properties of operations, and the relationship between addition and subtraction.</p> <p>Round whole numbers to the nearest multiple of 10 and 100.</p> <p>Assess the reasonableness of answers.</p> <p>Solve two-step word problems using addition, subtraction, and multiplication.</p> | <p>Beyond 100,000</p> <p>Same Digit, Different Value</p> <p>Ten Times As Much</p> <p>Large Numbers on a Number Line</p> <p>Compare Multi-digit Numbers</p> <p>Order Multi-digit Numbers</p> <p>Multiples of 10,000 and 100,000</p> <p>The Nearest Multiples of 1,000, 10,000, and 100,000</p> <p>Round Numbers</p> <p>Apply Rounding</p> <p>Standard Algorithm to Add and Subtract</p> <p>Compose and Decompose to Add and Subtract</p> <p>Add and Subtract Within 1,000,000</p> <p>Zeros in the Standard Algorithm</p> <p>Solve Problems Involving</p> | <p><b>Summative Assessments:</b></p> <p>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b></p> <p>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Sticky notes</p> <p>Situations, Equations, and Diagrams Cards</p> <p>Two color counters</p> <p>Drawing paper</p> <p>Colored pencils</p> <p>Number line</p> <p>Place value blocks</p> <p>Number tiles</p> <p>Index cards</p> <p><b>Activities:</b></p> <p>Addition Properties</p> <p>Round Numbers</p> <p>Use Mental Math to Add</p> <p>Use Mental Math to Subtract</p> <p>Estimate Sums</p> <p>Estimate Differences</p> | <p>Scaled picture graph</p> |
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|  | Large Numbers |  | <p>Relate Addition and Subtraction</p> <p>Draw a Bar Diagram</p> <p><b>Mentor Texts:</b><br/> <i>The Mission of Addition</i><br/>           by Brian P. Cleary</p> <p><i>The Action of Subtraction</i> by Brian P. Cleary</p> |  |
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| <p><b>Students with IEPs and 504 Plans</b></p> | <p><u><a href="#">Universal Design for Learning and Access for Students with Disabilities</a></u></p> <p><u><a href="#">Movematics (dyscalculia.org)</a></u></p> <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> |
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|                                | <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p> |
| <b>Multi-language Learners</b> | <p><a href="#"><u><b>Mathematical Language Development and Access for English Learners</b></u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|                              | <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p> |
| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p>                                                                                                                                                                                                                                                                                                                                                                                                     |

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|  | <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |
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#### Unit 4: Relating Multiplication to Division

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| <p><b>Unit Goal:</b> Students learn about and use the relationship between multiplication and division, place value understanding, and the properties of operations to multiply and divide whole numbers within 100. They also represent and solve two-step word problems using the four operations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p><b>Duration:</b> 5 weeks</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>• What are the different meanings of multiplication and division?</li> <li>• How are multiplication and division related?</li> <li>• What key words indicate multiplication and division?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>Enduring Understandings:</b></p> <ul style="list-style-type: none"> <li>• Joining or separating equal groups or making comparisons can be solved using multiplication. Repeated addition that involves joining equal groups is one way to think about multiplication.</li> <li>• Multiplication on the number line can involve joining equal groups and is one way to think about multiplication.</li> <li>• An array involves displaying objects in equal rows and columns and is one way to think about multiplication.</li> <li>• Two numbers can be multiplied in any order and the product remains the same.</li> <li>• Sharing involves separating equal groups and is one way to think about division.</li> <li>• Repeated subtraction involves separating equal groups and is one way to think about division.</li> <li>• Good math thinkers know how to pick the right tools to solve math problems.</li> </ul> |
| <p><b>Key NJSL Strands:</b></p> <ul style="list-style-type: none"> <li>• <b>3.OA.A</b> Represent and solve problems involving multiplication and division</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

- **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret   as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
- **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- **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. Examples: If   is known, then   is also known. (Commutative property of multiplication.)   can be found by   , then   , or by   , then   . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as   . (Distributive property.) {Clarification: Students need not use formal terms for these properties}.
  - **3.OA.B.6** Understand division as an unknown-factor problem. For example, find   by finding the number that makes 32 when multiplied by 8.
- **3.OA.C** Multiply and divide within 100
  - **3.OA.C.7** With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that   , one knows   ) or properties of operations. **By the end of Grade 3, know from memory all products of two one-digit numbers.**
- **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic
  - **3.OA.D.8** Solve two-step word problems, including problems involving money, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Clarification: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order). **Climate Change Example: Students may use the four operations to solve two-step word problems related to glacier retreat.**
  - **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.

- **3.M.B** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
  - **3.M.B.5** Relate area to the operations of multiplication and addition.
    - **3.M.B.5c** Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths  $a$  and  $b + c$  is the sum of  $a \times b$  and  $a \times c$ . Use area models to represent the distributive property in mathematical reasoning.
- **3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic
  - **3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., , ) using strategies based on place value and properties of operations.

### Interdisciplinary Connections

- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **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 of the problem.

### 21st-Century Skills

- **9.4.5.CT.1** Identify and gather relevant data that will aid in the problem-solving process.
- **9.4.5.CT.2** Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem.
- **9.4.5.CT.3** Describe how digital tools and technology may be used to solve problems.
- **9.4.5.CT.4** Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

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| <b>Career Ready Practices</b>                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>CRP 4</b> Communicate clearly and effectively and with reason while working on groups on the Solve and Share portion of the lesson.</li> <li>● <b>CRP 11</b> Use technology to enhance productivity.</li> </ul>                                                                                                    |
| <b>Technology Integration</b>                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>TECH.8.1.2</b> All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</li> <li>● <b>TECH.8.1.2.A.CS2</b> Select and use applications effectively and productively.</li> </ul> |

| <b>Skills</b>                                                                                                                                                                                                                                                                                                                                       | <b>Instructional Topics</b>                                                                                                                                                                                                                      | <b>Assessment</b>                                                                                                                                                                                                                                               | <b>Resources</b>                                                                                                                                                                                                                                                | <b>Vocabulary</b>                                                                                                                                              |
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| <p>Represent and solve “how many groups?” and “how many in each group?” problems.</p> <p>Understand division as a missing-factor problem.</p> <p>Use properties of operations to develop fluency with single-digit multiplication facts, and their related division facts.</p> <p>Use properties of operations and place value understanding to</p> | <p>How Many Groups?</p> <p>How Many in Each Group?</p> <p>Division Situation Drawings</p> <p>Interpret Division Expressions</p> <p>Write Division Expressions</p> <p>Division as an Unknown Factor</p> <p>Relate Multiplication and Division</p> | <p><b>Formative Assessments:</b></p> <p>Diagnostic Assessment</p> <p>Mid-topic Checkpoint</p> <p>Lesson Quizzes</p> <p>Lesson Self-assessment</p> <p>Teacher Observations</p> <p>Class Discussions</p> <p>Classwork/ Homework</p> <p>Exit Slips/Google Form</p> | <p><b>Materials:</b></p> <p>Multiplication cards</p> <p>Base-ten blocks</p> <p>Connecting cubes</p> <p>Counters</p> <p>Tools for creating a visual display</p> <p>Centimeter Grid Paper - Standard (groups of 2)</p> <p>Base-ten blocks</p> <p>Sticky notes</p> | <p>Algorithm</p> <p>Area</p> <p>Array</p> <p>Bar graph</p> <p>Division</p> <p>Divisor</p> <p>Equation</p> <p>Expanded form</p> <p>Expression</p> <p>Factor</p> |

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| <p>develop strategies to multiply within 100 and to multiply one-digit numbers by a multiple of 10.</p> <p>Use properties of operations, place value understanding, and the relationship between multiplication and division to divide within 100.</p> <p>Use repeated addition to show the relationship between multiplication and addition.</p> <p>Use number lines to join equal groups.</p> <p>Use arrays as one way to think about and understand multiplication.</p> <p>Use the commutative property.</p> <p>Use sharing to separate equal groups and to think about division.</p> | <p>Relate Quotients to Familiar Products</p> <p>Patterns in the Multiplication Table</p> <p>Explore Multiplication Strategies with Rectangles</p> <p>Multiplication Strategies on Ungridded Rectangles</p> <p>Multiply Multiples of Ten</p> <p>Solve Problems With Equal Groups</p> <p>Ways to Represent Multiplication of Teen Numbers</p> <p>Equal Groups, Larger Numbers</p> <p>Multiply Numbers Larger than 20</p> <p>Use the Four Operations to Solve Problems</p> <p>Larger Numbers in Equal Groups</p> | <p><b>Summative Assessments:</b><br/>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b><br/>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Tools for creating a visual display</p> <p>Centimeter Grid Paper - Standard</p> <p>Number Cards (0-10)</p> <p><b>Activities:</b><br/>Multiplication as Repeated Addition</p> <p>Multiplication on the Number Line</p> <p>Colorful Arrays</p> <p>The Commutative Property</p> <p>Sharing Equally</p> <p>Repeated Subtraction</p> <p>Math Practices and Problem Solving: Use Appropriate Tools</p> <p><b>Mentor Texts:</b><br/><i>Multiplying Menace: The Revenge of Rumpelstiltskin</i> by Pam Calvert</p> | <p>Key</p> <p>Multiplication</p> <p>Parentheses</p> <p>Picture graph</p> <p>Product</p> <p>Quotient</p> <p>Rounding</p> |
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| <p>Use repeated subtraction to show the relationship between division and subtraction.</p> <p>Think strategically about available tools that can be used to solve problems.</p> | <p>Ways to Divide Larger Numbers</p> <p>Strategies for Dividing</p> <p>Solve Problems Using the Four Operations</p> |  | <p><i>The Multiplying Menace Divides</i> by Pam Calvert</p> |  |
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(NJDOE, 2024)

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| <p><b>Students with IEPs and 504 Plans</b></p> | <p><a href="#"><u>Universal Design for Learning and Access for Students with Disabilities</u></a></p> <p><a href="#"><u>Movematics (dyscalculia.org)</u></a></p> <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> |
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|                                | <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p> |
| <b>Multi-language Learners</b> | <p><u><a href="#">Mathematical Language Development and Access for English Learners</a></u></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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|                              | <p>technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p> |
| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p>                                                                                                                                                                                                                      |

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|  | <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |
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### Unit 5: Fractions as Numbers

**Unit Goal:** Students develop an understanding of fractions as numbers and of fraction equivalence by representing fractions on diagrams and number lines, generating equivalent fractions, and comparing fractions.

**Duration:** 4 weeks

**Essential Questions:**

- How can fractions show part of a whole or set?
- How do models help in the understanding of fractions?
- How do we compare fractions by size?
- How do you know if two fractions are equivalent?

**Enduring Understandings:**

- Fractions are numbers that represent equal parts of whole units.
- Fractions, like whole numbers, have a place on the number line.
- Size of a fraction is relative to the size of the whole.
- Different but equivalent fractions can be used to represent the same amount.
- Equivalent fractions represent the same part of a whole.
- Fractions with different numerators and denominators can be compared by reasoning about their size.

**Key NJSL Strands:**

- **3.G.A** Reason with shapes and their attributes
  - **3.G.A.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as of the area of the shape.
- **3.NF.A** Develop understanding of fractions as numbers

- **3.NF.A.1** Understand a fraction  $1/b$  as the quantity formed by 1 part when a whole is partitioned into  $b$  equal parts; understand a fraction  $a/b$  as the quantity formed by  $a$  parts of size  $1/b$ .
- **3.NF.A.2** Understand a fraction as a number on the number line; represent fractions on a number line diagram.
  - **3.NF.A.2.a** Represent a fraction  $1/b$  on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into  $b$  equal parts. Recognize that each part has size  $1/b$  and that the endpoint of the part based at 0 locates the number  $1/b$  on the number line. For example, partition the number line from 0 to 1 into 3 equal parts, represent  $1/3$  on the number line and show that each part has a size  $1/3$ .
  - **3.NF.A.2.b** Represent a fraction  $a/b$  on a number line diagram by marking off  $a$  lengths  $1/b$  from 0. Recognize that the resulting interval has size  $a/b$  and that its endpoint locates the number  $a/b$  on the number line.
- **3.NF.A.3** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
  - **3.NF.A.3.a** Understand two fractions as equivalent (equal) if they are the same size. Understand two fractions as equivalent if they are located at the same point on a number line.
  - **3.NF.A.3.b** Recognize and generate simple equivalent fractions by reasoning about their size, (e.g.,  $1/2=2/4$ ,  $2/3=4/6$ ). Explain why the fractions are equivalent with the support of a visual fraction model.
  - **3.NF.A.3.c** Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
  - **3.NF.A.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions with the support of a visual fraction model.
- **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. Examples: If  $3 \times 4 = 12$  is known, then  $12 \div 3 = 4$  is also known. (Commutative property of multiplication.)  $6 \times 4 = 24$  can be found by  $3 \times 8 = 24$ , then  $6 \times 4 = 24$ , or by  $2 \times 12 = 24$ , then  $6 \times 4 = 24$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $40 + 16 = 56$ . (Distributive property.) {Clarification: Students need not use formal terms for these properties}.
- **3.OA.C** Multiply and divide within 100

- **3.OA.C.7** With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that , one knows ) or properties of operations. **By the end of Grade 3, know from memory all products of two one-digit numbers.**
- **3.DL.B** Represent and interpret data
  - **3.DL.B.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

### Interdisciplinary Connections

- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### 21st-Century Skills

- **9.4.5.CT.1** Identify and gather relevant data that will aid in the problem-solving process.

### Career Ready Practices

- **CRP 4** Communicate clearly and effectively and with reason while working on groups on the Solve and Share portion of the lesson.

- **CRP 11** Use technology to enhance productivity.

### Technology Integration

- TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- TECH.8.1.2.A.CS2 Select and use applications effectively and productively.
- TECH.8.2.2.C The design process is a systematic approach to solving problems.

| Skills                                                                                                                 | Instructional Topics                                                                                              | Assessment                                                                         | Resources                                                                                                    | Vocabulary                                                                    |
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| Understand that fractions are built from unit fractions such that a fraction is the quantity formed by parts of size . | Name the Parts<br>Name Parts as Fractions<br>Non-unit Fractions<br>Build Fractions from Unit Fractions            | <b>Formative Assessments:</b><br>Diagnostic Assessment<br><br>Mid-topic Checkpoint | <b>Materials:</b><br>Card Sort: Partitions<br><br>Partition the Strips<br><br>Colored pencils<br><br>Folders | Denominator<br>Equivalent fractions<br>Fraction<br>Numerator<br>Unit fraction |
| Understand that unit fractions are formed by partitioning shapes into equal parts.                                     | Fractions on the Number Line<br>Locate Unit Fractions on the Number Line<br>Non-unit Fractions on the Number Line | Lesson Quizzes<br>Lesson<br>Self-assessment<br><br>Teacher Observations            | Materials for creating a visual display<br><br>Scissors<br><br>Base-ten blocks                               |                                                                               |
| Understand a fraction as a number and represent fractions on the number line.                                          | Fractions and Whole Numbers<br>All Kinds of Numbers on the Number Line                                            | Class Discussions<br><br>Classwork/<br>Homework                                    | Number cubes<br><br>Paper clips                                                                              |                                                                               |

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| <p>Explain equivalence of fractions in special cases and express whole numbers as fractions and fractions as whole numbers.</p> <p><b>Compare two fractions with the same numerator or denominator and record the results with the symbols <math>&gt;</math>, <math>&lt;</math>, or <math>=</math>.</b></p> | <p>Equivalent Fractions</p> <p>Generate Equivalent Fractions</p> <p>Equivalent Fractions on a Number Line</p> <p>Whole Numbers and Fractions</p> <p>How Do You Compare Fractions?</p> <p>Compare Fractions with the Same Denominator</p> <p>Compare Fractions with the Same Numerator</p> <p>Compare Fractions</p> <p>Design With Fractions</p> | <p>Exit Slips/Google Form</p> <p><b>Summative Assessments:</b><br/>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b><br/>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Paper</p> <p>Rulers</p> <p><b>Activities:</b><br/>Fold and Name</p> <p>Fraction Match Game</p> <p><b>Mentor Texts:</b><br/><i>The Hershey's Milk Chocolate Bar Fractions Book</i><br/>by Jerry Pallotta</p> |  |
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| <p><b>Students with IEPs and 504 Plans</b></p> | <p><a href="#"><u>Universal Design for Learning and Access for Students with Disabilities</u></a></p> <p><a href="#"><u>Movematics (dyscalculia.org)</u></a></p> |
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|  | <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to</p> |
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|                                | <p>share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Multi-language Learners</b> | <p><a href="#"><u>Mathematical Language Development and Access for English Learners</u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p> |

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| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |
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### Unit 6: Measurement

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| <p><b>Unit Goal:</b> Students generate and represent length measurement data in halves and fourths of an inch on line plots. They learn about and estimate relative units of measure including weight, liquid volume, and time, and use the four operations to solve problems involving measurement.</p> |
| <p><b>Duration:</b> 5 weeks</p>                                                                                                                                                                                                                                                                          |
| <p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>• What is the connection between the type of data and the type of display?</li> </ul>                                                                                                                                          |

- How does "what" is measured influence "how" it is measured?
- When can two people look at the same set of data and come up with different conclusions?
- How is mathematics used to quantify and compare situations, events, and phenomena?

### **Enduring Understandings:**

- Data displays convey information in a concise way.
- Time measurement is a means to organize and structure each day and our lives.
- Measurements can be used to describe, compare, and make sense of phenomena.

### **Key NJSLS Strands:**

- **3.M.A** Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
  - **3.M.A.1** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
  - **3.M.A.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
- **3.M.B** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
  - **3.M.B.4** Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
- **3.NF.A** Develop understanding of fractions as numbers.
  - **3.NF.A.3** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
    - **3.NF.A.3.c** Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
- **3.OA.A** Represent and solve problems involving multiplication and division.
  - **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- **3.OA.C** Multiply and divide within 100.
  - **3.OA.C.7** With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $6 \times 9 = 54$ , one knows  $54 \div 9 = 6$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

- **3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic.
  - **3.NBT.A.2** With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

### Interdisciplinary Connections

- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. **NJSLSA.R7.** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. **NJSLSA.R10.** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed. **RL.3.1.** Ask and answer questions, and make relevant connections to demonstrate
- **3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

### 21st-Century Skills

- **9.4.5.IML.2** Create a visual representation to organize information about a problem or issue.
- **9.4.5.IML.3** Represent the same data in multiple visual formats in order to tell a story about the data.

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| <b>Career Ready Practices</b>                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>CRP 4</b> Communicate clearly and effectively and with reason while working on groups on the Solve and Share portion of the lesson.</li> <li>● <b>CRP 11</b> Use technology to enhance productivity.</li> </ul>                                                                                                    |
| <b>Technology Integration</b>                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>TECH.8.1.2</b> All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</li> <li>● <b>TECH.8.1.2.A.CS2</b> Select and use applications effectively and productively.</li> </ul> |

| <b>Skills</b>                                                                                                                                                                                                                                                                    | <b>Instructional Topics</b>                                                                                                                                                                                                                                                                | <b>Assessment</b>                                                                                                                                                                                                                                               | <b>Resources</b>                                                                                                                                                                                                   | <b>Vocabulary</b>                                                                                                                           |
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| <p>Measure lengths using rulers marked with halves and fourths of an inch to generate data for making a line plot.</p> <p>Measure and estimate weights and liquid volumes of objects.</p> <p>Solve problems involving addition and subtraction of time intervals in minutes.</p> | <p>Measurement Data on Line Plots: Measure in Halves of an Inch</p> <p>Measure in Fourths of an Inch</p> <p>Measure in Halves and Fourths of an Inch</p> <p>Interpret Measurement Data on Line Plot</p> <p>Represent Measurement Data on Line Plots</p> <p>Estimate and Measure Weight</p> | <p><b>Formative Assessments:</b></p> <p>Diagnostic Assessment</p> <p>Mid-topic Checkpoint</p> <p>Lesson Quizzes</p> <p>Lesson Self-assessment</p> <p>Teacher Observations</p> <p>Class Discussions</p> <p>Classwork/ Homework</p> <p>Exit Slips/Google Form</p> | <p><b>Materials:</b></p> <p>Measure Around the Room</p> <p>Rulers (inches)</p> <p>Glue</p> <p>Scissors</p> <p>Tools for creating a visual display</p> <p>Chart paper</p> <p>Markers</p> <p>Markers (dry-erase)</p> | <p>Area</p> <p>Gram</p> <p>Kilogram</p> <p>Liquid volume</p> <p>Liter</p> <p>Scaled bar graph</p> <p>Scaled picture graph</p> <p>Weight</p> |

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| <p>Tell time to the minute.</p> <p>Solve problems involving the four operations and measurement contexts.</p> | <p>Introduction to Liquid Volume</p> <p>Estimate and Measure Liquid Volume</p> <p>Time to the Nearest Minute</p> <p>Solve Problems Involving Time</p> <p>Ways to Represent Measurement Situations</p> <p>Problems with Missing Information</p> <p>What Makes Sense in the Problem?</p> <p>Ways to Solve Problems and Show Solutions</p> <p>Design a Carnival Game</p> | <p><b>Summative Assessments:</b><br/>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b><br/>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Paper clips</p> <p>Pipe cleaners</p> <p>Tape (painter's or masking)</p> <p>Yardsticks</p> <p><b>Activities:</b><br/>Measure lengths in inches, half inches, and quarter inches with rulers.</p> <p>Measure volume with liquids using customary units and metric units.</p> <p>Measure and estimate the weight and mass of objects.</p> <p>Solve world problems involving liquid volumes or masses using addition, subtraction, multiplication and division.</p> <p>Tell and write time to the minute, quarter-hour, half hour, and hour.</p> |  |
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|  |  |  | <p>Tell and write the time before and after the hour to the nearest minute.</p> <p>Find elapsed time.</p> <p>Solve word problems involving addition and subtraction of time intervals in minutes.</p> <p>Draw scaled pictographs and bar graphs and solve comparison problems using data in pictographs and bar graphs.</p> <p><b>Mentor Texts:</b></p> <p><i>The Hershey's Milk Chocolate Bar Fractions Book</i> by Jerry Pallotta</p> <p><i>The Clock Struck One: A Time-Telling Tale</i> by Trudy Harris</p> <p><i>The Magic Tree House: Midnight on the Moon</i> by Mary Pope Osborne</p> |  |
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|  |  |  | <i>The Berenstain Bears and the Trouble with Chores</i> by Stan & Jan Berenstain |  |
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| <b>Students with IEPs and 504 Plans</b> | <p><a href="#"><u>Universal Design for Learning and Access for Students with Disabilities</u></a></p> <p><a href="#"><u>Movematics (dyscalculia.org)</u></a></p> <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> |
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|                                | <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p> |
| <b>Multi-language Learners</b> | <p><u><a href="#">Mathematical Language Development and Access for English Learners</a></u></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p>                                                                                                                                                                                                                                                       |

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|                              | <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p>                                           |
| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |

## Unit 7: Geometry

**Unit Goal:** Students reason about shapes and their attributes, with a focus on quadrilaterals. They solve problems involving the perimeter and area of shapes.

**Duration:** 4 weeks

**Essential Questions:**

- How can shapes be broken into simpler parts?
- How are shape and dimension used to draw, construct, model and represent real situations or solve problems?
- How does geometry depend on measurement in order to describe shapes?
- How can artists use what they have learned about geometry in their artwork?

**Enduring Understandings:**

- Two dimensional shapes can belong to more than one category based on their attributes.
- Geometry offers ways to interpret and compare real-world objects.
- Everyday objects have a variety of attributes and can be measured in many ways.

**Key NJSL Strands:**

- **3.G.A** Reason with shapes and their attributes
  - **3.G.A.1** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
- **3.M.C** Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures
  - **3.M.C.6** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
- **3.NBT.A** Use place value understanding and properties of operations to perform multi-digit arithmetic
  - **3.NBT.A.2** With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

- **3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g.,  $9 \times 80$ ,  $5 \times 60$ ) using strategies based on place value and properties of operations.

### Interdisciplinary Connections

- **NJSLSA.R10** Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- **3-LS1-1** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- **3-5-ETS1-1** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

### 21st-Century Skills

- **9.2.5.CAP.1** Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
- **9.2.5.CAP.2** Identify how you might like to earn an income.
- **9.2.5.CAP.3** Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
- **9.2.5.CAP.4** Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.

### Career Ready Practices

- **CRP 4** Communicate clearly and effectively and with reason during the Solve and Share portion of the lesson.
- **CRP 8** Utilize critical thinking to make sense of problems and persevere in solving independent practice problems.
- **CRP 11** Use technology to enhance productivity.

### Technology Integration

- TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- TECH.8.1.2.A.CS2 Select and use applications effectively and productively.
- TECH.8.2.2.C The design process is a systematic approach to solving problems.

| Skills                                                                                           | Instructional Topics                             | Assessment                     | Resources                           | Vocabulary             |
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| Reason about shapes and their attributes.                                                        | What Attributes Do You See?                      | <b>Formative Assessments:</b>  | <b>Materials:</b>                   | Angle in a shape       |
| Find the perimeter of two-dimensional shapes, including when all or some side lengths are given. | Attributes of Triangles and Quadrilaterals       | Diagnostic Assessment          | Shape Cards Grade                   | Area                   |
| Solve problems involving perimeter and area, in and out of context.                              | Attributes that Define Shapes                    | Mid-topic Checkpoint           | Quadrilateral Cards                 | Perimeter              |
| Apply geometric understanding to solve problems.                                                 | Attributes of Rectangles, Rhombuses, and Squares | Lesson Quizzes                 | Triangle Cards                      | Right angle in a shape |
|                                                                                                  | Attributes of Other Quadrilaterals               | Lesson Self-assessment         | Bags or envelopes                   | Square centimeter      |
|                                                                                                  | Distance Around Shapes                           | Teacher Observations           | Counters                            | Square foot            |
|                                                                                                  | Same Perimeter, Different Shapes                 | Class Discussions              | Folders                             | Square inch            |
|                                                                                                  | Find the Perimeter                               | Classwork/ Homework            | Paper clips                         | Square meter           |
|                                                                                                  | Perimeter Problems                               | Exit Slips/Google Form         | Tools for creating a visual display |                        |
|                                                                                                  | Problem Solving With                             | <b>Summative Assessments:</b>  | Scissors                            |                        |
|                                                                                                  |                                                  | Topic/Unit Assessments         | Tape                                |                        |
|                                                                                                  |                                                  | Constructed Response Questions | Square Dot Paper Standard           |                        |

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|  | <p>Perimeter and Area</p> <p>Rectangles with the Same Perimeter</p> <p>Rectangles with the Same Area</p> <p>Shapes and Play</p> <p>Wax Prints</p> <p>Design Your Own Robot</p> | <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b></p> <p>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Colored pencils, crayons, or markers</p> <p>Shape Blocks</p> <p><b>Activities:</b></p> <p>Explore the relationships among angles, triangles, polygons, parallelograms, rectangles, squares, rhombuses, and trapezoids.</p> <p>Draw quadrilaterals.</p> <p>Describe the relationships among various types of quadrilaterals and draw quadrilaterals that match a description.</p> <p><b>Mentor Texts:</b></p> <p><i>Grandfather Tang's Story: A Tale Told with Tangrams</i> by Ann Tompert</p> |  |
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**Students with IEPs and 504 Plans**

[Universal Design for Learning and Access for Students with Disabilities](#)

[Movematics \(dyscalculia.org\)](#)

Follow all the IEP/504 plan modifications

Allow extra time to complete assignments or tests

Guided notes and/or scaffold outline for written assignments

Work in a small group

Solidify and refine concepts through repetition

Allow answers to be given orally or dictated

Use multi-sensory teaching approaches

Utilize assistive technology and materials

Use large print books, Braille, or books on CD (digital text)

Text to speech/audio recorded selections

Amplification system as needed

Leveled texts according to ability

Fine motor skill stations embedded in rotation as needed

Modified or constrained spelling word lists

Provide anchor charts with high frequency words and phonemic patterns

Students might need guidance as to what actions happen during partner work time. Invite

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|                                | <p>students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Multi-language Learners</b> | <p><a href="#"><u>Mathematical Language Development and Access for English Learners</u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the</p> |

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|                              | <p>5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Accelerating Students</b> | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p> <p>Provide options, alternatives and choices to differentiate and broaden the curriculum</p> <p>Organize and offer flexible small group learning activities</p> <p>Provide whole group enrichment explorations</p> <p>Teach cognitive and methodological skills</p> <p>Use center, stations, or contracts</p> <p>Organize integrated problem-solving simulations</p> <p>Propose interest-based extension activities</p> <p>Expose students to beyond level texts.</p> |

### **Unit 8: Integrating Math**

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| <b>Unit Goal:</b> Students represent and solve multiplication problems through the context of picture and bar graphs that represent categorical data. |
| <b>Duration:</b> 3 weeks                                                                                                                              |

**Essential Questions:**

- How can we represent categorical data using picture and bar graphs?
- What strategies can we use to interpret and analyze multiplication problems presented in graphical form?
- How does understanding the relationship between categories and quantities help in solving multiplication problems?
- In what ways do picture and bar graphs facilitate the visualization of multiplication concepts and relationships?
- How can we determine the appropriate scale and labeling for picture and bar graphs to accurately represent multiplication scenarios?

**Enduring Understandings:**

- Graphical representations such as picture and bar graphs provide visual tools for organizing and interpreting categorical data.
- Multiplication can be applied to analyze data.

**Key NJSLS Strands:**

- **3.OA.A** Represent and solve problems involving multiplication and division
  - **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
  - **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
  - **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
  - **3.OA.B.6** Understand division as an unknown-factor problem. For example, find by finding the number that makes 32 when multiplied by 8.
- **3.OA.D** Solve problems involving the four operations, and identify and explain patterns in arithmetic
  - **3.OA.D.8** Solve two-step word problems, including problems involving money, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Clarification: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform

operations in the conventional order when there are no parentheses to specify a particular order). **Climate Change Example:** Students may use the four operations to solve two-step word problems related to glacier retreat.

- **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.
- **3.M.B** Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
  - **3.M.B.5** Relate area to the operations of multiplication and addition.
    - **3.M.B.5.b** Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
    - **3.M.B.5c** Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths  $a$  and  $b + c$  is the sum of  $a \times b$  and  $a \times c$ . Use area models to represent the distributive property in mathematical reasoning.
    - **3.M.B.5.d** Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
  - **3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., , ) using strategies based on place value and properties of operations.

### Interdisciplinary Connections

- **RL.3.1** Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **NJSLSA.R7** Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words
- **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 of the problem.
- **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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| <b>21st-Century Skills</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <ul style="list-style-type: none"> <li>● <b>9.1.5.PB.1</b> Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.</li> <li>● <b>9.1.5.PB.2</b> Describe choices consumers have with money (e.g., save, spend, donate).</li> </ul>                                                                                                                                                                               |
| <b>Career Ready Practices</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>CRP 4</b> Communicate clearly and effectively and with reason while working in groups.</li> <li>● <b>CRP 11</b> Use technology to enhance productivity.</li> </ul>                                                                                                                                                                                                                                                 |
| <b>Technology Integration</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>● <b>TECH.8.1.2</b> All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.</li> <li>● <b>TECH.8.1.2.A.CS2</b> Select and use applications effectively and productively.</li> <li>● <b>TECH.8.2.2.C</b> The design process is a systematic approach to solving problems.</li> </ul> |

| <b>Skills</b>                                                                                                                           | <b>Instructional Topics</b>                                                                                                                                              | <b>Assessment</b>                                                                                                                                                  | <b>Resources</b>                                                                                      | <b>Vocabulary</b>                                                      |
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| Understand a fraction as a number<br><br>Represent fractions on the number line.<br><br>Apply concepts of measurement and data to solve | Fraction Fun: Estimation Explorations with Fractions<br><br>Create Your Own Number Line<br><br>Fractions Round Table<br><br>Measurement and Data: Tiny House: Design and | <b>Formative Assessments:</b><br>Diagnostic Assessment<br><br>Mid-topic Checkpoint<br><br>Lesson Quizzes<br><br>Lesson Self-assessment<br><br>Teacher Observations | <b>Materials:</b><br>Number lines<br><br>Markers<br><br>Tape (painter's or masking)<br><br>Clipboards | Algorithm<br><br>Area<br><br>Array<br><br>Bar graph<br><br>Denominator |

|                                                                                                                                         |                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>problems.</p> <p>Fluently multiply within 100.</p> <p>Fluently divide within 100.</p> <p>Know single-digit products from memory.</p> | <p>Solve</p> <p>Tiny House: Cost</p> <p>Survey the Class, Survey the School</p> <p>Graph and Answer</p> <p>Multiplication and Division Games</p> <p>Estimation Exploration</p> | <p>Class Discussions</p> <p>Classwork/ Homework</p> <p>Exit Slips/Google Form</p> <p><b>Summative Assessments:</b></p> <p>Topic/Unit Assessments</p> <p>Constructed Response Questions</p> <p>Projects</p> <p>Cumulative Tests</p> <p>Performance Assessments</p> <p><b>Alternate and Benchmark Assessments:</b></p> <p>Progress Monitoring Assessments</p> <p>Cumulative/Benchmark Assessments</p> | <p>Graph paper</p> <p>Multiplication Cards</p> <p>Multiplication Recording Sheet</p> <p>Number Cards (0-10)</p> <p>Glue or tape</p> <p>Number cubes</p> <p>Chart paper</p> <p>Markers</p> <p><b>Activities:</b></p> <p>Fraction Games</p> <p>Design a Tiny House</p> <p>Calculate cost of 400 sq ft tiny house per sq ft</p> <p>Survey class/school on various topics then graph, analyze, and present findings</p> <p>Multiplication Games</p> <p>Division Games</p> <p><b>Mentor Texts:</b></p> <p><i>Fraction Fun</i> by David</p> | <p>Division</p> <p>Divisor</p> <p>Equation</p> <p>Equivalent fractions</p> <p>Expression</p> <p>Factor</p> <p>Fraction</p> <p>Key</p> <p>Mixed number</p> <p>Numerator</p> <p>Parentheses</p> <p>Perimeter</p> <p>Picture graph</p> <p>Product</p> <p>Quotient</p> <p>Rounding</p> <p>Scaled bar graph</p> <p>Scaled picture graph</p> <p>Square centimeter</p> |
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|  |  |  | <p>Adler and Nancy Tobin</p> <p><i>The Big Orange Splot</i> by Daniel Manus</p> <p><i>Jump, Kangaroo, Jump</i> by Stuart J. Murphy</p> <p><i>Mega-Fun Fractions</i> by Martin Lee and Marcia Miller</p> <p><i>The Fraction Family Heads West</i> by Marti Dryk, Ph.D.</p> <p><i>A Remainder of One: A Mathematical Folktale</i> by Elinor J. Pinczes</p> <p><i>The Great Divide</i> by Dayle Ann Dodds</p> | <p>Square foot</p> <p>Square inch</p> <p>Square meter</p> <p>Unit fraction</p> |
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| <p><b>Students with IEPs and 504 Plans</b></p> | <p><a href="#"><u>Universal Design for Learning and Access for Students with Disabilities</u></a></p> <p><a href="#"><u>Movematics (dyscalculia.org)</u></a></p> <p>Follow all the IEP/504 plan modifications</p> <p>Allow extra time to complete assignments or tests</p> <p>Guided notes and/or scaffold outline for written assignments</p> |
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|  | <p>Work in a small group</p> <p>Solidify and refine concepts through repetition</p> <p>Allow answers to be given orally or dictated</p> <p>Use multi-sensory teaching approaches</p> <p>Utilize assistive technology and materials</p> <p>Use large print books, Braille, or books on CD (digital text)</p> <p>Text to speech/audio recorded selections</p> <p>Amplification system as needed</p> <p>Leveled texts according to ability</p> <p>Fine motor skill stations embedded in rotation as needed</p> <p>Modified or constrained spelling word lists</p> <p>Provide anchor charts with high frequency words and phonemic patterns</p> <p>Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.</p> <p>Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner.</p> <p>Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.</p> |
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| <b>Multi-language Learners</b> | <p><a href="#"><u>Mathematical Language Development and Access for English Learners</u></a></p> <p>Work toward longer passages as skills in English increase</p> <p>Use visuals</p> <p>Introduce/highlight key vocabulary before lesson</p> <p>Teacher models reading aloud daily</p> <p>Provide peer tutoring</p> <p>Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers</p> <p>Guided notes and/or scaffold outline for written assignments</p> <p>Provide students with English Learner leveled readers</p> <p>Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts</p> <p>Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections.</p> <p>After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.</p> <p>Invite students to use gestures as they count their collections aloud.</p> |
| <b>Accelerating Students</b>   | <p><a href="#"><u>Accelerating Students Guide</u></a></p> <p>Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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|  | Provide options, alternatives and choices to differentiate and broaden the curriculum<br>Organize and offer flexible small group learning activities<br>Provide whole group enrichment explorations<br>Teach cognitive and methodological skills<br>Use center, stations, or contracts<br>Organize integrated problem-solving simulations<br>Propose interest-based extension activities<br>Expose students to beyond level texts. |
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(NJDOE, 2024)

Prepared by Julie Lang, MA

### References

Hunt, K. (2023). *Illustrative mathematics*. Illustrative Mathematics | Kendall Hunt. <https://im.kendallhunt.com/>

NJ DOE. (2024). *New Jersey Mathematics 2023 Student Learning Standards*. Office of Standards, Division of Teaching and Learning Services, New Jersey Department of Education. <https://www.nj.gov/education/standards/math/Index.shtml>