# South Harrison Township Elementary School District

*Committed to Excellence*

| Course Name: Mathematics | Grade Level(s): 3 |
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| BOE Adoption Date: October 2017 | Revision Date(s): |


**ABSTRACT**

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

1. Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

2. Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the

paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

3. Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle. Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

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## Mission Statement

The primary goal of the South Harrison Township Elementary School District is to prepare each student with the real life skills needed to compete in a highly competitive global economy. This will be achieved by providing a comprehensive curriculum, the integration of technology, and the professional services of a competent and dedicated faculty, administration, and support staff.

Guiding this mission will be Federal mandates, including the Every Student Succeeds Act (ESSA), the New Jersey Student Learning Standards, and local initiatives addressing the individual needs of our students as determined by the Board of Education. The diverse resources of the school district, which includes a caring Home and School Association (HSA) and active adult community, contribute to a quality school system. They serve an integral role in supporting positive learning experiences that motivate, challenge and inspire children to learn.

## Curriculum and Instruction Goals

**Goal(s):**

1. To ensure students are college and career ready upon graduation
2. To vertically and horizontally align curriculum K-12 to ensure successful transition of students at each grade level
3. To identify individual student strengths and weaknesses utilizing various assessment measures (formative, summative, alternative, etc.) so as to differentiate instruction while meeting the rigor of the applicable content standards
4. To improve student achievement as assessed through multiple measures including, but not limited to, state testing, local assessments, and intermediate benchmarking

## Philosophy of the Shared Curriculum Service with Kingsway Regional School District

Together in its partnership with the South Harrison Township Elementary School District, the Kingsway Curriculum & Instruction Department is committed to providing all students grades K-12 with an engaging and quality curricular experience that aligns with the New Jersey Student Learning Standards (NJ SLS) for mathematics and English-Language Arts as well as the New Jersey Student Learning Standards (NJ SLS) for all other core disciplines. It is the goal of this shared service to provide students with curricular and educational experiences that allows them to succeed as they move on to the middle and high school level. Through this shared service, both horizontal and vertical alignment is stressed at and within each grade level with the aim of developing life-long learners who are college and career ready upon graduation from high school. Additionally, classroom instruction will be designed to meet the unique learning desires of all children and will be differentiated according to the needs of each learner. Whether through added support or enrichment activities, it is the role of the educator in the classroom to ensure students are reaching their highest level of social, emotional, and academic growth each school year. A combination of summative, formative,

and performance-based assessments will be used to assess students' understanding and acquisition of necessary concepts and skills. Group work, projects, and a variety of co-curricular activities will make mathematics more meaningful and aid in the understanding of its application across all disciplines as well as in life.

## How to Read this Document

This document contains a pacing guide and curriculum units. The pacing guides serve to deliver an estimated timeframe as to when noted skills and topics will be taught. The pacing of each course, however, will differ slightly depending upon the unique needs of each class. The curriculum units contain more detailed information as to the specific skills and concepts that are introduced as well as how students will be assessed. The terms and definitions below will assist the reader in better understanding the sections and components of this curriculum document.

## Terms to Know

**Accommodation(s):** The term "accommodation" may be used to describe an *alteration* of environment, curriculum format, or equipment that allows an individual with a disability to gain access to content and/or complete assigned tasks. They allow students with disabilities to pursue a regular course of study. The term accommodation is often used interchangeable with the term modification. However, it is important to remember that modifications change or modify the intended learning goal while accommodations result in the same learning goal being expected but with added assistance in that achievement. Since accommodations do not alter what is being taught, instructors should be able to implement the same grading scale for students with disabilities as they do for students without disabilities.

**Differentiated Instruction:** Differentiation of instruction relies on the idea that instructional approaches should be tailored to each individual student's learning needs. It provides students an array of options during the learning process that allows them make sense of ideas as it relates to them. The integration of differentiated instructional techniques is a curriculum design approach to increase flexibility in teaching and decrease the barriers that frequently limit student access to materials and learning in classrooms. http://www.udlcenter.org/aboutudl

**Enduring Understanding:** Enduring understandings (aka big ideas) are statements of understanding that articulate deep conceptual understandings at the heart of each content area. Enduring understandings are noted in the alongside essential questions within each unit in this document. http://www.ascd.org

**Essential Question:** These are questions whose purpose is to stimulate thought, to provoke inquiry, and to spark more questions. They extend beyond a single lesson or unit. Essential questions are noted in the beginning of each unit in this document. http://www.ascd.org

**Formative Assessment(s):** Formative assessments monitor student learning to provide ongoing feedback that can be used by (1) instructors to improve teaching and (2) by students to improve their learning. Formative assessments help identify students' strengths and weaknesses and address problems immediately.

**Learning Activity(s):** Learning activities are those activities that take place in the classroom for which the teacher facilitates and the students participate in to ensure active engagement in the learning process. (Robert J. Marzano, *The Art and Science of Teaching*)

**Learning Assignment(s):** Learning assignments are those activities that take place independently by the student inside the classroom or outside the classroom (i.e. homework) to extend concepts and skills within a lesson. http://www.marzanocenter.com

**Learning Goal(s):** Learning goals are broad statements that note what students "should know" and/or "be able to do" as they progress through a unit. Learning goals correlate specifically to the NJSLS (New Jersey Student Learning Standards) are noted within each unit.

**Learning Objective(s):** Learning objectives are more specific skills and concepts that students must achieve as they progress towards the broader learning goal. These are included within each unit and are assessed frequently by the teacher to ensure students are progressing appropriately. http://www.marzanoresearch.com

**Model Assessment:** Within the model curriculum, model assessments are provided that included assessments that allow for measuring student proficiency of those target skills as the year of instruction progresses. http://www.state.nj.us/education/modelcurriculum/

**Model Curriculum:** The model curriculum has been provided by the state of New Jersey to provide a "model" for which districts can properly implement the NJSLS (New Jersey Student Learning Standards) by providing an example from which to work and/or a product for implementation.

**Modification(s):** The term "modification" may be used to describe a *change* in the curriculum. Modifications are typically made for students with disabilities who are unable to comprehend all of the content an instructor is teaching. The term modification is often used interchangeable with the term accommodations. However, it is important to remember that modifications change or modify the intended learning goal while accommodations result in the same learning goal being expected but with assistance in that achievement.

**Performance Assessment(s):** (aka alternative or authentic assessments) Performance assessments are a form of assessment that requires students to perform tasks that generate a more authentic evaluation of a student's knowledge, skills, and abilities. Performance assessments stress the application of knowledge and extend beyond traditional assessments (i.e. multiple-choice question, matching, true & false, etc.).

**Standard(s):** Academic standards, from which the curriculum is built, are statements that of what students "should know" or "be able to do" upon completion of a grade-level or course of study. Educational standards help teachers ensure their students have the skills and knowledge they need to be successful by providing clear goals for student learning. http://www.state.nj.us/njded/cccs/

**State:** The New Jersey Student Learning Standards (NJSLS) include Preschool Teaching and Learning Standards as well as K-12 standards for: *Visual and Performing Arts; Comprehensive Health and Physical Education; Science; Social Studies; World Languages; Technology; and 21st-Century Life and Careers.*

**Summative Assessment(s):** Summative assessments evaluate student learning at the end of an instructional time period by comparing it against some standard or benchmark. Information from summative assessments can be used formatively when students or faculty use it to guide their efforts and activities in subsequent courses.

**21st Century Skill(s):** These skills emphasis the growing need to focus on those skills that prepare students successfully by focusing on core subjects and 21st century themes; learning and innovation skills; information, media and technology skills; and life and career skills. These concepts are embedded in each unit of the curriculum. http://www.p21.org/our-work/p21-framework

**Proficiencies and Pacing:**

| Unit Title | Duration/Month(s) | Related Standards | Learning Goals | Topics and Skills |
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| Unit 1<br>Multiplication, Division and concepts of area | September - November | NJ SLS 3.OA.A.1<br>NJ SLS 3.OA.A.2<br>NJ SLS 3.OA.A.3*<br>NJ SLS 3.OA.A.4<br>NJ SLS 3.OA.B.6<br>NJ SLS 3.MD.C.5<br>NJ SLS 3.MD.C.6<br>NJ SLS 3.MD.C.7a-b<br>NJ SLS 3.NBT.A.1<br>NJ SLS 3.NBT.A.3<br><br>**Interdisciplinary Standards**<br><br>**Technology**<br><br>8.1.5.A.1<br>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue.<br><br>8.1.5.F.1<br>Apply digital tools to collect, organize, and | Learning Goal 1: NJ SLS 3.OA.A.1<br>Interpret products of whole numbers as repeated addition and as the total number of objects (up to 100) in equal groups or arrays.<br><br>Learning Goal 2: NJ SLS 3.OA.A.2<br>Interpret the quotient as a set of objects (up to 100) partitioned equally into a number of shares and as the number of equal shares.<br><br>Learning Goal 3: NJ SLS 3.OA.A.3 Use multiplication and division within 100 to solve word problems by modeling equal groups or arrays and by writing equations to represent equal groups or arrays<br><br>Learning Goal 4: NJ SLS 3.OA.A.4<br>Determine the unknown in a division or | NJ SLS 3.OA.A.1 Interpret products of whole numbers as a total number of objects.<br><br>NJ SLS 3.OA.A.1 Use repeated addition to find the total number of objects arranged in an array and in equal groups and compare to the result of multiplication.<br><br>NJ SLS 3.OA.A.1Describe a context in which a total number of objects is represented by a product.<br><br>NJ SLS 3.OA.A.1 Interpret the product in the context of a real-world problem.<br><br>NJ SLS 3.OA.A.2 Interpret division of whole numbers as a number of equal shares or the number of groups when objects are divided equally.<br><br>NJ SLS 3.OA.A.2 Use repeated subtraction to find the number of shares or the number of groups and compare to the result of division.<br><br>NJ SLS 3.OA.A.2 Describe a context in which the number of shares or number of groups is represented with division.<br><br>NJ SLS 3.OA.A.2 Interpret the quotient in the context of a real-world problem.<br><br>NJ SLS 3.OA.A.3 Multiply to solve word |

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| | | analyze data that support a scientific finding.<br><br>**Career Ready Practices**<br><br>CRP1 Act as a responsible and contributing citizen and employee.<br><br>CRP2 Apply appropriate academic and technical skills.<br><br>**Financial Literacy**<br><br>9.1.4.E.2 Apply comparison shopping skills to purchasing decisions.<br><br>**Career Exploration**<br><br>9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.<br><br>**Science**<br><br>NGSS 3-LS1-1<br>Develop models to describe that organisms have unique and diverse life cycles but all have in | multiplication equation relating 3 whole numbers (within 100).<br><br>Learning Goal 5: NJ SLS 3.OA.B.6<br>Solve division of whole numbers by representing the problem as an unknown factor problem.<br><br>Learning Goal 6: NJ SLS 3.MD.C.5 & 3.MD.C.6<br>Measure areas by counting unit squares ($cm^2$, $m^2$, $in^2$, $ft^2$, and improvised units).<br><br>Learning Goal 7: NJ SLS 3.MD.C.7a-b Tile a rectangle to find its area and explain the relationship between tiling and multiplying side lengths to find the area of rectangles; solve real world problems by multiplying side lengths to find areas of rectangles.<br><br>Learning Goal 8: NJ SLS 3.NBT.A.1<br>Round whole numbers to the nearest 10 or 100. | problems involving equal groups and arrays.<br><br>NJ SLS 3.OA.A.3 Divide to solve word problems involving equal groups and arrays.<br><br>NJ SLS 3.OA.A.3 Represent a word problem with a drawing showing equal groups, arrays, equal shares, and/or total objects.<br><br>NJ SLS 3.OA.A.3 Represent a word problem with an equation.<br><br>NJ SLS 3.OA.A.4 Determine which operation is needed to find the unknown.<br><br>NJ SLS 3.OA.A.4 Multiply or divide, within 100, to find the unknown whole number in a multiplication or division equation.<br><br>NJ SLS 3.OA.B.6 Write division number sentences as unknown factor problems.<br><br>NJ SLS 3.OA.B.6 Solve division of whole numbers by finding the unknown factor.<br><br>NJ SLS 3.MD.C.5 & NJ SLS 3.MD.C.6 Count unit squares in order to measure the area of a figure.<br><br>NJ SLS 3.MD.C.5 & NJ SLS 3.MD.C.6 Use unit squares of centimeters, meters, inches, feet, and other units to measure area.<br><br>NJ SLS 3.MD.C.7a-b Tile a rectangle with unit squares. |

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| | | common birth, growth, reproduction, and death. Numbers in base 10. | Learning Goal 9: NJ SLS 3.NBT.A.3<br>Multiply one digit whole numbers by multiples of 10 (10-90). | NJ SLS 3.MD.C.7a-b Multiply side lengths of a rectangle to find its area and compare the result to that found by tiling the rectangle with unit squares.<br><br>NJ SLS 3.MD.C.7a-b Solve real world and mathematical problems involving measurement.<br><br>NJ SLS 3.MD.C.7a-b Represent a rectangular area as the product of whole-numbers.<br><br>NJ SLS 3.NBT.A.1 Use number lines and a hundreds charts to explain rounding numbers to the nearest 10 and 100.<br><br>NJ SLS 3.NBT.A.1 Round a whole number to the nearest 10.<br><br>NJ SLS 3.NBT.A.1 Round a whole number to the nearest 100.<br><br>NJ SLS 3.NBT.A.3 Multiply to determine the total number of groups of ten.<br><br>NJ SLS 3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10. |

| Unit Title | Duration/Month(s) | Related Standards | Learning Goals | Topics and Skills |
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| Unit 2<br>Modeling Multiplication, Division and Fractions | November – January | NJ SLS 3.OA.A.3<br>NJ SLS 3.OA.B.5<br>NJ SLS 3.MD.C.7c<br>NJ SLS 3.MD.C.7d<br>NJ SLS 3.OA.C.7<br>NJ SLS 3.OA.D.8<br>NJ SLS 3.OA.D.9<br>NJ SLS 3.NBT.A.2<br>NJ SLS 3.NF.A.1<br>NJ SLS 3.G.A.2<br><br>**Interdisciplinary Standards**<br><br>**Technology**<br><br>8.1.5.A.1<br>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue.<br><br>**Career Ready Practices**<br><br>CRP4 Communicate clearly and effectively and with reason | Learning Goal 1: NJ SLS 3.OA.A.3 Use multiplication and division within 100 to solve word problems involving measurement quantities (area) using drawings.<br><br>Learning Goal 2: NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Multiply one-digit whole numbers by applying the properties of operations (commutative, associative, and distributive properties).<br><br>Learning Goal 3: NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Use tiling and an area model to represent the distributive property.<br><br>Learning Goal 4: NJ SLS 3.MD.C.7d Solve real-world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non- | NJ SLS 3.OA.A.3 Multiply to solve word problems involving arrays and measurement quantities (area).<br><br>NJ SLS 3.OA.A.3 Divide to solve word problems involving arrays and measurement quantities (area).<br><br>NJ SLS 3.OA.A.3 Represent a word problem with a drawing or array.<br><br>NJ SLS 3.OA.A.3 Represent a word problem with an equation.<br><br>NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Multiply whole numbers using the commutative property as a strategy.<br><br>NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Multiply whole numbers using the associative property as a strategy.<br><br>NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Use tiling to show that the area of a rectangle with whole-number side lengths $a$ and $b + c$ is the sum of $a \times b$ and $a \times c$.<br><br>NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Multiply whole numbers using the distributive property as a strategy.<br><br>NJ SLS 3.MD.C.7d Decompose rectilinear figures into non-overlapping rectangles. |

| Unit Title | Duration/Month(s) | Related Standards | Learning Goals | Topics and Skills |
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| | | **Career Exploration**<br>9.2.4.A.2 Identify various life roles and civic and work - related activities in the school, home, and community.<br><br>**Science**<br><br>NGSS 3-LS4-1<br>Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. | overlapping parts.<br><br>Learning Goal 5: NJ SLS 3.OA.C.7 Fluently multiply and divide within 40 using strategies such as the relationship between multiplication and division.<br><br>Learning Goal 6: NJ SLS 3.OA.D.8 Write equations when solving two-step word problems, using a symbol for an unknown; find the value of an unknown in an equation involving any of the four operations and use estimation strategies to assess the reasonableness of answers.<br><br>Learning Goal 7: NJ SLS 3.OA.D.9 Recognize arithmetic patterns, including patterns in addition or multiplication tables, and explain the patterns using properties of operations.<br>Learning Goal 8: NJ SLS 3.NBT.A.2Fluently add and | NJ SLS 3.MD.C.7d Find areas of non-overlapping rectangles and add to find the area of the rectilinear figure.<br><br>NJ SLS 3.MD.C.7d Solve real world problems involving area of rectilinear figures.<br><br>NJ SLS 3.OA.C.7 Multiply and divide within 40 with accuracy and efficiency.<br><br>NJ SLS 3.OA.D.8 Represent the solution to two-step word problems with equations.<br><br>NJ SLS 3.OA.D.8 Use a symbol to represent an unknown in an equation.<br><br>NJ SLS 3.OA.D.8 Use rounding as an estimation strategy.<br><br>NJ SLS 3.OA.D.8 Explain, using an estimation strategy, whether an answer is reasonable.<br><br>NJ SLS 3.OA.D.9 Explain arithmetic patterns using properties of operations.<br><br>NJ SLS 3.NBT.A.2 Add and subtract two 2-digit whole numbers within 100 with accuracy and efficiency.<br><br>NJ SLS 3.NF.A.1 & NJ SLS 3.G.A.2 Partition rectangles, and other shapes, into halves, thirds, fourths, sixths and eighths. |

| Unit Title | Duration/Month(s) | Related Standards | Learning Goals | Topics and Skills |
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| | | | subtract (with regrouping) two 2-digit whole numbers within 100.<br><br>Learning Goal 9: NJ SLS 3.NF.A.1 & NJ SLS 3.G.A.2 Partition shapes into parts with equal areas and express the area of each part as a unit fraction; interpret the unit fraction 1/b as the quantity formed by 1 of b equal parts of a whole and the fraction a/b as the quantity formed by a parts of size 1/b. | NJ SLS 3.NF.A.1 & NJ SLS 3.G.A.2 Identify the fractional name of each part.<br><br>NJ SLS 3.NF.A.1 & NJ SLS 3.G.A.2 Model and explain that a fraction *a*/*b* is the quantity formed by *a* parts of size 1/*b* (For example, 10/2 is 10 parts and each part is of size ½). |

| Unit Title | Duration/Month(s) | Related Standards | Learning Goals | Topics and Skills |
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| Unit 3<br>Fractions as Numbers and Measurement | January – March | NJ SLS 3.NF.A.2<br>NJ SLS 3.NF.A.3<br>NJ SLS 3.MD.A.1<br>NJ SLS 3.MD.A.2<br>NJ SLS 3.G.A.1<br>NJ SLS 3.MD.D.8<br>NJ SLS 3.OA.C.7<br><br>**Interdisciplinary Standards** | Learning Goal 1: NJ SLS 3.NF.A.2 Draw a number line depicting the position of 1/b (with b = 2, 3, 4, 6, or 8); represent the unit fraction ¼ on the number line by partitioning the number line between 0 and 1 into 4 equal lengths and name the point at the end of the first length as | NJ SLS 3.NF.A.2 Partition a number line into parts of equal sizes between 0 and 1 (halves, thirds, fourths sixths and eighths).<br><br>NJ SLS 3.NF.A.2 Plot unit fractions on the number line.<br><br>NJ SLS 3.NF.A.2 Identify multiple parts (of length 1/b) on the number line.<br><br>NJ SLS 3.NF.A.2 Plot a fraction on the number |

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| | | **Technology**<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue.<br><br>8.1.5.F.1<br>Apply digital tools to collect, organize, and analyze data that support a scientific finding.<br><br>**Career Ready Practices**<br><br>CRP6 Demonstrate creativity and innovation.<br><br>**Financial Literacy**<br><br>9.1.4.E.2 Apply comparison shopping skills to purchasing decisions<br><br>**Career Exploration**<br><br>9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.<br><br>**Science** | the position of the unit fraction ¼; apply the same method for placing points 1/2, 1/3, 1/6, and 1/8 on the number line.<br><br>Learning Goal 2: NJ SLS 3.NF.A.2 Draw a number line depicting the position of fraction *a*/*b* (with *b* = 2, 4, 3, 6, or 8, and including whole numbers up to 5).<br><br>Learning Goal 3: NJ SLS 3.NF.A.3 Generate simple equivalent fractions, explain why they are equivalent, and support the explanation with visual fraction models; locate them on the number line.<br><br>Learning Goal 4: NJ SLS 3.NF.A.3 Express whole numbers as fractions, identify fractions equivalent to whole numbers and locate them on the number line.<br><br>Learning Goal 5: NJ SLS 3.NF.A.3 Compare two fractions having the same numerator; compare two fractions having the same | line by marking off multiple parts of size 1/b.<br><br>NJ SLS 3.NF.A.2 Plot fractions equivalent to whole numbers including 0 and up to 5.<br><br>NJ SLS 3.NF.A.2 Find equivalent fractions (limited to fractions with denominators 2, 3, 4, 6, and 8).<br><br>NJ SLS 3.NF.A.2 Explain why two fractions are equivalent; use a visual fraction model to support explanation.<br><br>NJ SLS 3.NF.A.2 Write whole numbers as fractions.<br><br>NJ SLS 3.NF.A.2 Identify fractions that are equivalent to whole numbers.<br><br>NJ SLS 3.NF.A.2 Compare two fractions having the same numerator by reasoning about their size.<br><br>NJ SLS 3.NF.A.2 Compare two fractions having the same denominator by reasoning about their size.<br><br>NJ SLS 3.NF.A.2 Explain why comparing fractions that do not have the same whole is not valid (reason about their size and support reasoning with a model).<br><br>NJ SLS 3.NF.A.2 Use <, =, and > symbols to write comparisons of fractions and justify conclusions with a visual fraction model. |

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| | | NGSS 3-ESS2-1<br>Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. | denominator; reason about their size and use the symbols >, =, or < to record the comparison.<br><br>Learning Goal 6: NJ SLS 3.MD.A.1 Tell and write time to the nearest minute, and solve word problems with addition and subtraction involving time intervals in minutes.<br><br>Learning Goal 7: NJ SLS 3.MD.A.2 Solve one step word problems by estimating and measuring volume and mass using appropriate tools and standard units of grams, kilograms, and liters.<br><br>Learning Goal 8: NJ SLS 3.OA.C.7 Fluently multiply and divide within 100 using strategies such as the relationship between multiplication and division.<br><br>Learning Goal 9: NJ SLS 3.G.A.1 Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw | NJ SLS 3.MD.A.1 Tell time to the nearest minute using digital and analog clocks.<br><br>NJ SLS 3.MD.A.1 Write time to the nearest minute using analog clocks.<br><br>NJ SLS 3.MD.A.1 Choose appropriate strategies to solve real world problems involving time.<br><br>NJ SLS 3.MD.A.1 Use the number line as a visual model to determine intervals of time as *jumps* on a number line.<br><br>NJ SLS 3.MD.A.1 Measure time intervals.<br><br>NJ SLS 3.MD.A.2 Measure and read a scale to estimate volume.<br><br>NJ SLS 3.MD.A.2 Measure and read a scale to estimate mass.<br><br>NJ SLS 3.MD.A.2 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes.<br><br>NJ SLS 3.OA.C.7 Multiply and divide within 100 with accuracy and efficiency.<br><br>NJ SLS 3.G.A.1 Classify and sort shapes by attributes.<br><br>NJ SLS 3.G.A.1 Explain why rhombuses, rectangles, and squares are examples of quadrilaterals. |

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| | | | examples of quadrilaterals that do not belong to any of these subcategories.<br><br>Learning Goal 10: NJ SLS 3.MD.D.8 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. | NJ SLS 3.G.A.1 Draw examples of quadrilaterals.<br><br>NJ SLS 3.MD.D.8 Determine the perimeter of various plane shapes and irregular shapes given the side lengths.<br><br>NJ SLS 3.MD.D.8 Determine the unknown side length give the perimeter and other sides.<br><br>NJ SLS 3.MD.D.8 Show rectangles having the same perimeter and different areas.<br><br>NJ SLS 3.MD.D.8 Show rectangles having different perimeters and the same area. |
| Unit 4<br>Representing Data | March – June | NJ SLS 3.MD.B.3<br>NJ SLS 3.MD.B.4<br>NJ SLS 3.OA.C.7*<br>NJ SLS 3.OA.D.8*<br>NJ SLS 3.NBT.A.2*<br>NJ SLS 3.MD.C.7d*<br><br>**Interdisciplinary Standards**<br><br>**Technology**<br><br>8.1.5.F.1<br>Apply digital tools to collect, organize, and | Learning Goal 1: NJ SLS 3.MD.B.3 Draw scaled picture and scaled bar graphs to represent data with several categories. Solve one and two-step word problems using scaled bar graphs.<br><br>Learning Goal 2: NJ SLS 3.MD.B.4 Depict data measured in fourths and halves of an inch with a line plot with scales marked with appropriate | NJ SLS 3.MD.B.3 Draw scaled picture graphs.<br><br>NJ SLS 3.MD.B.3 Draw scaled bar graphs.<br><br>NJ SLS 3.MD.B.3 Analyze, interpret and create bar graphs and pictographs in real world situations.<br><br>NJ SLS 3.MD.B.3 Solve “how many more” and “how many less” problems using scaled bar graphs.<br><br>NJ SLS 3.MD.B.4 Measure length using rulers marked with inch, quarter inch and half inch |

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| | | analyze data that support a scientific finding.<br><br>**Career Ready Practices**<br><br>CRP8 Utilize critical thinking to make sense of problems and persevere in solving them<br><br>**Financial Literacy**<br><br>9.1.4.F.2<br>Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.<br><br>**Career Exploration**<br><br>9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.<br><br>**Science**<br><br>NGSS 3-LS4-1 | units.<br><br>Learning Goal 3: NJ SLS 3.OA.C.7 Fluently multiply and divide within 100 using strategies such as the relationship between multiplication and division.<br><br>Learning Goal 4: NJ SLS 3.OA.D.8 Write equation(s) containing an unknown and find the value of an unknown in an equation that is a representation of a two-step word problem (with any four operations)*;* use estimation strategies to assess the reasonableness of answers.<br><br>Learning Goal 5: NJ SLS 3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.<br><br>Learning Goal 6: NJ SLS 3.MD.C.7d Solve real | NJ SLS 3.MD.B.4 Generate measurement data by measuring length and create a line plot of the data<br><br>NJ SLS 3.MD.B.4 Accurately measure several small objects using a standard ruler and display findings on a line plot<br><br>NJ SLS 3.MD.B.4 Display data on line plots with horizontal scales in whole numbers, halves, and quarters<br><br>NJ SLS 3.OA.C.7 Multiply and divide within 100 with accuracy and efficiency.<br><br>NJ SLS 3.OA.D.8 Represent two-step word problems with equation(s) containing unknowns.<br><br>NJ SLS 3.OA.D.8 Perform operations in the conventional order (no parentheses).<br><br>NJ SLS 3.OA.D.8 Use rounding as an estimation strategy.<br><br>NJ SLS 3.OA.D.8 Explain, using an estimation strategy, whether an answer is reasonable.<br><br>NJ SLS 3.NBT.A.2 Add and subtract within 1000 with accuracy and efficiency.<br><br>NJ SLS 3.MD.C.7d Decompose rectilinear figures into non-overlapping rectangles.<br><br>NJ SLS 3.MD.C.7d Find areas of non-overlapping |

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| | | Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. | world problems involving finding areas of rectilinear figures by decomposing them into non overlapping rectangles and adding the areas of the non overlapping parts. | rectangles and add to find the area of the rectilinear figure.<br><br>NJ SLS 3.MD.C.7d Solve real world problems involving area of rectilinear figures. |

| Unit 1: Multiplication, Division and Concepts of Area | Recommended Duration: September - November |
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| **Unit Description:** Represent and solve problems involving multiplication and division, understand properties of multiplication and the relationship between multiplication and division, understand concepts of area and relate area to multiplication and addition (Geometric measurement), use place value understanding and properties of operations to perform multi-digit arithmetic. | |

| Essential Questions | Enduring Understandings |
|---|---|
| • How do you decide which tools to use to solve a problem?<br>• What strategies can I use to accurately solve multiplication problems?<br>• What strategies can I use to accurately solve division problems?<br>• How does drawing an array help us think about different ways to decompose a number?<br>• How is multiplication commutative and associative? | • The teaching of multiplication and division parallels that of addition and subtraction.<br>• Arrays and multiples of equal groups demonstrate the meaning of multiplication.<br>• Using equal sharing help demonstrate the meaning of division.<br>• Identifying the properties of multiplication and division is a strategy to help multiply and divide. |

| Relevant Standards | Learning Goals | Learning Objectives |
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| **Content Standards: Primary or Power**<br>3.OA.A.1. Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5 x 7.<br><br>3.OA.A.2. Interpret whole-number quotients of | Learning Goal 1: 3.OA.A.1<br>Interpret products of whole numbers as repeated addition and as the total number of objects (up to 100) in equal groups or arrays.<br><br>Learning Goal 2: 3.OA.A.2<br>Interpret the quotient as a set of objects (up to 100) partitioned equally into a number of shares and as the number of equal shares. | ***Students will be able to:***<br>• interpret products of whole numbers as a total number of objects.<br>• use repeated addition to find the total number of objects arranged in an array and in equal groups and compare to the result of multiplication.<br>• describe a context in which a total number of objects is represented by a product. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| whole numbers, e.g., interpret 56 ÷ 8 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. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.<br><br>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. *(benchmarked)<br><br>3.OA.A.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 ×? = 48, 5 = ÷ 3, 6 × 6 =?<br><br>3.OA.B.6. Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.<br><br>3.MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. | Learning Goal 3: 3.OA.A.3 Use multiplication and division within 100 to solve word problems by modeling equal groups or arrays and by writing equations to represent equal groups or arrays<br><br>Learning Goal 4: 3.OA.A.4<br>Determine the unknown in a division or multiplication equation relating 3 whole numbers (within 100).<br><br>Learning Goal 5: 3.OA.B.6<br>Solve division of whole numbers by representing the problem as an unknown factor problem.<br><br>Learning Goal 6: 3.MD.C.5 & 3.MD.C.6 Measure areas by counting unit squares ($cm^2$, $m^2$, $in^2$, $ft^2$, and improvised units).<br><br>Learning Goal 7: 3.MD.C.7a-b Tile a rectangle to find its area and explain the relationship between tiling and multiplying side lengths to find the area of rectangles; solve real world problems by multiplying side lengths to find areas of rectangles.<br><br>Learning Goal 8: 3.NBT.A.1<br>Round whole numbers to the nearest 10 or 100.<br><br>Learning Goal 9: 3.NBT.A.3<br>Multiply one digit whole numbers by multiples of 10 (10-90). | • interpret the product in the context of a real-world problem.<br>• interpret division of whole numbers as a number of equal shares or the number of groups when objects are divided equally.<br>• use repeated subtraction to find the number of shares or the number of groups and compare to the result of division.<br>• describe a context in which the number of shares or number of groups is represented with division.<br>• interpret the quotient in the context of a real-world problem.<br>• multiply to solve word problems involving equal groups and arrays.<br>• divide to solve word problems involving equal groups and arrays.<br>• represent a word problem with a drawing showing equal groups, arrays, equal shares, and/or total objects.<br>• represent a word problem with an equation.<br>• determine which operation is needed to find the unknown.<br>• multiply or divide, within 100, to find the unknown whole number in a multiplication or division equation.<br>• write division number sentences as unknown factor problems.<br>• solve division of whole numbers by finding the unknown factor.<br>• count unit squares in order to measure the area of a figure.<br>• use unit squares of centimeters, meters, inches, |

| Relevant Standards | Learning Goals | Learning Objectives |
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| 3.MD.C.5a. 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.<br><br>3.MD.C.5b. 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.<br><br>3.MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).<br><br>3.MD.C.7. Relate area to the operations of multiplication and addition.<br><br>3.MD.C.7a. 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.<br><br>3.MD.C.7b. 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.<br><br>3.NBT.A.1. Round whole numbers to the nearest 10 or 100.<br><br>3.NBT.A.3. Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 (e.g., 9 × | | feet, and other units to measure area.<br>• tile a rectangle with unit squares.<br>• multiply side lengths of a rectangle to find its area and compare the result to that found by tiling the rectangle with unit squares.<br>• solve real world and mathematical problems involving measurement.<br>• represent a rectangular area as the product of whole-numbers.<br>• use number lines and a hundreds charts to explain rounding numbers to the nearest 10 and 100.<br>• round a whole number to the nearest 10.<br>• round a whole number to the nearest 100.<br>• multiply to determine the total number of groups of ten.<br>• multiply one-digit whole numbers by multiples of 10. |

| Relevant Standards | Learning Goals | Learning Objectives |
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| 80, 5 × 60) using strategies based on place value and properties of operations. | | |

| Formative Assessments | Summative Assessments | Performance Assessments | Major Activities/ Assignments (required) |
|---|---|---|---|
| • One to one conferencing and anecdotal notes<br>• Rubrics<br>• Pre/Post RTI benchmark assessments<br>• Differentiated Facts Centers<br>• Essential Questions<br>• Home Link Review<br>• Mental Math and Reflexes<br>• Math Message<br>• Teaching the Lesson (Vocabulary Infused)<br>• Ongoing Learning and Practice<br>• Differentiation Options<br>• Math Boxes<br>• Games (reinforcement of skill)<br>• Reflection - Essential Questions revisited (Exit Slip, Journal, Orally, etc) | • Written test days<br>• Math Message<br>• Self-Assessment<br>• Oral and Slate Assessments<br>• Assessment<br>• Building Background for next unit | • Project Base Learning Opportunities:<br>• Essential Questions<br>• Class Directions/Discussion/Questions<br>• Work on Project<br>• Use of rubric and teacher "informal assessment" or checklist<br>• Reflection - Essential Questions revisited (Exit slip, Journal, Orally, etc.) | • Math Formative Diagnostic Tasks<br>• CSA #1 |

**Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?*

| Special Education Students | English Language Learners (ELLs) | At-Risk Learners | Advanced Learners |
|---|---|---|---|
| **Accommodations** | **Accommodations** | **Accommodations** | **Accommodations/Differentiation** |
| • Work in-progress check | • Multiple-choice format | • Number Line, Fraction Blocks | • Tiered assessments |

| **Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| (comments only marking)<br>• Chunked assessments<br>• Multiplication Table, Number Line, Fraction Blocks<br><br>**<u>Modifications</u>**<br>• Allow corrections for credit<br>• Provide modeled examples<br>• Allow use of resources (notes)<br>• Calculator for computation<br>• Alternative objectives<br>• Change level of complexity | • Number Line, Fraction Blocks<br>• Highlight/underline key words<br>• Simplify language, Single step directions, Read directions<br><br>**<u>Modifications</u>**<br>• Shortened assessment<br>• Accept short answers<br>• Personalized tiered questions | • Work in-progress check (comments only marking)<br>• Learning menus<br>• Vary test format | • Independent Study ( i.e. Desmos Activities) |

| **Instructional Strategies (refer to *Robert Marzano's* 41 Elements)** |
|---|
| • Manipulatives, KWL, academic games,<br>• Mathematic Workstations,<br>• Read Aloud<br>• Model think aloud comprehension strategies<br>• Modeling<br>• Choice Menus<br>• Math logs/journals |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| **<u>Accommodations</u>**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models) | **<u>Accommodations</u>**<br>• Kinesthetic Movement to Model Integers<br>• Word wall – add pictures<br>• Graph paper for vector diagrams (line models) | **<u>Accommodations</u>**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models) | **<u>Accommodations/Differentiation</u>**<br>• Low Floor, High Ceiling Tasks<br>• Math Debates<br>• Tiered assignments<br>• Flexible Grouping<br>• Graphing Calculator extension |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| • Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles<br>• Multiplication Table<br>• Mnemonics<br>• SADS (same signs –add, different signs – subtract)<br>• KCC (keep, change, change)<br>• KCF (keep, change, flip)<br>• Personalized Examples – Explicit instruction for word problems and numerous modeled examples<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | • Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles Graph paper for vector diagrams<br>• Calculator<br>• Visual charts & Outlined Notes – Add Pictures<br>• Provide written stems for For example, "The sum is ____ units to the ____ of ____."<br>• Highlight/underline key words<br>• Simplify language<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Personalized tiered questions<br>• Enhanced directions | • Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines Multiplication Table, Fraction Blocks, Fraction Circles<br>• Mnemonics<br>○ SADS (same signs – add, different signs – subtract)<br>○ KCC (keep, change, change)<br>○ KCF (keep, change, flip)<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | • Peer Coaching<br>• Compare and Contrast Solution Paths<br>• Independent Study |

| **Unit Vocabulary** |
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| **Essential:** |

| Interdisciplinary Connections (Applicable Standards) | Integration of Technology | 21st Century Themes | 21st Century Skills |
|---|---|---|---|
| **Interdisciplinary Standards**<br><br>**Career Ready Practices**<br><br>CRP1 Act as a responsible and contributing citizen and employee.<br><br>CRP2 Apply appropriate academic and technical skills.<br><br>**Financial Literacy**<br><br>9.1.4.E.2 Apply comparison-shopping skills to purchasing decisions.<br><br>**Career Exploration**<br><br>9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.<br><br>**Science**<br><br>NGSS 3-LS1-1<br>Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. Numbers in base 10. | **Technology**<br>8.1.5.A.1<br>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue.<br><br>8.1.5.F.1<br>Apply digital tools to collect, organize, and analyze data that support a scientific finding. | __✓__ Financial, Economic, Business, & Entrepreneurial Literacy<br>*Establish an understanding that career-ready individuals take regular action to contribute to their personal financial wellbeing, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.* | _✓_ Critical Thinking and Problem Solving<br>*Students engage with real world situations involving rational numbers. Students carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.*<br><br>_✓__ Life and Career Skills<br>*Students make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.*<br><br>Technologies Literacy<br>__✓_ Communication & Collaboration<br>*Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. Students collaborate via the integer game, number line discussions and problem solving real world situations involving rational numbers.* |

**Resources**

**Texts/Materials: *Textbook:***

- My Math- McGraw Hill
- Reference Social Studies, Science, Math and Health curricula for other literary connections

**Suggested Literature:**

- Each Orange Had 8 Slices: A Counting Book by Paul Giganti
- The Doorbell Rang by Pat Hutchins
- Betcha by Stuart J. Murphy
- Sea Sqares by Joy B. Hulme
- The King's Chessboard by David Birch
- The Best of Times by Gregory Tang
- If You Hopped Like a Frog by David M. Schwartz
- Anno's Mysterious Multiplying Jar by Mitsumasa Anno
- Anno's Magic Seeds by Mitsumasa Anno

**Links**:

- http://pearsonsuccessnet.com
- http://www.brainpopjr.com
- http://www.primarygames.com
- http://www.abcmouse.com
- http://www.starfall.com
- http://www.destiny.com
- http://www.gamequarium.com
- http://www.rubistar.4teachers.org
- http://kinderwebgames.com/
- http://kinderwebgames.com
- http://www.njcore.org

http://www.free-training-tutorial.com/times-tables-games.html - Multiplication Games

http://www.sheppardsoftware.com/mathgames/popup/popup_multiplication.htm - Multiplication Games

| Resources |
| --- |
| http://www.helpingwithmath.com/by_subject/multiplication/mul_games.htm - Isolation Multiplication Facts<br><br>http://www.internet4classrooms.com/skill_builders/multiplication_math_fourth_4th_grade.htm<br>Multiplication – Car Wash<br><br>http://arcademicskillbuilders.com/games/grand_prix/grand_prix.html - Multiplication Grand Prix |

| Unit 2: Modeling Multiplication, Division and Fractions | Recommended Duration: November - January |
|---|---|
| **Unit Description:** Represent and solve problems involving multiplication and division, understand properties of multiplication and the relationship between multiplication and division, geometric measurement: understand concepts of area and relate area to multiplication and to addition, multiply and divide within 100, solve problems involving the four operations, and identify and explain patterns in arithmetic, use place value understanding and properties of operations to perform multi-digit arithmetic, develop understanding of fractions as numbers, reason with shapes and their attributes | |

| Essential Questions | Enduring Understandings |
|---|---|
| • How can the properties of multiplication help us learn our multiplication facts?<br>• What strategies can we use to learn our multiplication and division facts?<br>• How can I use addition, subtraction, multiplication, and division to help you solve real world problems?<br>• How can you learn to quickly calculate sums in your head?<br>• How can you select among the most useful mental math strategies for the problem you are trying to solve?<br>• How can you use patterns to solve problems? | • Multiplying and dividing frequently requires the use and practice of mental strategies.<br>• Proficiency with basic facts aids computation and estimation of larger and smaller numbers.<br>• Number stories are created based upon information from everyday life.<br>• Answers can be found by using mental math, acting out situations with counters, and drawing sketches, especially of arrays.<br>• Patterns can be found in many forms through addition, subtraction, multiplication, and division. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| **Content Standards: Primary or Power**<br>NJ SLS 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. *(benchmarked)<br><br>NJ SLS 3.OA.B.5. Apply properties of operations | Learning Goal 1: NJ SLS 3.OA.A.3 Use multiplication and division within 100 to solve word problems involving measurement quantities (area) using drawings.<br><br>Learning Goal 2: NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Multiply one-digit whole numbers by applying the properties of operations (commutative, | ***Students will be able to:***<br>• multiply to solve word problems involving arrays and measurement quantities (area).<br>• divide to solve word problems involving arrays and measurement quantities (area).<br>• represent a word problem with a drawing or array.<br>• represent a word problem with an equation.<br>• multiply whole numbers using the commutative property as a strategy. |

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| as strategies to multiply and divide.<br>*Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5× 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 =16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*<br>*[Students need not use the formal terms for these properties.]<br>*[Limit to single digit factors and multipliers. 7 x 4 x 5 would exceed grade 3 expectations because it would result in a two-digit multiplier (28 x 5)]<br><br>NJ SLS 3.MD.C.7. Relate area to the operations of multiplication and addition.<br><br>NJ SLS 3.MD.C.7c. 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* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning.<br><br>NJ SLS 3.MD.C.7. Relate area to the operations of multiplication and addition.<br><br>NJ SLS 3.MD.C.7d. 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. | associative, and distributive properties).<br><br>Learning Goal 3: NJ SLS 3.OA.B.5 & NJ SLS 3.MD.C.7c Use tiling and an area model to represent the distributive property.<br><br>Learning Goal 4: NJ SLS 3.MD.C.7d Solve real-world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts.<br><br>Learning Goal 5: NJ SLS 3.OA.C.7 Fluently multiply and divide <u>within 40</u> using strategies such as the relationship between multiplication and division.<br><br>Learning Goal 6: NJ SLS 3.OA.D.8 Write equations when solving two-step word problems, using a symbol for an unknown; find the value of an unknown in an equation involving any of the four operations and use estimation strategies to assess the reasonableness of answers.<br><br>Learning Goal 7: NJ SLS 3.OA.D.9 Recognize arithmetic patterns, including patterns in addition or multiplication tables, and explain the patterns using properties of operations.<br>Learning Goal 8: NJ SLS 3.NBT.A.2Fluently add and subtract (with regrouping) two 2-digit whole numbers <u>within 100.</u><br><br>Learning Goal 9: NJ SLS 3.NF.A.1 & NJ SLS 3.G.A.2 Partition shapes into parts with equal areas and express the area of each part as | • multiply whole numbers using the associative property as a strategy.<br>• use tiling to show that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c.*<br>• multiply whole numbers using the distributive property as a strategy.<br>• decompose rectilinear figures into non-overlapping rectangles.<br>• find areas of non-overlapping rectangles and add to find the area of the rectilinear figure.<br>• solve real world problems involving area of rectilinear figures.<br>• multiply and divide <u>within 40</u> with accuracy and efficiency.<br>• represent the solution to two-step word problems with equations.<br>• use a symbol to represent an unknown in an equation.<br>• use rounding as an estimation strategy.<br>• explain, using an estimation strategy, whether an answer is reasonable.<br>• explain arithmetic patterns using properties of operations.<br>• add and subtract two 2-digit whole numbers <u>within 100</u> with accuracy and efficiency.<br>• partition rectangles, and other shapes, into halves, thirds, fourths, sixths and eighths.<br>• identify the fractional name of each part.<br>• model and explain that a fraction *a*/*b* is the quantity formed by *a* parts of size 1/*b* (For example, 10/2 is 10 parts and each part is of size ½). |

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| NJ SLS 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)<br><br>NJ SLS 3.OA.D.8. Solve two-step word problems 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. *(benchmarked)<br><br>NJ SLS 3.OA.D.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.<br>*For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*<br><br>NJ SLS 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. *(benchmarked)<br><br>NJ SLS 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 | a unit fraction; interpret the unit fraction 1/b as the quantity formed by 1 of b equal parts of a whole and the fraction a/b as the quantity formed by a parts of size 1/b. | |

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| of size 1/*b*.<br>*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]<br><br>NJ SLS 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 having equal area and describe the area of each part as 1/4 of the area of the shape.* | | |

| **Formative Assessments** | **Summative Assessments** | **Performance Assessments** | **Major Activities/ Assignments (required)** |
|---|---|---|---|
| • One to one conferencing and anecdotal notes<br>• Rubrics<br>• Pre/Post RTI benchmark assessments<br>• Differentiated Facts Centers<br>• Essential Questions<br>• Home Link Review<br>• Mental Math and Reflexes<br>• Math Message<br>• Teaching the Lesson (Vocabulary Infused)<br>• Ongoing Learning and Practice<br>• Differentiation Options<br>• Math Boxes<br>• Games (reinforcement of skill)<br>• Reflection - Essential Questions revisited (Exit Slip, Journal, Orally, etc) | **Written test days:**<br>• Math Message<br>• Self-Assessment<br>• Oral and Slate Assessments<br>• Assessment<br>• Building Background for next unit | **Project Base Learning Opportunities:**<br>• Essential Questions<br>• Class Directions/Discussion/Questions<br>• Work on Project<br>• Use of rubric and teacher "informal assessment" or checklist<br>• Reflection - Essential Questions revisited (Exit slip, Journal, Orally, etc.) | • Math Formative Diagnostic Tasks<br>• CSA #2 |

| Formative Assessments | Summative Assessments | Performance Assessments | Major Activities/ Assignments (required) |
|---|---|---|---|
| | | | |

**Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?*

| Special Education Students | English Language Learners (ELLs) | At-Risk Learners | Advanced Learners |
|---|---|---|---|
| **Accommodations**<br>• Work in-progress check (comments only marking)<br>• Chunked assessments<br>• Multiplication Table, Number Line, Fraction Blocks<br><br>**Modifications**<br>• Allow corrections for credit<br>• Provide modeled examples<br>• Allow use of resources (notes)<br>• Calculator for computation<br>• Alternative objectives<br>• Change level of complexity | **Accommodations**<br>• Multiple-choice format<br>• Number Line, Fraction Blocks<br>• Highlight/underline key words<br>• Simplify language, Single step directions, Read directions<br><br>**Modifications**<br>• Shortened assessment<br>• Accept short answers<br>• Personalized tiered questions | **Accommodations**<br>• Number Line, Fraction Blocks<br>• Work in-progress check (comments only marking)<br>• Learning menus<br>• Vary test format | **Accommodations/Differentiation**<br>• Tiered assessments<br>• Independent Study ( i.e. Desmos Activities) |

**Instructional Strategies (refer to *Robert Marzano's* 41 Elements)**

- Manipulatives, KWL, academic games,
- Mathematic Workstations,
- Read Aloud
- Model think aloud comprehension strategies
- Modeling
- Choice Menus
- Math logs/journals

**Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?*

| Special Education Students | English Language Learners (ELLs) | At-Risk Learners | Advanced Learners |
|---|---|---|---|
| **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles<br>• Multiplication Table<br>• Mnemonics<br>• SADS (same signs –add, different signs – subtract)<br>• KCC (keep, change, change)<br>• KCF (keep, change, flip)<br>• Personalized Examples – Explicit instruction for word problems and numerous modeled examples<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall – add pictures<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles Graph paper for vector diagrams<br>• Calculator<br>• Visual charts & Outlined Notes – Add Pictures<br>• Provide written stems for For example, "The sum is ____ units to the ____ of ____."<br>• Highlight/underline key words<br>• Simplify language<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Personalized tiered questions<br>• Enhanced directions | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines Multiplication Table, Fraction Blocks, Fraction Circles<br>• Mnemonics<br>o SADS (same signs – add, different signs – subtract)<br>o KCC (keep, change, change)<br>o KCF (keep, change, flip)<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | **Accommodations/Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Math Debates<br>• Tiered assignments<br>• Flexible Grouping<br>• Graphing Calculator extension<br>• Peer Coaching<br>• Compare and Contrast Solution Paths<br>• Independent Study |

| **Unit Vocabulary** |
|---|
| **Essential:** |

| **Interdisciplinary Connections (Applicable Standards)** | **Integration of Technology** | **21st Century Themes** | **21st Century Skills** |
|---|---|---|---|
| **Interdisciplinary Standards**<br><br>**Career Ready Practices**<br><br>CRP4 Communicate clearly and effectively and with reason<br><br>**Career Exploration**<br>9.2.4.A.2 Identify various life roles and civic and work - related activities in the school, home, and community.<br><br>**Science**<br><br>NGSS 3-LS4-1<br>Analyze and interpret data from fossils<br><br>to provide evidence of the organisms<br><br>and the environments in which they<br><br>lived long ago. | **Technology**<br>8.1.5.A.1<br>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue. | __✓__ Financial, Economic, Business, & Entrepreneurial Literacy<br>*Establish an understanding that career-ready individuals take regular action to contribute to their personal financial wellbeing, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.* | _✓_ Critical Thinking and Problem Solving<br>*Students engage with real world situations involving rational numbers. Students carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.*<br><br>_✓____ Life and Career Skills<br>*Students make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.*<br><br>Technologies Literacy<br>__✓__ Communication & Collaboration<br>*Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. Students collaborate via the integer game, number line discussions and problem solving real world situations involving rational numbers.* |

| Interdisciplinary Connections (Applicable Standards) | Integration of Technology | 21st Century Themes | 21st Century Skills |
|---|---|---|---|
| | | | |

**Resources**

**Texts/Materials:**

- My Math- McGraw Hill
- Reference Social Studies, Science, Math and Health curricula for other literary connections

**Links**:

- http://pearsonsuccessnet.com
- http://www.brainpopjr.com
- http://www.primarygames.com
- http://www.abcmouse.com
- http://www.starfall.com
- http://www.destiny.com
- http://www.gamequarium.com
- http://www.free-training-tutorial.com/times-tables-games.html - Multiplication Games
- http://www.sheppardsoftware.com/mathgames/popup/popup_multiplication.htm - Multiplication Games
- http://www.helpingwithmath.com/by_subject/multiplication/mul_games.htm - Isolation Multiplication Facts
- http://www.internet4classrooms.com/skill_builders/multiplication_math_fourth_4th_grade.htm
- http://arcademicskillbuilders.com/games/grand_prix/grand_prix.html - Multiplication Grand Prix

| Unit 3: Fractions as Numbers and Measurement | Recommended Duration: January - March |
|---|---|
| **Unit Description:**<br>Develop understanding of fractions as numbers, solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects, reason with shapes and their attributes, recognize perimeter as an attribute of plane figures and distinguish between linear and area measure, multiply and divide within 100. | |

| Essential Questions | Enduring Understandings |
|---|---|
| • How can numbers be expressed, ordered, or compared?<br>• Does rounding a number change its value relative to other numbers?<br>• In what situations would a person want to round?<br>• Why is place value important?<br>• How does place value help you add large numbers?<br>• How are addition and subtraction alike and how are they different?<br>• What strategies can you use to help you add and subtract quickly and accurately?<br>• How can you model multiplication by ten? | • Understanding place value can lead to number sense and efficient strategies for computing with numbers.<br>• Adding and subtracting fluently requires the use and practice of mental strategies<br>• Numbers can be expressed in many ways.<br>• We can interpret the world around us using a variety of fractional models.<br>• Shapes can be compared and categorized and their attributes help us make sense of our world.<br>• Multiplication can be understood using array and area models.<br>• New shapes can be created by either composing or decomposing existing shapes. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| **Content Standards: Primary or Power**<br><br>NJ SLS 3.NF.A.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.<br><br>NJ SLS 3.NF.A.2a. 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 | Learning Goal 1: NJ SLS 3.NF.A.2 Draw a number line depicting the position of 1/b (with b = 2, 3, 4, 6, or 8); represent the unit fraction ¼ on the number line by partitioning the number line between 0 and 1 into 4 equal lengths and name the point at the end of the first length as the position of the unit fraction ¼; apply the same method for placing points 1/2, 1/3, 1/6, and 1/8 on the number line. | ***Students will be able to:***<br>• partition a number line into parts of equal sizes between 0 and 1 (halves, thirds, fourths sixths and eighths).<br>• plot unit fractions on the number line.<br>• identify multiple parts (of length 1/b) on the number line.<br>• plot a fraction on the number line by marking off multiple parts of size 1/b. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| *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.<br><br>3.NF.A.2b. 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. *[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]<br><br>NJ SLS 3.NF.A.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size<br><br>NJ SLS 3.NF.A.3a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.<br><br>NJ SLS 3.NF.A.3b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.<br><br>NJ SLS 3.NF.A.3c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* | Learning Goal 2: NJ SLS 3.NF.A.2 Draw a number line depicting the position of fraction *a*/*b* (with *b* = 2, 4, 3, 6, or 8, and including whole numbers up to 5).<br><br>Learning Goal 3: NJ SLS 3.NF.A.3 Generate simple equivalent fractions, explain why they are equivalent, and support the explanation with visual fraction models; locate them on the number line.<br><br>Learning Goal 4: NJ SLS 3.NF.A.3 Express whole numbers as fractions, identify fractions equivalent to whole numbers and locate them on the number line.<br><br>Learning Goal 5: NJ SLS 3.NF.A.3 Compare two fractions having the same numerator; compare two fractions having the same denominator; reason about their size and use the symbols >, =, or < to record the comparison.<br><br>Learning Goal 6: NJ SLS 3.MD.A.1 Tell and write time to the nearest minute, and solve word problems with addition and subtraction involving time intervals in minutes.<br>Learning Goal 7: NJ SLS 3.MD.A.2 Solve one step word problems by estimating and measuring volume and mass using appropriate tools and standard units of grams, kilograms, and liters.<br><br>Learning Goal 8: NJ SLS<br>3.OA.C.7 Fluently multiply and divide within 100 | • plot fractions equivalent to whole numbers including 0 and up to 5.<br>• find equivalent fractions (limited to fractions with denominators 2, 3, 4, 6, and 8).<br>• explain why two fractions are equivalent; use a visual fraction model to support explanation.<br>• write whole numbers as fractions.<br>• identify fractions that are equivalent to whole numbers.<br>• compare two fractions having the same numerator by reasoning about their size.<br>• compare two fractions having the same denominator by reasoning about their size.<br>• explain why comparing fractions that do not have the same whole is not valid (reason about their size and support reasoning with a model).<br>• use <, =, and > symbols to write comparisons of fractions and justify conclusions with a visual fraction model.<br>• tell time to the nearest minute using digital and analog clocks.<br>• write time to the nearest minute using analog clocks.<br>• choose appropriate strategies to solve real world problems involving time.<br>• use the number line as a visual model to determine intervals of time as *jumps* on a number line.<br>• measure time intervals.<br>• measure and read a scale to estimate volume.<br>• measure and read a scale to estimate mass. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| NJ SLS 3.NF.A.3d. 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, e.g., by using a visual fraction model.<br>*[Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.]<br><br>NJ SLS 3.MD.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)<br><br>NJ SLS 3.MD.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)<br><br>NJ SLS 3.MD.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. | using<br>strategies such as the relationship between multiplication and division.<br><br>Learning Goal 9: NJ SLS 3.G.A.1 Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.<br><br>Learning Goal 10: NJ SLS 3.MD.D.8 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. | • add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes.<br>• multiply and divide <u>within 100</u> with accuracy and efficiency.<br>• classify and sort shapes by attributes.<br>• explain why rhombuses, rectangles, and squares are examples of quadrilaterals.<br>• draw examples of quadrilaterals.<br>• determine the perimeter of various plane shapes and irregular shapes given the side lengths.<br>• determine the unknown side length give the perimeter and other sides.<br>• show rectangles having the same perimeter and different areas.<br>• show rectangles having different perimeters and the same area. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| NJ SLS 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.<br><br>NJ SLS 3.MD.D.8. 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.<br><br>NJ SLS 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked) | | |

| Formative Assessments | Summative Assessments | Performance Assessments | Major Activities/ Assignments (required) |
|---|---|---|---|
| • One to one conferencing and anecdotal notes | • Math Message<br>• Self-Assessment | • Class Directions/Discussion/Questions | • Math Formative Tasks<br>• CSA #3 |

| Formative Assessments | Summative Assessments | Performance Assessments | Major Activities/ Assignments (required) |
|---|---|---|---|
| • Rubrics<br>• Pre/Post RTI benchmark assessments<br>• Differentiated Facts Centers<br>• Essential Questions<br>• Home Link Review<br>• Mental Math and Reflexes<br>• Math Message<br>• Teaching the Lesson (Vocabulary Infused)<br>• Ongoing Learning and Practice<br>• Differentiation Options<br>• Math Boxes<br>• Games (reinforcement of skill)<br>• Reflection - Essential Questions revisited (Exit Slip, Journal, Orally, etc)<br>• | • Oral and Slate Assessments<br>• Assessment<br>• Building Background for next unit | • Work on Project<br>• Use of rubric and teacher "informal assessment" or checklist<br>• Reflection - Essential Questions revisited (Exit slip, Journal, Orally, etc.) | |

**Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?*

| Special Education Students | English Language Learners (ELLs) | At-Risk Learners | Advanced Learners |
|---|---|---|---|
| **Accommodations**<br>• Work in-progress check (comments only marking)<br>• Chunked assessments<br>• Multiplication Table, Number Line, Fraction Blocks<br><br>**Modifications**<br>• Allow corrections for credit | **Accommodations**<br>• Multiple-choice format<br>• Number Line, Fraction Blocks<br>• Highlight/underline key words<br>• Simplify language, Single step directions, Read directions<br><br>**Modifications**<br>• Shortened assessment | **Accommodations**<br>• Number Line, Fraction Blocks<br>• Work in-progress check (comments only marking)<br>• Learning menus<br>• Vary test format | **Accommodations/Differentiation**<br>• Tiered assessments<br>• Independent Study ( i.e. Desmos Activities) |

| **Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| • Provide modeled examples<br>• Allow use of resources (notes)<br>• Calculator for computation<br>• Alternative objectives<br>• Change level of complexity | • Accept short answers<br>• Personalized tiered questions | | |

| **Instructional Strategies (refer to *Robert Marzano's* 41 Elements)** |
|---|
| • Manipulatives, KWL, academic games,<br>• Mathematic Workstations,<br>• Read Aloud<br>• Model think aloud comprehension strategies<br>• Modeling<br>• Choice Menus<br>• Math logs/journals |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles<br>• Multiplication Table<br>• Mnemonics | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall – add pictures<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles Graph paper for vector diagrams | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters<br>• Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines Multiplication Table, Fraction Blocks, Fraction Circles | **Accommodations/Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Math Debates<br>• Tiered assignments<br>• Flexible Grouping<br>• Graphing Calculator extension<br>• Peer Coaching<br>• Compare and Contrast Solution Paths<br>• Independent Study |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| • SADS (same signs –add, different signs – subtract)<br>• KCC (keep, change, change)<br>• KCF (keep, change, flip)<br>• Personalized Examples – Explicit instruction for word problems and numerous modeled examples<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | • Calculator<br>• Visual charts & Outlined Notes – Add Pictures<br>• Provide written stems for For example, "The sum is ____ units to the ____ of ____."<br>• Highlight/underline key words<br>• Simplify language<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Personalized tiered questions<br>• Enhanced directions | • Mnemonics<br>○ SADS (same signs – add, different signs – subtract)<br>○ KCC (keep, change, change)<br>○ KCF (keep, change, flip)<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | |

| **Unit Vocabulary** |
|---|
| **Essential:** |

| **Interdisciplinary Connections (Applicable Standards)** | **Integration of Technology** | **21st Century Themes** | **21st Century Skills** |
|---|---|---|---|
| **Career Ready Practices**<br><br>CRP6 Demonstrate creativity and innovation.<br><br>**Financial Literacy** | **Technology**<br><br>8.1.5.A.3<br>Use a graphic organizer to organize information about problem or issue. | __✓__ Financial, Economic, Business, & Entrepreneurial Literacy<br>*Establish an understanding that career-ready individuals take regular action to contribute to their personal financial wellbeing,* | _✓_ Critical Thinking and Problem Solving<br>*Students engage with real world situations involving rational numbers. Students carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own* |

| Interdisciplinary Connections (Applicable Standards) | Integration of Technology | 21st Century Themes | 21st Century Skills |
|---|---|---|---|
| 9.1.4.E.2 Apply comparison shopping skills to purchasing decisions<br><br>**Career Exploration**<br><br>9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.<br><br>**Science**<br>NGSS 3-ESS2-1<br>Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. | 8.1.5.F.1<br>Apply digital tools to collect, organize, and analyze data that support a scientific finding. | *understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.* | *actions or the actions of others.*<br><br>__✓___ Life and Career Skills<br>*Students make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.*<br><br>Technologies Literacy<br>__✓__ Communication & Collaboration<br>*Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. Students collaborate via the integer game, number line discussions and problem solving real world situations involving rational numbers.* |

| Resources |
|---|
| **Texts/Materials:**<br>• My Math- McGraw Hill<br>• Reference Social Studies, Science, Math and Health curricula for other literary connections<br><br>**Links**:<br><br>• http://pearsonsuccessnet.com<br>• http://www.brainpopjr.com |

| Resources |
| --- |
| • http://www.primarygames.com<br>• http://www.abcmouse.com<br>• http://www.starfall.com<br>• http://www.destiny.com<br>• http://www.gamequarium.com<br>• http://www.rubistar.4teachers.org |

| Unit 4: Representing Data | Recommended Duration: March - May |
|---|---|
| **Unit Description:**<br>Represent and interpret data, multiply and divide within 100, use place value understanding and properties of operations to perform multi-digit arithmetic, understand concepts of area and relate area to multiplication and to addition. | |

| Essential Questions | Enduring Understandings |
|---|---|
| • How can numbers be expressed, ordered, or compared?<br>• Does rounding a number change its value relative to other numbers?<br>• In what situations would a person want to round?<br>• Why is place value important?<br>• How does place value help you add large numbers?<br>• How are addition and subtraction alike and how are they different?<br>• What strategies can you use to help you add and subtract quickly and accurately?<br>• How can you model multiplication by ten? | • Understanding place value can lead to number sense and efficient strategies for computing with numbers.<br>• Adding and subtracting fluently requires the use and practice of mental strategies<br>• Numbers can be expressed in many ways.<br>• We can interpret the world around us using a variety of fractional models. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| **Content Standards: Primary or Power**<br><br>NJ SLS 3.MD.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" | Learning Goal 1: NJ SLS 3.MD.B.3 Draw scaled picture and scaled bar graphs to represent data with several categories. Solve one and two-step word problems using scaled bar graphs.<br><br>Learning Goal 2: NJ SLS 3.MD.B.4 Depict data | ***Students will be able to:***<br>• draw scaled picture graphs.<br>• draw scaled bar graphs.<br>• analyze, interpret and create bar graphs and pictographs in real world situations.<br>• solve "how many more" and "how many less" |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*<br><br>NJ SLS 3.MD.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.<br><br>NJ SLS 3.OA.C.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. *(benchmarked)<br><br>NJ SLS 3.OA.D.8. Solve two-step word problems 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. *(benchmarked)<br><br>NJ SLS 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and | measured in fourths and halves of an inch with a line plot with scales marked with appropriate units.<br><br>Learning Goal 3: NJ SLS 3.OA.C.7 Fluently multiply and divide within 100 using strategies such as the relationship between multiplication and division.<br><br>Learning Goal 4: NJ SLS 3.OA.D.8 Write equation(s) containing an unknown and find the value of an unknown in an equation that is a representation of a two-step word problem (with any four operations)*;* use estimation strategies to assess the reasonableness of answers.<br><br>Learning Goal 5: NJ SLS 3.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.<br><br>Learning Goal 6: NJ SLS 3.MD.C.7d Solve real world problems involving finding areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts. | problems using scaled bar graphs.<br>• measure length using rulers marked with inch, quarter inch and half inch<br>• generate measurement data by measuring length and create a line plot of the data<br>• accurately measure several small objects using a standard ruler and display findings on a line plot<br>• display data on line plots with horizontal scales in whole numbers, halves, and quarters<br>• multiply and divide within 100 with accuracy and efficiency.<br>• represent two-step word problems with equation(s) containing unknowns.<br>• perform operations in the conventional order (no parentheses).<br>• use rounding as an estimation strategy.<br>• explain, using an estimation strategy, whether an answer is reasonable.<br>• add and subtract within 1000 with accuracy and efficiency.<br>• decompose rectilinear figures into non-overlapping rectangles.<br>• find areas of non-overlapping rectangles and add to find the area of the rectilinear figure.<br>• solve real world problems involving area of rectilinear figures. |

| Relevant Standards | Learning Goals | Learning Objectives |
|---|---|---|
| subtraction. *(benchmarked)<br><br>NJ SLS 3.MD.C.7. Relate area to the operations of multiplication and addition.<br><br>NJ SLS 3.MD.C.7d. 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. *(benchmarked) | | |

| Formative Assessments | Summative Assessments | Performance Assessments | Major Activities/ Assignments (required) |
|---|---|---|---|
| • One to one conferencing and anecdotal notes<br>• Rubrics<br>• Pre/Post RTI benchmark assessments<br>• Differentiated Facts Centers<br>• Essential Questions<br>• Home Link Review<br>• Mental Math and Reflexes<br>• Math Message<br>• Teaching the Lesson (Vocabulary Infused)<br>• Ongoing Learning and Practice<br>• Differentiation Options<br>• Math Boxes<br>• Games (reinforcement of skill)<br>• Reflection - Essential Questions revisited (Exit Slip, Journal, Orally, etc) | • Math Message<br>• Self-Assessment<br>• Oral and Slate Assessments<br>• Assessment<br>• Building Background for next unit | • Essential Questions<br>• Class Directions/Discussion/Questions<br>• Work on Project<br>• Use of rubric and teacher “informal assessment” or checklist<br>• Reflection - Essential Questions revisited (Exit slip, Journal, Orally, etc.) | • Math Formative Tasks<br>• CSA #4 |

| **Possible Assessment Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **EXPRESS** their understanding and comprehension of the content/skills taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| **Accommodations**<br>• Work in-progress check (comments only marking)<br>• Chunked assessments<br>• Multiplication Table, Number Line, Fraction Blocks<br><br>**Modifications**<br>• Allow corrections for credit<br>• Provide modeled examples<br>• Allow use of resources (notes)<br>• Calculator for computation<br>• Alternative objectives<br>• Change level of complexity | **Accommodations**<br>• Multiple-choice format<br>• Number Line, Fraction Blocks<br>• Highlight/underline key words<br>• Simplify language, Single step directions, Read directions<br><br>**Modifications**<br>• Shortened assessment<br>• Accept short answers<br>• Personalized tiered questions | **Accommodations**<br>• Number Line, Fraction Blocks<br>• Work in-progress check (comments only marking)<br>• Learning menus<br>• Vary test format | **Accommodations/Differentiation**<br>• Tiered assessments<br>• Independent Study ( i.e. Desmos Activities) |

| **Instructional Strategies (refer to *Robert Marzano's* 41 Elements)** |
|---|
| • Manipulatives, KWL, academic games,<br>• Mathematic Workstations,<br>• Read Aloud<br>• Model think aloud comprehension strategies<br>• Modeling<br>• Choice Menus<br>• Math logs/journals |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| **Special Education Students** | **English Language Learners (ELLs)** | **At-Risk Learners** | **Advanced Learners** |
| **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall – add pictures | **Accommodations**<br>• Kinesthetic Movement to Model Integers<br>• Word wall & Anchor Posters | **Accommodations/Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Math Debates<br>• Tiered assignments |

| **Possible Instructional Adjustments (Modifications /Accommodations/ Differentiation):** *How will the teacher provide multiple means for the following student groups to **ACCESS** the content/skills being taught?* | | | |
|---|---|---|---|
| • Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles<br>• Multiplication Table<br>• Mnemonics<br>• SADS (same signs –add, different signs – subtract)<br>• KCC (keep, change, change)<br>• KCF (keep, change, flip)<br>• Personalized Examples – Explicit instruction for word problems and numerous modeled examples<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | • Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines, Fraction Blocks, Fraction Circles Graph paper for vector diagrams<br>• Calculator<br>• Visual charts & Outlined Notes – Add Pictures<br>• Provide written stems for For example, "The sum is ____ units to the ____ of ____."<br>• Highlight/underline key words<br>• Simplify language<br>**Modifications**<br>• Use of a calculator for computation<br>• Alternative objectives<br>• Change level of complexity<br>**Differentiation**<br>• Personalized tiered questions<br>• Enhanced directions | • Graph paper for vector diagrams (line models)<br>• Manipulatives – Integer Cards that model the number on the number line, Positive/Negative Counters, Number Lines, Slide lines Multiplication Table, Fraction Blocks, Fraction Circles<br>• Mnemonics<br>○ SADS (same signs – add, different signs – subtract)<br>○ KCC (keep, change, change)<br>○ KCF (keep, change, flip)<br>**Differentiation**<br>• Low Floor, High Ceiling Tasks<br>• Flexible Grouping<br>• Learning Stations | • Flexible Grouping<br>• Graphing Calculator extension<br>• Peer Coaching<br>• Compare and Contrast Solution Paths<br>• Independent Study |

| **Unit Vocabulary** |
|---|
| **Essential:** |

| Interdisciplinary Connections (Applicable Standards) | Integration of Technology | 21st Century Themes | 21st Century Skills |
|---|---|---|---|
| **Career Ready Practices**<br>CRP8 Utilize critical thinking to make sense of problems and persevere in solving them<br><br>**Financial Literacy**<br>9.1.4.F.2<br>Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.<br><br>**Career Exploration**<br>9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.<br><br>**Science**<br>NGSS 3-LS4-1<br>Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. | **Technology**<br>8.1.5.F.1<br>Apply digital tools to collect, organize, and analyze data that support a scientific finding. | __✓__ Financial, Economic, Business, & Entrepreneurial Literacy<br>*Establish an understanding that career-ready individuals take regular action to contribute to their personal financial wellbeing, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.* | _✓_ Critical Thinking and Problem Solving<br>*Students engage with real world situations involving rational numbers. Students carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.*<br><br>_✓___ Life and Career Skills<br>*Students make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.*<br><br>Technologies Literacy<br>__✓_ Communication & Collaboration<br>*Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. Students collaborate via the integer game, number line discussions and problem solving real world situations involving rational numbers.* |

**Resources**

**Texts/Materials:**

- My Math- McGraw Hill
- Reference Social Studies, Science, Math and Health curricula for other literary connections

**Links**:

- http://pearsonsuccessnet.com
- http://www.brainpopjr.com
- http://www.primarygames.com
- http://www.abcmouse.com
- http://www.starfall.com
- http://www.destiny.com
- http://www.gamequarium.com
- http://www.rubistar.4teachers.org