

**Berkeley Heights Public Schools Curriculum
Berkeley Heights, New Jersey**



Mathematics

Grade 3

Date Adopted: August 2022



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ACKNOWLEDGEMENTS

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CURRICULUM WRITING TEAM

We would like to thank the 2021-2022 Elementary Math Committee for all of their hard work throughout the school year. The team members included: Nicole Abbate, Nicole Belisario, Alexis Bellardino, Melany Castellanos, Kate Corcoran, Genevieve Dagan, Kathy Finkelstein, Erin McKeon, Eli Quinonez, Joe Reel, Gina Roof, Rachel Shanagher, and Pam Wilczynski.

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DOCUMENT OVERVIEW

The guidelines for developing curriculum in the Berkeley Heights Public Schools include the New Jersey State Learning Standards (NJSLS). These standards spell out specific learning expectations for each grade level and content area. We use a variation of the *Understanding by Design* (UbD) model of curriculum development and organization.

Prerequisite Knowledge and Skills: A brief description of foundational knowledge and skills that students should have mastered to equip them with the readiness skills necessary to make meaning of the objective of this lesson/unit.

Essential Questions and Enduring Understandings: These questions are used to help students conceptualize overarching ideas and to find personal meaning in their learning. Enduring Understandings are statements summarizing important ideas, key take-aways, and core processes that are central to a discipline, and have lasting value beyond the classroom.

Formative Assessment: Assessments that give ongoing diagnosis of learning as students engage in the unit. Results of formative assessment are used for reteaching or extending learning.

Summative Assessment: Assessment that indicates the level of mastery of concepts, knowledge and skills of a unit.

Instructional Strategies/Learning Activities: Describes the differentiated teaching strategies that create high-quality instruction to address the needs of all students, engage students in their own learning, and build students' capacity and interest in learning.

Demonstrations of Understanding: These Six Facets underlie students' opportunities to demonstrate their understanding of content knowledge and skills using the *Understanding by Design* model of curriculum.

1. **Explanation:** Students can explain the core meaning of learning in a way that communicates the key concepts embodied in the knowledge and skill of the standard.
2. **Interpretation:** Students can articulate why a particular standards/learning matters, relate it to other learnings, and can translate the impact of this learning on personal, societal, and scientific issues.
3. **Application:** Students can use the learning in new contexts that differ from the instructional context and can modify and flexibly use learning to suit the context.
4. **Perspective:** Students can question assumptions, conclusions and points of view and can express different viewpoints on issues and/or seek different solutions for problems.
5. **Empathy:** Students can "stand in another's shoes" and see a situation from the inside out.
6. **Self-knowledge:** Students can evaluate how they learn, examine what helps and does not help them in the learning process, and set goals to support ongoing learning. Self-knowledge asks students to identify their own barriers to learning, e.g., blind spots, misconceptions.



MATHEMATICS PRINCIPLES

The principles for school mathematics address the overarching themes of equity, curriculum, teaching, learning, assessment and technology. (NCTM, 2000)

Equity: Excellence in mathematics education requires equity – high expectations, worthwhile opportunities, accommodation for differences, resources, and strong support for all students.

Curriculum: A coherent curriculum effectively organizes standards and mathematical ideas, focuses on important mathematics, and is well articulated within and across grades.

Teaching: Effective standards-aligned mathematics instruction is a complex endeavor that requires understanding what students know and need to learn, and then challenging and supporting them to learn it well. Effective teaching requires continually seeking improvement.

Learning: Conceptual understanding is an important component of proficiency. Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge. Learning with understanding is essential to enable students to solve the new kinds of problems they will inevitably face in the future.

Assessment: Standards-aligned assessment, a routine part of ongoing classroom activity, should enhance students' learning and inform instructional decisions.

Technology: Technology, not to be used as a replacement for basic understandings and intuitions, is an essential tool in teaching and learning mathematics; it influences the mathematics that is taught, supports visualization, facilitates organizing and analyzing data, and offers efficient computation.



MATHEMATICS STANDARDS

Intent and Spirit of the Mathematics Standards

Research studies of mathematics education in high-performing countries have concluded that mathematics education in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on this promise, the mathematics standards are designed to address the problem of a curriculum that is "a mile wide and an inch deep."

The math standards provide **clarity and specificity** rather than broad general statements. The standards draw on the most important international models for **mathematical practice**, as well as research. They endeavor to follow the design envisioned by William Schmidt and Richard Houang (2002), by not only **stressing conceptual understanding** of key ideas, but also by continually returning to organizing principles (coherence) such as place value and the laws of arithmetic to structure those ideas.

In addition, the "sequence of topics and performances" that is outlined in a body of math standards must respect what is already known about how students learn. As Confrey (2007) points out, developing "sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise." Therefore, the development of the standards began with research-based learning progressions detailing what is known today about how students' mathematical knowledge, skill, and understanding develop over time. The knowledge and skills students need to be prepared for mathematics in college, career, and life are woven throughout the mathematics standards.

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education.

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

NJ Student Learning Standards K-5, can be found at this link:

<https://www.nj.gov/education/standards/math/Index.shtml>



CURRICULUM PACING GUIDE

UNIT NUMBER	UNIT TITLE	SUGGESTED PACING	MATH CENTERS
1	Understand Multiplication and Division	11 days-September	Center 1: Hooray Array! Center 2: Skills Trainer Center 3: Array Fit Center 4: Division Tic-Tac-Toe *found on page T-50
2	Multiplication Facts and Strategies	10 days, September/October	Center 1: Three In a Row: Multiplication Center 2: Skills Trainer Center 3: Building Arrays Center 4: Cup Stacking *found on page T-92
3	More Multiplication Facts and Strategies	13 days, October/November	Center 1: Product Lineup Center 2: Skills Trainer Center 3: Clay Array Center 4: Go Fish with Products Chapter 5: Multiplication Triangle Puzzle *found on page T-154
4	Division Facts and Strategies	14 days, November/December	Center 1: Four in a Row Blastoff! Center 2: Skills Trainer Center 3: Authors and Illustrators Center 4: Division Squares Center 5: Chance Arrays *found on page T-216

5	Patterns and Fluency	8 days, December	Center 1: Multiplication Table Cover Up Center 2: Skills Trainer Center 3: Domino Multiplication Center 4: Multiplication Challenge Center 5: Dividing Beads *found on page T-252
6	Relate Area to Multiplication	9 days, January	Center 1: Area Roll and Conquer Center 2: Skills Trainer Center 3: Area Robots Center 4: Name Area Center 5: Area Flip and Find *found on page T-288
7	Round and Estimate Numbers	9 days, January	Center 1: Round to Find a Pearl Center 2: Skills Trainer Center 3: Spin and Estimate the Sum Center 4: Roll and Estimate the Difference Center 5: Round the Petals *found on page T-324
8	Add and Subtract Multi-Digit Numbers	16 days, January/February	Center 1: Three in a Row: Addition and Subtraction Center 2: Skills Trainer Center 3: Addition Puzzles Center 4: Dice Subtraction Center 5: Video-Game Word Problem-Make 1, Solve 1 *found on page T-398
9	Multiples and Problem Solving	9 days, February/March	Center 1: Multiplication Flip and Find Center 2: Skills Trainer Center 3: Most Multiples

			<p>Tower</p> <p>Center 4: Spinner Multiples</p> <p>Center 5: Word Problem Comic Strip</p> <p>*found on page T-442</p>
10	Understand Fractions	9 days, March	<p>Center 1: Fraction Spin and Cover</p> <p>Center 2: Skills Trainer</p> <p>Center 3: Centimeter Cube Pictures</p> <p>Center 4: Roll to Color a Fraction</p> <p>Center 5: Animal Race</p> <p>*found on page T-480</p>
11	Understand Fraction Equivalence and Comparison	12 days, March	<p>Center 1: Fraction Spin and Compare</p> <p>Center 2: Skills Trainer</p> <p>Center 3: Fraction Boss with Linking Cubes</p> <p>Center 4: Pattern Block Fractions</p> <p>Center 5: Equivalent Fraction Comic</p> <p>*found on page T-536</p>
12	Understand Time, Liquid Volume, and Mass	13 days, April	<p>Center 1: Roll to Cover: Elapsed Time</p> <p>Center 2: Skills Trainer</p> <p>Center 3: What Does the Clock Say?</p> <p>Center 4: Order Liquid Volume Measurements</p> <p>Center 5: Order Mass Measurements</p> <p>*found on page T-592</p>
13	Classify Two-Dimensional Shapes	8 days, May	<p>Center 1: Identify That Quadrilateral!</p> <p>Center 2: Skills Trainer</p> <p>Center 3: Guess your Quadrilateral</p>

			Center 4: Shape Shifter Center 5: All or Some Sort *found on page T-628
14	Represent and Interpret Data	11 days, May	Center 1: Roll and Graph Center 2: Skills Trainer Center 3: Pick-Up and Create Center 4: Tic-Tac Graph Center 5: Measure and Sort *found on page T-678
15	Find Perimeter and Area	10 days, June	Center 1: Perimeter Roll and Conquer Center 2: Skills Trainer Center 3: Name Measurement Center 4: Sorting Area and Perimeter Center 5: Area and Perimeter Puzzle *found on page T-716



Understand Multiplication and Division

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 1, 11 days (September)

UNIT FOCUS - SUMMARY OF UNIT

This chapter develops an understanding of multiplication and division through multiple representations: equal groups, equal-sized groups, number lines, skip counting, and writing equations. This understanding builds the foundation for future use with multi-digit whole numbers, integers, fractions, and decimals. Students begin to build connections between prior knowledge of repeated addition and subtraction to see how this knowledge can be applied to a new concept.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.
- 3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ 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.
- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.

PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):

- Determine whether the number of objects in a group is even or odd.
- Use repeated addition to find the number of objects in an array.
- Partition a rectangle into rows of equal-sized squares.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Identify equal groups.
- Explain a multiplication equation.
- Compare multiplication to division.
- Model multiplication and division problems

ESSENTIAL QUESTIONS:

- How do we understand multiplication and division?
- Why is it important to know how to multiply and divide?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplication and division

STUDENTS WILL BE ABLE TO:

- Use equal groups to multiply.
- Use a number line to multiply.
- Use an array to multiply.
- Multiply factors in any order.
- Use division to find the size of equal groups.
- Use division to find the number of equal groups.
- Use a number line to divide.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING**FORMATIVE ASSESSMENTS**

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher's Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
1.1	<ul style="list-style-type: none"> ● Identify equal groups. ● Write a repeated addition equation for equal groups. ● Write a multiplication equation for equal groups.
1.2	<ul style="list-style-type: none"> ● Explain the parts of a multiplication equation. ● Use a number line to skip count.
1.3	<ul style="list-style-type: none"> ● Identify the number of rows and columns in an array. ● Draw an array. ● Write a multiplication equation for an array.
1.4	<ul style="list-style-type: none"> ● Use arrays to show the Commutative Property of Multiplication. ● Write two multiplication equations for an array. ● Use the Commutative Property of Multiplication.
1.5	<ul style="list-style-type: none"> ● Model equal groups. ● Identify the size of equal groups. ● Write a division equation. ● Math Musical: https://mathmusicals.com/#/grade/3/we-are-soldier-ants-stand-back/
1.6	<ul style="list-style-type: none"> ● Model equal groups. ● Identify the number of equal groups. ● Write a division equation.
1.7	<ul style="list-style-type: none"> ● Use a number line to skip count backward. ● Write repeated subtraction equations and a division equation.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **English Language Arts**
Amanda Bean’s Amazing Dream by Cindy Neuschwander; Read the book aloud to students. Invite students to take turns coming up to the front of the room and constructing multiplication equations from the illustrations.
- **Art**
Provide students with a multiplication equation with a product that is less than 50. Have students cut out an outline of a skyscraper and represent their multiplication equation in square window arrays. Students should write the repeated addition equation that corresponds to their multiplication equation.
- **Physical Education**
Bring students outside or to a large open space indoors. Using chalk if outside or tape, draw a number line from 0 to 30 on the ground. Ask volunteers to come up and draw two number cards from 1 to 6, creating a multiplication equation. The volunteer will hop along the number line, finishing their jumps at the product of the equation.
- **Science**
Discuss with students the importance of wildlife rehabilitators. They help sick or disabled animals and send them back into the wild once they are healed. Provide division situations for students to solve with the help of counters or tape diagrams. For example, “A wildlife rehabilitator has 30 ducks ready to be released back into the wild. There are 5 ponds where the ducks can be released in equal groups. How many ducks will end up in each pond?” You can also have students research the wildlife rehabilitators in your area.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
- Standard 9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

- Standard 9.4 Life Literacies and Key Skills. This standard outlines key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy that are critical for students to develop to live and work in an interconnected global economy.

P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLSCSDT.pdf>

- Mission: Computer science and design thinking education prepares students to succeed in today's knowledge-based economy by providing equitable and expanded access to high-quality, standards-based computer science and technological design education.
- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSLSTechnology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSLS – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

GLOBAL THINKING:

- Amistad and Holocaust:

N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSLS and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.
- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.
- **Climate Change:** Leverage the passion students have shown for this critical issue by providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Each board of education shall provide instruction on climate change in the curriculum of elementary school, middle school, and high school students as part of the district's implementation of the New Jersey Student Learning Standards in Science.

- **"Learning for Justice" Frameworks:**

<https://www.learningforjustice.org/frameworks>

Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online learning tools including SplashLearn, Prodigy, XtraMath, Brain Pop

HUMAN AND PROFESSIONAL RESOURCES

- Laurie's Notes from Big Ideas
- BHPS Math Specialists
- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
- *About Teaching Mathematics, 4th edition* by Marilyn Burns
- *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention* by Jennifer Bay-Williams and Gina Kling

TEACHER NOTES



Multiplication Facts and Strategies

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 2, 10 Days (September, October)

UNIT FOCUS - SUMMARY OF UNIT

This chapter presents three properties of mathematics: the Multiplication Property of Zero, the Multiplication Property of One, and the Distributive Property. These properties are the basis for more advanced operations with whole numbers, fractions, and algebraic expressions. The properties are the first formal recognition that there are generalized patterns that will always be true. Students begin to recognize the conditions that must exist to use a property as justification of an answer or step in a problem.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.
- 3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- 3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Determine whether the number of objects in a group is even or odd.
- Use repeated addition to find the number of objects in an array.
- Fluently add and subtract within 100.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Define a product.
- Find the product of two numbers.
- Make a plan to solve a problem.
- Solve a problem.

ESSENTIAL QUESTIONS:

- How can we understand multiplication strategies?
- Why is it important to multiply accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplication strategies

STUDENTS WILL BE ABLE TO:

- Multiply by 2.
- Multiply by 5.
- Multiply by 10.
- Use properties to multiply by 0 or 1.
- Use the Distributive Property to multiply.
- Use the problem-solving plan to solve word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING**FORMATIVE ASSESSMENTS**

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher's Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
2.1	<ul style="list-style-type: none"> ● Use a model to multiply by 2. ● Find the product of a number and 2.
2.2	<ul style="list-style-type: none"> ● Use a model to multiply by 5. ● Find the product of a number and 5. ● Math Musical: https://mathmusicals.com/#/grade/3/the-scamper-hunt/
2.3	<ul style="list-style-type: none"> ● Use a model to multiply by 10. ● Find the product of a number and 10.
2.4	<ul style="list-style-type: none"> ● Explain the multiplication properties of 0 and 1. ● Find the product of a number and 0. ● Find the product of a number and 1.
2.5	<ul style="list-style-type: none"> ● Use known facts to find a product. ● Find the sum of the products. ● Explain how to use the Distributive Property.
2.6	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Social Studies**

The Olympics happen every two years, switching between summer and winter games. Tell students when the last Olympics occurred. Have them figure out how many years it will be until 4 (or other number) Olympics have occurred, and write a multiplication equation for the product.

- **Science**

Conduct a paper-airplane flying experiment. Place students into groups and have each group create a paper airplane following your directions. Then hand each group 0–10 nickels. Have each group tape their nickels down on their plane anywhere they wish. Have students calculate how much money their plane is flying by writing a multiplication equation on their plane. Then test the paper airplanes to see whose plane flies the farthest.

- **Art**

Have students create a poster describing the Multiplication Property of Zero or the Multiplication Property of One. Have them include the definition and a picture on their poster as well as some examples.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

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- Standard 9.4 Life Literacies and Key Skills. This standard outlines key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy that are critical for students to develop to live and work in an interconnected global economy.

P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management

- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLs-CSDT.pdf>

- Mission: Computer science and design thinking education prepares students to succeed in today's knowledge-based economy by providing equitable and expanded access to high-quality, standards-based computer science and technological design education.
- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSL Technology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSL – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are

in alignment with NJSL and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.
- **Climate Change:** Leverage the passion students have shown for this critical issue by providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Each board of education shall provide instruction on climate change in the curriculum of elementary school, middle school, and high school students as part of the district's implementation of the New Jersey Student Learning Standards in Science.

- **"Learning for Justice" Frameworks:**

<https://www.learningforjustice.org/frameworks>

Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online learning tools including SplashLearn, Prodigy, XtraMath, Brain Pop

HUMAN AND PROFESSIONAL RESOURCES

- Laurie's Notes from Big Ideas
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TEACHER NOTES



More Multiplication Facts and Strategies

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 3, 13 days (October, November)

UNIT FOCUS - SUMMARY OF UNIT

The chapter begins with 3s facts and a simple partitioning of an array of 3 columns (or rows) into columns of 2 and 1, both familiar facts from Chapter 2. As students progress to facts for 4, 6, 7, and 8, they use facts from the previous lesson(s), like 3s, so it is a good idea each day to continue skip counting, songs, and quick reviews of previously introduced facts. For the even factors of 4, 6, and 8, partitioning equally is a strategy that is encouraged. Breaking 6 into 3 + 3 creates two identical arrays. Once the product of one array is known, students can use doubling strategies from addition to find the total.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- 3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Determine whether the number of objects in a group is even or odd.
- Use repeated addition to find the number of objects in an array.
- Fluently add and subtract within 100.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Define a product.
- Find the product of two numbers.
- Make a plan to solve a problem.
- Solve a problem.

ESSENTIAL QUESTIONS:

- How can we understand multiplication strategies?
- How will knowing different strategies help me to learn to multiply?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplication strategies.

STUDENTS WILL BE ABLE TO:

- Multiply by 3.
- Multiply by 4.
- Multiply by 6.
- Multiply by 7.
- Multiply by 8.
- Multiply by 9.
- Use a strategy to multiply two factors.
- Use the Associative Property of Multiplication.
- Use the problem-solving plan to solve word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING**FORMATIVE ASSESSMENTS**

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher's Edition)
- Cumulative Practice

- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
3.1	<ul style="list-style-type: none"> ● Use a model to multiply by 3. ● Use known multiplication facts to multiply by 3. ● Find the product of a number and 3. ● Math Musical: https://mathmusicals.com/#/grade/3/tiny-tapas/
3.2	<ul style="list-style-type: none"> ● Use a model to multiply by 4. ● Use known multiplication facts to multiply by 4. ● Find the product of a number and 4. ● Math Musical: https://mathmusicals.com/#/grade/3/olé-olé-olé-welcome-to-spain/
3.3	<ul style="list-style-type: none"> ● Use a model to multiply by 6. ● Use known multiplication facts to multiply by 6. ● Find the product of a number and 6.
3.4	<ul style="list-style-type: none"> ● Use a model to multiply by 7. ● Use known multiplication facts to multiply by 7. ● Find the product of a number and 7.
3.5	<ul style="list-style-type: none"> ● Use a model to multiply by 8. ● Use known multiplication facts to multiply by 8. ● Find the product of a number and 8.
3.6	<ul style="list-style-type: none"> ● Use a model to multiply by 9. ● Use known multiplication facts to multiply by 9. ● Find the product of a number and 9.
3.7	<ul style="list-style-type: none"> ● Choose a strategy to multiply two factors. ● Multiply two factors and write the product. ● Explain the strategy I used.
3.8	<ul style="list-style-type: none"> ● Explain the Associative Property of Multiplication. ● Change the grouping of factors. ● Multiply three factors to find a product.

3.9	<ul style="list-style-type: none"> • Understand a problem. • Make a plan to solve. • Solve a problem.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxcgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Music**
Lead a discussion on various plays that use an orchestra, known as a pit orchestra, for music during the performance. Show or play music from a popular pit orchestra performance such as The Nutcracker. Be sure to discuss the format of the performance. Then provide students with word problems such as “There are 6 violinists and 2 acts in the play. There is 1 sheet of music needed per act. How many sheets of music are needed for the violinists?”
- **English Language Arts**
 $7 \times 9 = \text{Trouble!}$ by Claudia Mills; Read the first chapter, or more, to students and discuss the feelings that the main character has towards math. Have students write a story about ways to solve 7×9 so it no longer equals trouble like the title of the book suggests.
- **Art**
Have students divide a poster into fourths and label each part with a multiplication strategy they have learned. Give each student a multiplication expression. Have them show how to solve it using each of the strategies. Provide materials for students to use on their posters such as buttons, markers, toothpicks, and string.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
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P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

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Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

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TEACHER NOTES



Division Facts and Strategies

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 4, 14 days (November, December)

UNIT FOCUS - SUMMARY OF UNIT

The chapter begins with two lessons that focus on the connection between multiplication and division. Fact families are introduced so that in later lessons multiplication facts can be used to establish the related division facts. Division facts are grouped into 5 lessons: divide by 2, 5, and 10; divide by 3 and 4; divide by 6 and 7; divide by 8 and 9; divide with 0 or 1. The last lesson involving 0 and 1 presents three properties. In words:

- Any number divided by 1 is that number.
- Any number divided by itself (other than 0) is 1.
- 0 divided by any number (other than 0) is 0.

There is an expectation of fluency with these division facts in this chapter. Provide opportunities for students to continue practicing throughout the year. Math centers, games, rhymes, and songs are a fun and engaging way for this practice to occur.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ 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.
- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using

drawings and equations with a symbol for the unknown number to represent the problem.

- 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- 3.OA.B.6 Understand division as an unknown-factor problem.
- 3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Partition a rectangle into rows of equal-sized squares. Determine whether the number of objects in a group is even or odd.
- Use repeated addition to find the number of objects in an array.
- Fluently add and subtract within 100.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Define a dividend, a divisor, and a quotient.
- Explain a division equation for an array.
- Compare multiplication to division.
- Solve a division problem.

ESSENTIAL QUESTIONS:

- How can we use division strategies to solve problems?
- Why is it important to know how to divide accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand division strategies

STUDENTS WILL BE ABLE TO:

- Use an array to divide.
- Use fact families to relate multiplication and division.
- Divide a number by 2, 5, or 10.
- Divide a number by 3 or 4.
- Divide a number by 6 or 7.
- Divide a number by 8 or 9.
- Divide with 0 or 1.
- Use a strategy to divide.
- Use the problem-solving plan to solve word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips

- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
4.1	<ul style="list-style-type: none"> ● Draw an array to model division. ● Identify a dividend, a divisor, and a quotient. ● Write a division equation for an array.
4.2	<ul style="list-style-type: none"> ● Use an array to write related multiplication and division equations. ● Explain the relationship between multiplication and division.
4.3	<ul style="list-style-type: none"> ● Model dividing by 2, 5, or 10. ● Find the quotient of a number and 2, 5, or 10.
4.4	<ul style="list-style-type: none"> ● Model dividing by 3 or 4. ● Find the quotient of a number and 3 or 4.
4.5	<ul style="list-style-type: none"> ● Model dividing by 6 or 7. ● Find the quotient of a number and 6 or 7.
4.6	<ul style="list-style-type: none"> ● Model dividing by 8 or 9. ● Find the quotient of a number and 8 or 9.
4.7	<ul style="list-style-type: none"> ● Find the quotient when dividing a number by 1. ● Find the quotient when dividing a number by itself. ● Find the quotient when dividing 0 by a number.

4.8	<ul style="list-style-type: none"> ● Choose a strategy to solve a division problem. ● Divide and write the quotient. ● Explain the strategy I used.
4.9	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B
Cumulative Practice	Optional Cumulative Practice, optional STEAM Performance Task

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxgvi7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Physical Education**
Students will play a target game to determine which strategy they will use to solve a division equation. Set up targets on a wall labeled with division strategies. The targets will be array, number line, multiplication fact, tape diagram, and repeated subtraction. Have students line up and take turns throwing a softball at the targets. After students hit a target, assign a division equation for them to solve on the whiteboard using their assigned strategy.
- **Art**
Have students solve problems about creating pictures. For example, “An artist paints 56 dots in a picture. Fourteen are blue and twenty-eight are green. There is an equal number of red and purple dots in the rest of the picture. How many red dots are there?” Students can then use the given numbers of dots to create a picture, such as blue, red, and purple flowers.
- **English Language Arts**
The Doorbell Rang by Pat Hutchins; Read the book aloud to students, and have them solve the division equations as you go along. The book focuses on dividing 12, so this will reinforce students dividing by 2 as well as introduce dividing by 3 and 4.

STATE REQUIREMENTS

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SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mr122_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
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TEACHER NOTES



Patterns and Fluency

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 5, 8 days (December)

UNIT FOCUS - SUMMARY OF UNIT

This chapter returns to multiplication, continuing to work towards fluency through further recognition of patterns. Students should be familiar with looking at sets of numbers and their patterns. They have spent much time studying patterns of the hundreds chart while learning addition, subtraction, skip counting, and multiples. Now as the multiplication table is introduced, students not only look for patterns within the table, but relationships between factors and products so that both multiplication and division equations can be solved. This chapter emphasizes the relationships between multiplication and division as students find missing factors or products within the multiplication table.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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- 3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
- 3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
- 3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- 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.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Fluently add and subtract within 100.
- Determine whether the number of objects in a group is even or odd.
- Use repeated addition to find the number of objects in an array.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Identify a pattern.
- Explain a pattern in a multiplication table.
- Connect patterns to the multiplication table.
- Solve a problem.

ESSENTIAL QUESTIONS:

- How can we understand patterns?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand patterns.

STUDENTS WILL BE ABLE TO:

- Identify, explain, and use patterns related to the multiplication table.
- Use the multiplication table to write related multiplication and division facts.
- Complete a multiplication table.
- Solve multiplication and division word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice

- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
5.1	<ul style="list-style-type: none"> ● Identify and explain a pattern in the multiplication table. ● Use a pattern to solve a problem.
5.2	<ul style="list-style-type: none"> ● Use the multiplication table to find a product. ● Use the multiplication table to find a quotient. ● Use the multiplication table to explain the relationship between multiplication and division.
5.3	<ul style="list-style-type: none"> ● Use multiplication to find missing products in a table. ● Use multiplication or division to find missing factors in a table. ● Explain how to find missing numbers in a multiplication table.
5.4	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxcgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- English Language Arts

Each Orange Had 8 Slices by Paul Giganti, Jr.; Read the book aloud to students. Then, go through the book again with students and have them answer the questions. Ask the class to respond chorally, but if the answers do not come quickly have individual students come up and count. Discuss the patterns, both within the page and between pages.

- **Music**

Have students assign a simple sound to each number from 1 to 10. They might clap to represent 1, snap for 2, make a “tss” noise for 3, hum for 4, and so forth. Have students select actions, such as jumping, to represent “multiplied by” and “divided by.” Practice what the sounds and actions represent. Then divide students into two groups. Show a multiplication problem to the first group and have them represent the problem using the sounds and actions. The second group will watch and listen, solve the problem, and call out the answer.

- **Science**

Many nature facts lend themselves to multiplication and division problems. For example, a clover usually has 3 leaves, bees have 4 wings, starfish have 5 arms, etc. Have students use books or the Internet to find a few interesting nature facts. They should then write a word problem using their favorite fact.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
- Standard 9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
- Standard 9.3: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.
- Standard 9.4 Life Literacies and Key Skills. This standard outlines key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy that are critical for students to develop to live and work in an interconnected global economy.

P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLs-CSDT.pdf>

- Mission: Computer science and design thinking education prepares students to succeed in today's knowledge-based economy by providing equitable and expanded access to high-quality, standards-based computer science and technological design education.
- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSL Technology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
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Framework for 21st Century Learning

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GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
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portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSL and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.
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Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

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TEACHER NOTES



Relate Area to Multiplication

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 6, 9 days (January)

UNIT FOCUS - SUMMARY OF UNIT

This chapter begins with developing an understanding of area through tiling and counting the unit squares of the grid that cover the shape. The visuals become more abstract as grids are removed from the rectangles and eventually students must rely on the linear measurements to calculate area. Students are expected to make connections between the area model and the array model of multiplication. Given the number of squares in a row and the number of rows, students write a multiplication equation to find the area. This leads to the generalization of the area of a rectangle as length \times width.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
 - 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.
 - 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.
- 3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
- 3.MD.C.7 Relate area to the operations of multiplication and addition.
 - 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.

- 3.MD.C.7b Multiply side lengths to find areas of rectangles with whole-number side lengths in the content of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
- 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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
- 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.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Measure the length of objects using the most appropriate tool.
- Partition rectangles into rows and columns of squares.
- Find the total number of squares in a rectangle.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Identify the area of a shape.
- Explain how to find the area of a shape.
- Compare the area of one shape to another.
- Find the total area of a shape.

ESSENTIAL QUESTIONS:

- How can we understand area?
- Why would it be important to know how to find area?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand area.

STUDENTS WILL BE ABLE TO:

- Count to find the area of a shape.
- Count to find the area of a shape using standard units.
- Use multiplication to find the area of a rectangle.
- Use the Distributive Property to find the area of a rectangle.
- Find the area of a shape made up of rectangles.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
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ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES**LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):**

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
6.1	<ul style="list-style-type: none"> ● Count the number of unit squares covering a shape. ● Tell the area of a shape in square units. ● Explain how to find the area of a shape.
6.2	<ul style="list-style-type: none"> ● Count the number of unit squares covering a shape. ● Tell the area of a shape in square units. ● Identify units as square inches, square feet, square centimeters, or square meters.
6.3	<ul style="list-style-type: none"> ● Use an array to find the area of a rectangle. ● Write a multiplication equation to find the area of a rectangle.
6.4	<ul style="list-style-type: none"> ● Break apart a rectangle into two smaller rectangles. ● Explain how the area of a rectangle is equal to the areas of its smaller rectangles.
6.5	<ul style="list-style-type: none"> ● Break apart a shape into rectangles. ● Find the area of each smaller rectangle. ● Find the total area of a shape.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **English Language Arts and Social Studies**
If You Were a Kid Building a Pyramid by Lawrence Schimel; Read this book to students. Discuss with students how the Ancient Pyramids were built. Using centimeter cubes, have students build their own pyramid and find the area of the base
- **Art**
Have each student draw an outline of a rectangle and decompose it using two different colors to model the Distributive Property. Once all students have completed drawing their rectangle, place them all in a bag to choose from. Each student chooses a new rectangle and will write an equation that uses the Distributive Property to find the area of the rectangle.

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SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
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- Social Awareness
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- Relationship Skills

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- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
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TEACHER NOTES



Round and Estimate Numbers

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 7, 9 days (January)

UNIT FOCUS - SUMMARY OF UNIT

This chapter begins with a review of place value in our base ten system. Students learned about place value to 1,000 in Grade 2. The expanded form of a number allows students to attach meaning to the digits in a number and understand the value a digit takes on according to the location of the digit within a number. Expanded form continues to support mental math strategies for adding and subtracting as well as using partial products to multiply. An understanding of place value allows students to compare numbers and will be used later in the chapter to round and estimate sums and differences by rounding. Overall, place value is essential to our understanding of our number system. Exposure to its application in many differing contexts gives students opportunities to more deeply understand the structure of our number system. Number sense is developed as students think of numbers in relation to other benchmarks such as multiples of tens and of hundreds.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- **3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100.
- **3.NBT.A.2** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Understand the value of each digit in a three-digit number.
- Add and subtract within 1,000.

- Mentally add 10 or 100 to a three-digit number.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Identify the values of different numbers.
- Explain how to round numbers.
- Round numbers.
- Estimate the difference between numbers.

ESSENTIAL QUESTIONS:

- How can we understand estimation?
- How would we use “estimation” in everyday life?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand estimation.

STUDENTS WILL BE ABLE TO:

- Identify the values of digits in three-digit numbers.
- Use a number line to round numbers to the nearest ten or nearest hundred.
- Use place value to round numbers to the nearest ten or nearest hundred.
- Use rounding or compatible numbers to estimate sums.
- Use rounding or compatible numbers to estimate differences.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
7.1	<ul style="list-style-type: none"> ● Model three-digit numbers. ● Identify the values of digits in three-digit numbers. ● Use place value to compare two numbers.
7.2	<ul style="list-style-type: none"> ● Identify the two tens a number is between and which ten it is closer to. ● Identify the two hundreds a number is between and which hundred it is closer to. ● Round a number to the nearest ten or nearest hundred. ● Math Musical: https://static.bigideasmath.com/protected/content/mrl/examples/viewer.php?videoRef=MMV2_03_03
7.3	<ul style="list-style-type: none"> ● Explain which digit I use to round and why. ● Identify which ten or hundred is closest to a number. ● Round a number to the nearest ten or nearest hundred.
7.4	<ul style="list-style-type: none"> ● Use rounding to estimate a sum. ● Use compatible numbers to estimate a sum. ● Explain different ways to estimate a sum.
7.5	<ul style="list-style-type: none"> ● Use rounding to estimate a difference. ● Use compatible numbers to estimate a difference. ● Explain different ways to estimate a difference.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Science**

Have students research their favorite animal, such as turtles, sloths, and zebras, to create a profile page about. Students will write at least 4 facts about their animal including the name, maximum weight, food, habitat, and a drawn or printed out picture. Students will walk around the room with their profiles until the teacher says stop. Students will turn to a partner and introduce their animals. They will compare them and tell which animal's weight is greater and how they know.

- **Physical Education**

Use masking tape to create a number line with 21 tick marks along the floor. Label the first and last number with two hundreds, such as 300 and 500. Write numbers within the range on note cards. Give note cards to 5 students. Then have them line themselves up in order on the number line. Call on different students and ask the class to round their number to the nearest ten or hundred.

- **Art**

Choose an easy shape to draw and cut out, such as hearts. Provide students with two pieces of paper. Have them draw a large shape on one piece of paper and two small shapes on the other piece of paper. Have students write any three-digit number on the large shape. On the small shapes, students write "Nearest Ten" and "Nearest Hundred" and round their number accordingly. They will then cut out all of the shapes and glue the small shapes onto the large shape.

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<https://www.nj.gov/education/cccs/2020/2020%20NJSLs-CSDT.pdf>

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- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSL Technology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSL – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately

portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSL and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.
- **Climate Change:** Leverage the passion students have shown for this critical issue by providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Each board of education shall provide instruction on climate change in the curriculum of elementary school, middle school, and high school students as part of the district's implementation of the New Jersey Student Learning Standards in Science.

- **"Learning for Justice" Frameworks:**

<https://www.learningforjustice.org/frameworks>

Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

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- *iReady* Adaptive Learning Platform
- Online learning tools including SplashLearn, Prodigy, XtraMath, Brain Pop

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TEACHER NOTES



Add and Subtract Multi-Digit Numbers

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 8, 16 days (January, February)

UNIT FOCUS - SUMMARY OF UNIT

This chapter returns to the operations of addition and subtraction, now with multi-digit numbers. It is important that all students have mastered the basic addition and subtraction facts within 20. Addition and subtraction of multi-digit numbers each comprise about half of this chapter. Students' prior learning is extended to work with three-digit numbers. Students have already used the vertical format and experienced regrouping with both operations. Students with a good understanding of place value can apply this to multi-digit addition and subtraction.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- **3.NBT.A.2** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **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.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Add and subtract within 1,000.
- Mentally add 10 or 100 to a three-digit number.
- Solve addition and subtraction word problems within 100.
- Solve one- and two- step word problems.

<p>ENDURING UNDERSTANDINGS (Chapter Success Criteria):</p> <ul style="list-style-type: none"> ● Identify properties of addition. ● Explain what addition properties mean. ● Count on and count back to problem solve. ● Solve a problem. 	<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> ● How can we understand addition and subtraction properties? ● Why is it important to know how to add and subtract accurately?
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UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand addition and subtraction properties

STUDENTS WILL BE ABLE TO:

- Identify and use addition properties.
- Use a number line to find a sum.
- Use mental math to find a sum.
- Use partial sums to find a sum.
- Add three-digit numbers.
- Add up to four numbers.
- Use a number line to find a difference.
- Use mental math to find a difference.
- Subtract three-digit numbers.
- Use inverse operations to check answers.
- Use the problem-solving plan to solve two-step addition and subtraction word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
8.1	<ul style="list-style-type: none"> ● Identify the Associative and Commutative Properties of Addition. ● Identify the Addition Property of Zero. ● Use an addition property to find a sum. ● Explain what the addition properties mean.
8.2	<ul style="list-style-type: none"> ● Use the <i>count on</i> strategy to add on a number line. ● Use the <i>make a ten</i> strategy to add on a number line.
8.3	<ul style="list-style-type: none"> ● Use compensation to add. ● Use the <i>make a ten</i> strategy to add. ● Explain how to change one addend to a decade number or compatible number.
8.4	<ul style="list-style-type: none"> ● Write addends in expanded form. ● Add to find the hundreds, tens, and ones. ● Add the partial sums.
8.5	<ul style="list-style-type: none"> ● Round to estimate a sum. ● Add three-digit numbers. ● Use an estimate to check whether my answer is reasonable.
8.6	<ul style="list-style-type: none"> ● Round to estimate a sum. ● Identify compatible numbers. ● Find a sum and check whether it is reasonable.
8.7	<ul style="list-style-type: none"> ● Use the <i>count back</i> strategy to subtract on a number line. ● Use the <i>count on</i> strategy to subtract on a number line.
8.8	<ul style="list-style-type: none"> ● Explain how to change both numbers to use compensation to subtract. ● Explain how to change one number to use compensation to subtract.
8.9	<ul style="list-style-type: none"> ● Round to estimate a difference. ● Subtract three-digit numbers. ● Use an estimate to check whether my answer is reasonable
8.10	<ul style="list-style-type: none"> ● Use addition to check a difference. ● Use subtraction to check a sum.

	<ul style="list-style-type: none"> ● Explain the relationship between addition and subtraction.
8.11	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve a problem using letters to represent the unknown numbers. ● Solve a problem and check whether my answer is reasonable.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B
Cumulative Practice	Optional Cumulative Practice, optional STEAM Performance Task

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Physical Education**
Display a worked out addition problem that uses one of the properties the students have learned. Have students stand if it models the Commutative Property, sit if it models the Associative Property, and jump if it models the Addition Property of Zero.
- **Social Studies**
Discuss the height of the smallest mountain, Mount Wycheproof, located in Australia. This mountain stands at 486 feet. Have students imagine that they are climbing it and that they have already hiked 319 feet. How far do they still need to hike to reach the summit (the top)? Have students find out by writing and solving an equation.
- **Art**
Have students create an anchor chart on a poster that explains one strategy for adding on a number line. Make sure students provide an equation and model how to solve that equation on a number line.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
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P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mr122_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

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Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

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TEACHER NOTES



Multiples and Problem Solving

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 9, 9 days (February, March)

UNIT FOCUS - SUMMARY OF UNIT

This chapter revisits decomposing numbers into familiar factors, defining multiplication as repeated addition, models for multiplication, and properties of multiplication. Students begin to see how the strategies applied to single-digit multiplication can be applied to help them in new, unfamiliar situations. It is this use of strategies that helps students see the interconnectedness of mathematics as a system of relationships rather than a list of rules to follow that apply only in very specific directed situations.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.OA.B.5 Apply properties of operations as strategies to multiply and divide.
- 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.
- 3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Understand the value of each digit in a three-digit number.
- Identify a number of objects in a group as even or odd.
- Write an addition equation to find the total number of objects in a rectangular array with up to five rows and five columns.

- Solve addition and subtraction word problems within 100.
- Solve one- and two-step word problems.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Skip count.
- Describe the pattern when multiplying.
- Make a plan to solve a problem.
- Solve a problem.

ESSENTIAL QUESTIONS:

- How can understanding multiples help with problem solving?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Use number lines to multiply by multiples of 10.
- Use place value to multiply by multiples of 10.
- Use properties to multiply by multiples of 10.
- Use the problem solving plan to solve two-step multiplication and division word problems.
- Use the problem solving plan to solve two-step word problems involving different operations.

STUDENTS WILL BE ABLE TO:

- Use a number line to skip count by a multiple of 10.
- Find the product of a one-digit number and a multiple of 10.
- Use a model to multiply by a multiple of 10.
- Find the product of a one-digit number and a multiple of 10.
- Describe a pattern when multiplying by a multiple of 10.
- Use the Associative Property of Multiplication to multiply by a multiple of 10.
- Use the Distributive Property to multiply by a multiple of 10.
- Use properties to find the product of a one-digit number and a multiple of 10.
- Understand a problem.
- Make a plan to solve a problem using letters to represent the unknown numbers.
- Solve a problem and check whether my answer is reasonable.
- Understand a problem.
- Make a plan to solve a problem using letters to represent the unknown numbers.
- Solve a problem using one equation.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)

- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
9.1	<ul style="list-style-type: none"> ● Use a number line to skip count by a multiple of 10. ● Find the product of a one-digit number and a multiple of 10.
9.2	<ul style="list-style-type: none"> ● Use a model to multiply by a multiple of 10. ● Find the product of a one-digit number and a multiple of 10. ● Describe a pattern when multiplying by a multiple of 10.
9.3	<ul style="list-style-type: none"> ● Use the Associative Property of Multiplication to multiply by a multiple of 10. ● Use the Distributive Property to multiply by a multiple of 10. ● Use properties to find the product.
9.4	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve a problem using letters to represent the unknown numbers. ● Solve a problem and check whether my answer is reasonable.
9.5	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve a problem using letters to represent the unknown numbers. ● Solve a problem using one equation.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task, Activity, Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Music**
Play various types of music from each decade. After playing an excerpt of the song, ask students to guess what decade that song may be from. On the board, post the correct decade, name, and picture of the singer or band for reference. Use this to create multiplication equations for students to solve on whiteboards. For example, write $3 \times$ (80's band) and have students write $3 \times 80 = 240$.
- **Social Studies**
Discuss how maps use a scale to help determine the actual distance between two places. Have students create a map of an island that represents their hobbies and likes. Provide students with a scale, such as 1 inch = 30 miles, or have them choose their own. Students will then measure the distance between places in inches and use their scale to find how far away one place is from the others.
- **Science**
Show an image of a compound light microscope to students, and point out the eyepiece and objective lenses. Explain that the total magnification of an object is the product of the eyepiece magnification and the objective lens magnification. Have students find the total magnification of an eyepiece that is magnified at 20, 30, or 40 and an objective lens that is magnified at 4. If you have a microscope available, have students look at objects under different magnifications.

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TEACHER NOTES



Understand Fractions

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 10, 9 Days (March)

UNIT FOCUS - SUMMARY OF UNIT

In this chapter, students begin to expand their thinking of fractions in relation to whole numbers. They learn to think of fractions as a part of a whole between 0 and 1 as well as a number more than 1 but less than 2. In addition to partitioning shapes into congruent equal parts, students learn to think about fractions as a distance on a number line, plotting fractions both less than and greater than 1 whole. This supports the understanding of a fraction as a number on a number line. Key terms in this chapter include, whole, fraction, unit fraction, numerator, denominator, sixths, eighths, and whole numbers.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.NF.A.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.
- 3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.
 - a. Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line.
 - b. Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.
- 3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
 - c. Express whole numbers as fractions, and recognize fractions that are

equivalent to whole numbers.

- 3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Partition circles and rectangles into two, three, or four equal shares.
- Describe equal shares as halves, thirds, fourths, and quarters.
- Describe equal shares using the phrases half of, third of, fourth of, and quarter of.
- Describe a whole as two halves, three thirds, or four fourths.
- Understand that equal shares do not need to have the same shape.
- Represent whole numbers as lengths from 0 on a number line.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Name equal parts.
- Identify a unit fraction.
- Write a fraction.
- Plot a fraction.

ESSENTIAL QUESTIONS:

- How do we relate fractions to whole numbers?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand Fractions

STUDENTS WILL BE ABLE TO:

- Identify equal parts of a whole and name them.
- Identify and write a unit fraction.
- Identify and write a fraction.
- Plot fractions less than 1 on a number line.
- Plot fractions greater than 1 on a number line.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES**LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):**

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
10.1	<ul style="list-style-type: none"> ● Tell whether shapes show equal or unequal parts. ● Name equal parts. ● Divide a shape into equal parts.
10.2	<ul style="list-style-type: none"> ● Identify a unit fraction. ● Write a unit fraction. ● Explain what a unit fraction is. ● Explain what the numerator and denominator are in a fraction.
10.3	<ul style="list-style-type: none"> ● Identify a fraction. ● Write a fraction.
10.4	<ul style="list-style-type: none"> ● Divide a number line into equal parts. ● Label fractions on a number line. ● Plot a fraction. ● Math Musical: https://mathmusicals.com/#/grade/3/break-it-down-into-parts/
10.5	<ul style="list-style-type: none"> ● Divide a number line into equal parts. ● Label fractions on a number line. ● Plot a fraction.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task, Activity, Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhKcSPRxxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Science**
Discuss with students healthy foods. Print out or draw some fruits or veggies. Cut the pictures so that they show equal or unequal parts. Keep the parts within quantities they have learned. Show the pictures to students and have them determine if the parts are equal and then name them. Allow time for students to create their own pictures.
- **English Language Arts**
Full House: An Invitation to Fractions by Dayle Ann Dodds; Read the book aloud. Then, have students create their own Inns and decide how many rooms they would offer, 2, 3, 4, 6, or 8. Students can write their own story about how many guests come to stay and what happens. Be sure they provide pictures and fractions about how many people stay, eat, or leave.
- **Art**
Have students make a stained glass window with 2, 4, 6, or 8 equal parts. Have them color and decorate the parts. Have them write fractions that represent how much of the window is each color.

STATE REQUIREMENTS**CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS**

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
- Standard 9.2 Career Awareness, Exploration, Preparation and Training. This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
- Standard 9.4 Life Literacies and Key Skills. This standard outlines key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy that are critical for students to develop to live and work in an interconnected global economy.

P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness

- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLs-CSDT.pdf>

- Mission: Computer science and design thinking education prepares students to succeed in today's knowledge-based economy by providing equitable and expanded access to high-quality, standards-based computer science and technological design education.
- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSL Technology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSL – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are

in alignment with NJSL and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.
- **Climate Change:** Leverage the passion students have shown for this critical issue by providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Each board of education shall provide instruction on climate change in the curriculum of elementary school, middle school, and high school students as part of the district's implementation of the New Jersey Student Learning Standards in Science.

- **"Learning for Justice" Frameworks:**

<https://www.learningforjustice.org/frameworks>

Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online learning tools including SplashLearn, Prodigy, XtraMath, Brain Pop

HUMAN AND PROFESSIONAL RESOURCES

- Laurie's Notes from Big Ideas
- BHPS Math Specialists
- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
- *About Teaching Mathematics, 4th edition* by Marilyn Burns
- *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention* by Jennifer Bay-Williams and Gina Kling

TEACHER NOTES



Understand Fraction Equivalence and Comparison

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 11, 12 days (March)

UNIT FOCUS - SUMMARY OF UNIT

In this chapter, students focus on integrating fractions into their understanding of our number system by comparing them to each other and to whole numbers, using area models, fraction strips, and number lines. They use models to understand the meaning of equivalent fractions. Students begin to use the conceptual understanding of numerators and denominators to reason which fraction is greater. They learn multiple models and strategies and when to use each. Students learn how to determine which fraction in a set of fractions is closest to 0 or 1, sometimes reasoning about missing parts. Comparison of fractions is extended to more than two fractions. This develops a need for ordering fractions. They work with fractions on a number line and can interpret the meaning of where fractions lie in relation to each other on the number line.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
 - a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
 - b. 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.
 - c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.

d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Partition circles and rectangles into two, three, or four equal shares.
- Use place value to compare 2 three-digit numbers.
- Use the symbols, $>$, $=$, and $<$ to complete comparisons.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Define a fraction.
- Find fractions on a number line.
- Explain how to use a number line to find fractions.
- Compare fractions on a number line

ESSENTIAL QUESTIONS:

- How do we understand fractions?
- Why is it important to know what fractions are and how to use them?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand Fractions

STUDENTS WILL BE ABLE TO:

- Model and write equivalent fractions.
- Use a number line to find equivalent fractions.
- Relate fractions and whole numbers.
- Compare fractions that have the same denominator.
- Compare fractions that have the same numerator.
- Use a number line to compare fractions.
- Compare and order fractions.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES**LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):**

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
11.1	<ul style="list-style-type: none">● Model equivalent fractions.● Write equivalent fractions.
11.2	<ul style="list-style-type: none">● Plot fractions on a number line.● Find equivalent fractions on a number line.● Explain how to use a number line to find equivalent fractions.
11.3	<ul style="list-style-type: none">● Label fractions on a number line.● Write whole numbers as fractions.● Use a number line to relate fractions and whole numbers.
11.4	<ul style="list-style-type: none">● Model fractions that have the same denominator.● Use the numerators to compare fractions.● Explain how to compare fractions that have the same denominator.
11.5	<ul style="list-style-type: none">● Model fractions that have the same numerator.● Use the denominators to compare fractions.● Explain how to compare fractions that have the same numerator
11.6	<ul style="list-style-type: none">● Model fractions that have the same numerator.● Use the denominators to compare fractions.● Explain how to compare fractions that have the same numerator
11.7	<ul style="list-style-type: none">● Choose a strategy to compare two fractions.● Compare two fractions.
11.8	<ul style="list-style-type: none">● Choose a strategy to compare three fractions.● Order three fractions from least to greatest.● Order three fractions from greatest to least.
Connect and Grow	<ul style="list-style-type: none">● Performance Task, Activity, Chapter Practice

Connect and Grow	<ul style="list-style-type: none"> Centers
Chapter Assessment	<ul style="list-style-type: none"> Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhlKcSPRxxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Science**
Discuss with students how to plant seeds and what seeds need to grow and survive. Show a picture of a certain kind of plant. Create a word problem describing two of the same kind of plants. An example can be Plant A is 2 — 4 of an inch tall and Plant B is 4 — 8 of an inch tall. “Are the plants the same height? How do you know?”
- English Language Arts**
Have students create a word problem about finding animal tracks on a trail or use the one below. There is a ____ (a) track at the 3 — 4 mark of a trail. There is a ____ (b) track at ____ (c) mark of a trail. Are these at the same locations on the trail? Explain. Provide students with guidelines on what to put in the blanks. For example, ask students for (a) an animal, (b) a different animal, and (c) a fraction. Students can exchange their word problems with a partner and solve them.
- Art**
Have students create large block numbers 1 to 4 on paper. Then have them write equivalent fractions on the corresponding block number. They can cut out the block numbers and post them on construction paper.

STATE REQUIREMENTS

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- Standard 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
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SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

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N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

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- **"Learning for Justice" Frameworks:**

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Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

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HUMAN AND PROFESSIONAL RESOURCES

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- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
- *About Teaching Mathematics, 4th edition* by Marilyn Burns
- *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention* by Jennifer Bay-Williams and Gina Kling

TEACHER NOTES



UNDERSTAND TIME, LIQUID VOLUME AND MASS			
Understand Time, Liquid Volume, and Mass			
CONTENT AREA:	Mathematics	GRADE LEVEL:	3
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 12, 13 days (April)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>This chapter extends students’ understanding of time. They will learn to tell time to the nearest minute. They will use this ability to compute elapsed time. They first study elapsed time within the same hour, and then elapsed time across the hour and will be able to determine start and stop times for time intervals. This chapter also uses elapsed time as a context for a problem-solving model. Students will solve elapsed time problems with these three steps: understand the problem, make a plan and solve the problem. In their study of liquid volume, students note the distinction between capacity, the amount of liquid a container can hold, and liquid volume, the actual amount of liquid in a container. In their study of mass, students learn to distinguish between matter, a physical substance that occupies space, and mass, the amount of matter in an object.</p>			
KEY UNDERSTANDINGS			
<p>MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/Index.shtml</p>			
<p>NEW JERSEY STUDENT LEARNING STANDARDS:</p> <ul style="list-style-type: none"> ● 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. ● 3.NBT.A.2 Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. ● 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, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. 			

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Add and subtract within 1,000.
- Mentally add 10 or 100 to a three-digit number.
- Measure the length of objects using the most appropriate tool.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Understand time and measurement

ESSENTIAL QUESTIONS:

- How do we understand time and measurement?
- Why is it important to understand time and measurement?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Explain how to tell time to the nearest minute.
- Find the appropriate way to measure an object.
- Solve time interval problems.
- Compare one measurement to another.

STUDENTS WILL BE ABLE TO:

- Tell time to the nearest minute.
- Measure elapsed time, in minutes, within the same hour.
- Measure elapsed time, in minutes, from one hour to the next.
- Use the problem solving plan to solve time interval problems.
- Understand and estimate liquid volumes in metric units.
- Measure liquid volumes in liters and milliliters.
- Understand and estimate masses of objects.
- Measure masses in grams and kilograms.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING**FORMATIVE ASSESSMENTS**

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher's Edition)

- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
12.1	<ul style="list-style-type: none"> ● Write the time to the nearest minute. ● Write the time in multiple ways. ● Explain how to tell time to the nearest minute. ● Math Musical: https://mathmusicals.com/#/grade/3/the-sundial-song/
12.2	<ul style="list-style-type: none"> ● Identify start and end times. ● Find the amount of time that passes between two times. ● Explain how to find elapsed time within the same hour.
12.3	<ul style="list-style-type: none"> ● Identify start and end times. ● Find the amount of time that passes between two times. ● Explain how to find elapsed time from one hour to the next.
12.4	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve it. ● Solve a problem.
12.5	<ul style="list-style-type: none"> ● Tell the difference between a milliliter and a liter. ● Identify which unit to use to measure a liquid volume. ● Estimate a liquid volume.
12.6	<ul style="list-style-type: none"> ● Measure a liquid volume in liters. ● Measure a liquid volume in milliliters. ● Measure a liquid volume in liters and milliliters.
12.7	<ul style="list-style-type: none"> ● Tell the difference between a gram and a kilogram. ● Identify which unit to use to measure the mass of an object. ● Estimate the mass of an object.
12.8	<ul style="list-style-type: none"> ● Measure a mass in grams. ● Measure a mass in kilograms. ● Measure a mass in grams and kilograms.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task, Activity, Chapter Practice

Connect and Grow	<ul style="list-style-type: none"> Centers
Chapter Assessment	<ul style="list-style-type: none"> Chapter Test B
Cumulative Practice	<ul style="list-style-type: none"> Cumulative Practice STEAM Performance Task (Optional)

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Music**

Provide students with a sheet of paper and a clock manipulative. Have students create a time on the clock then leave it at their desk. Play music and have students move around the room. Stop the music and have the students record the time of the nearest clock on their paper along with the clock owner's name. Once students have recorded five clock times, have them check with the clock owners to see if they are correct.
- Art**

Have students create a schedule of three movie start times at a movie theater. Have students make the movies less than one hour long. Students will list the start time and end times of each movie and tell how many minutes pass. Each movie length should be within the same hour of its start time. Have students decorate the schedule by making a movie advertisement for one of the movies they have listed.
- Social Studies**

Have students learn about the seven continents. They can research the different countries on each continent and their flags, meaningful symbols, money, and main attractions. Create word problems to solve that discuss the time spent on a trip to one of the continents. You can use the one below as an example. In Australia you catch a taxi to go to the Opera House at 5:35 P.M. and arrive there at 6:10 P.M. How long was your taxi ride?

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

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P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
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- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

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GLOBAL THINKING:

- **Amistad and Holocaust:**

N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.

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TEACHER NOTES



Classify Two-Dimensional Shapes			
CONTENT AREA:	Mathematics	GRADE LEVEL:	3
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 13, 8 days (May)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this chapter, students learn to identify various quadrilaterals by observing their attributes or by using a list of specified attributes. Students examine five quadrilaterals in this chapter: parallelogram, rhombus, rectangle, square, and trapezoid. The focus is on quadrilaterals because our world uses quadrilaterals more than any other polygon. The emphasis is on students being able to observe attributes in the quadrilaterals and use those attributes to identify it or to use a list of attributes to draw the quadrilateral.</p>			
KEY UNDERSTANDINGS			
<p>MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/Index.shtml</p>			
<p>NEW JERSEY STUDENT LEARNING STANDARDS:</p> <ul style="list-style-type: none"> 3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. 			
<p>PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):</p> <ul style="list-style-type: none"> Identify and draw shapes with given attributes. Identify and draw triangles, quadrilaterals, pentagons, hexagons, and cubes. 			
<p>ENDURING UNDERSTANDINGS (Chapter Success Criteria):</p> <ul style="list-style-type: none"> Understand two-dimensional shapes 		<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> How do we understand two-dimensional shapes? 	
<p>UNIT LEARNING TARGETS (STUDENTS WILL KNOW):</p>			

- Define two-dimensional shapes.
- Explain different shapes and their features.
- Compare one shape to another.
- Draw a shape.

STUDENTS WILL BE ABLE TO:

- Identify parallel sides and right angles of quadrilaterals.
- Describe quadrilaterals using sides and angles.
- Classify quadrilaterals based on their attributes.
- Draw quadrilaterals.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
13.1	<ul style="list-style-type: none"> ● Identify when two sides of a quadrilateral are parallel. ● Identify right angles in a quadrilateral.
13.2	<ul style="list-style-type: none"> ● Use sides and angles to identify a quadrilateral.

	<ul style="list-style-type: none"> ● Explain why a quadrilateral can have more than one name.
13.3	<ul style="list-style-type: none"> ● Tell what is alike between two groups of quadrilaterals. ● Tell what is different between two groups of quadrilaterals. ● Classify two types of quadrilaterals in one or more ways.
13.4	<ul style="list-style-type: none"> ● Draw and name a quadrilateral given a description. ● Draw a quadrilateral that does not belong to a given group.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task, Activity, Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoghIKcSPRxgvi7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Physical Education**
Provide each student with a copy of Jump on the Quadrilateral Instructional Resource. Have each student cut the four quadrilaterals out and position them on the floor close enough to jump from one to another. The teacher will call out a description, such as, "I have four right angles." Students will then need to hop on the square. Repeat by calling out descriptive attributes of the shapes.
- **Art**
Discuss the history of mosaics. Mosaic artwork dates back to the Greeks who used colored glass or stones to give more color and detail to buildings. Have students create their own mosaics by preparing and cutting out a variety of quadrilateral shapes on colorful construction paper. Students will arrange their shapes in a pattern or design of their choice. Once patterns are set, students should make a list of the different shapes they used in their mosaic along with a description for each shape.
- **English Language Arts/Social Studies**
Have a discussion about the road signs used in the Modeling Real Life of this section. Show images of the road signs and have students guess what the signs mean and how they promote safety. Mention that different shapes and colors of signs have different meanings and are used to ensure they are easily recognizable to drivers. Make a list of all the different signs students recognize and have them classify the signs into their shape. Then have students write a short story about "A World without Signs" and how it would affect our world. Shapes Rectangles: regulatory signs, guide signs, warning signs Diamonds (squares): warning signs Trapezoids: national forest route signs, cultural interest signs Colors Yellow: warning signs, school zones Orange: construction traffic

control Green: guides Blue: services Brown: national forest route, recreational and cultural interest.

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TEACHER NOTES



Represent and Interpret Data

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 14, 11 days (May)

UNIT FOCUS - SUMMARY OF UNIT

In this chapter, students extend their knowledge about these ways to represent data. For picture graphs, students move beyond a one-to-one correspondence between symbol and object. Students learn to use a key to indicate how many objects their picture or symbol represents. Students also revisit bar graphs. They learn to interpret and create bar graphs with different scales, much like the key in a picture graph. They generate data for some of the bar graphs they create. The data is recorded in a tally chart, organized in a frequency table, and then displayed in a bar graph. In addition, students extend their knowledge of line plots to include deciding on the scale to use.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 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” problems using information presented in scaled bar graphs.
- 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.
- 3.NF.A.2a Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line.

- 3.NF.A.2b Represent a fraction a/b on a number line diagram by marking off a length $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Solve addition and subtraction word problems within 100.
- Solve one- and two-step word problems.
- Represent whole numbers as lengths from 0 on a number line.
- Represent sums and differences within 100 on a number line.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Understand data

ESSENTIAL QUESTIONS:

- How do we understand data?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Identify a tool to collect data.
- Create a tally chart to make a graph.
- Represent data in different ways.
- Interpret data in different ways.

STUDENTS WILL BE ABLE TO:

- Understand the data shown by a picture graph.
- Use data to make picture graphs.
- Understand the data shown by a bar graph.
- Use data to make bar graphs.
- Use data to make line plots.
- Measure objects to the nearest half inch and make line plots.
- Measure objects to the nearest quarter inch and make line plots.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
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ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice
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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
14.1	<ul style="list-style-type: none"> ● Explain how to use a key to read a picture graph. ● Use a picture graph to answer questions.
14.2	<ul style="list-style-type: none"> ● Read a frequency table. ● Create a key for a picture graph. ● Use a frequency table to make a picture graph.
14.3	<ul style="list-style-type: none"> ● Explain how to use a scale to read a bar graph. ● Use a bar graph to answer questions.
14.4	<ul style="list-style-type: none"> ● Read a frequency table. ● Choose a scale for a bar graph. ● Use a frequency table to make a bar graph.
14.5	<ul style="list-style-type: none"> ● Read the data shown in a table. ● Label the scale for a line plot. ● Make a line plot.
14.6	<ul style="list-style-type: none"> ● Measure the lengths of objects to the nearest half inch. ● Record lengths on a line plot.
14.7	<ul style="list-style-type: none"> ● Measure the lengths of objects to the nearest quarter inch. ● Record lengths on a line plot.
Connect and Grow	● Performance Task, Activity, Chapter Practice
Connect and Grow	● Centers
Chapter Assessment	● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Science**
Research and discuss different animals that have more than two eyes. Print pictures of each animal for students to study. Create a picture graph on the board by printing out a symmetric eye and using it as the symbol for the graph's data. Make a key for the graph. One eye should stand for more than one eye. Ask students to hypothesize why these creatures have so many eyes. Humans only have two eyes, other than our appearance, how might we change if we had more than two eyes?
- **Physical Education**
Give students one minute to stack as many centimeter cubes as they can. Once their tower falls, have students record on the board the number of cubes they stacked. Make a tally chart on the board and record the different heights, by number of cubes, of the towers that were built. Then use tally marks to show how many of that height were built. Prepare a frequency table of the results. Give grid paper to each pair of students. Have them make a picture graph of the results. Remind them to make a title and a key before starting the graph. Have students compare their graphs. Pay special attention to the keys used for the graphs.
- **Social Studies**
Research the amount of time it took to build some major structures or use the information from the chart below. Post the information in a bar graph. Ask a number of questions regarding the bar graph. Include addition and subtraction questions such as, "How much longer did it take to build the Pyramids than the Colosseum?" or "How many more years did it take to build the Pyramids, than the Eiffel Tower?"

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TEACHER NOTES



Find Perimeter and Area

CONTENT AREA:

Mathematics

GRADE LEVEL:

3

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 15, 10 days (June)

UNIT FOCUS - SUMMARY OF UNIT

In this chapter, students learn to find the perimeter of polygons, but quickly settle on the most familiar polygon for students—the rectangle. Students use the perimeter equations to solve for unknown side lengths in polygons, particularly rectangles and squares. Students work with rectangles with the same perimeter and different areas as well as the same area and different perimeters. The focus here is for students to discover that when rectangles have the same perimeters/area they may not have the same areas/perimeters. As part of the problem-solving skills in this section students generate rectangles with these combinations of attributes.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

<https://www.nj.gov/education/standards/math/Index.shtml>

NEW JERSEY STUDENT LEARNING STANDARDS:

- 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.
- 3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
- 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.
- 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.

- 3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

PREREQUISITE KNOWLEDGE AND SKILLS (Progressions):

- Measure the length of objects using the most appropriate tool.
- Partition rectangles into rows and columns of squares.
- Find the total number of squares in a rectangle.

ENDURING UNDERSTANDINGS (Chapter Success Criteria):

- Understand perimeter and area.

ESSENTIAL QUESTIONS:

- How do we understand perimeter and area?
- How can we use perimeter and area in the real world?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Identify the perimeter of a shape.
- Describe the area of a shape.
- Compare the area and perimeter of a shape.
- Find the area and perimeter of a shape.

STUDENTS WILL BE ABLE TO:

- Find perimeters of figures.
- Find perimeters of polygons.
- Use perimeter to find the unknown side lengths of a polygon.
- Use area to compare rectangles with the same perimeter.
- Use perimeter to compare rectangles with the same area.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework
- Anecdotal notes
- Exit tickets/slips
- Math notebooks
- Student performance (Explore and Grow, Show and Grow, Apply and Grow, Think and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B (required)
- LinkIt (According to district assessment calendar)
- i-Ready (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessment (last page of each chapter in Teacher’s Edition)
- Cumulative Practice

- STEAM Performance Task

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Introduction of vocabulary, optional pre-test, and center introduction
15.1	<ul style="list-style-type: none"> ● Count the number of units around a figure. ● Tell the perimeter of a figure using standard units. ● Use a ruler to find the perimeter of a figure. ● Math Musical: https://mathmusicals.com/#/grade/3/almost-home-the-perimeter-song/
15.2	<ul style="list-style-type: none"> ● Add all the side lengths to find the perimeter of a polygon. ● Multiply to find the perimeter of some polygons.
15.3	<ul style="list-style-type: none"> ● Use perimeter to find an unknown side length. ● Use multiplication and the perimeter to find the unknown side length when all sides are equal.
15.4	<ul style="list-style-type: none"> ● Find the perimeter and area of a given rectangle. ● Draw a rectangle with the same perimeter as a given rectangle. ● Compare the areas of the rectangles.
15.5	<ul style="list-style-type: none"> ● Find the area and perimeter of a given rectangle. ● Draw a different rectangle with the same area as a given rectangle. ● Compare the perimeters of the rectangles.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task, Activity, Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B
Cumulative Practice	<ul style="list-style-type: none"> ● Cumulative Practice ● STEAM Performance Task (Optional)

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhlKcSPRxcgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- **Physical Education**
Find the perimeter of your classroom using an inch ruler or yardstick. Then find the perimeter of the gym. Compare the perimeters. Model by using grid paper and drawing out both perimeters.
- **Science**
Have students locate and find the perimeter of at least ten classroom items such as desks, bulletin boards, posters, and whiteboards. Record the perimeters on a line plot by choosing a scale and making a mark for each measurement. This can be completed independently or as a class. If completing as a class, have each student find the perimeter of one classroom item and record the measurement on the class line plot.
- **Art**
Provide students with large grid paper and have them create three rectangular shapes out of different colored construction paper. The shapes should all have the same perimeter measurement, but may have different areas. Arrange the three rectangular shapes on a black background to create an art piece like shown.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

<https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CLKS.pdf>

The organization and content of the NJSLS-Career Readiness, Life Literacies, and Key Skills include the following areas:

- **Standard 9.1 Personal Financial Literacy:** This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.
- **Standard 9.2 Career Awareness, Exploration, Preparation and Training.** This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.
- **Standard 9.4 Life Literacies and Key Skills.** This standard outlines key literacies and technical skills such as critical thinking, global and cultural awareness, and technology literacy that are critical for students to develop to live and work in an interconnected global economy.

P21 FRAMEWORK (Partnership for 21st Century Learning):

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

- Self-awareness
- Self-management
- Social Awareness
- Responsible Decision-making
- Relationship Skills

SEL Learning Activities:

- <https://casel.org/fundamentals-of-sel/>
- https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
- https://static.bigideasmath.com/protected/content/sel/mm_3rdgrade_sel.pdf
- Suggested brain breaks (Go Noodle: <https://www.gonoodle.com>)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLs-CSDT.pdf>

- Mission: Computer science and design thinking education prepares students to succeed in today's knowledge-based economy by providing equitable and expanded access to high-quality, standards-based computer science and technological design education.
- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSL Technology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSL – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

<https://www.battelleforkids.org/networks/p21/frameworks-resources>

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSLs and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.
- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and

similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a “global perspective” means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.

- **Climate Change:** Leverage the passion students have shown for this critical issue by providing them opportunities to develop a deep understanding of the science behind the changes and to explore the solutions our world desperately needs.

Each board of education shall provide instruction on climate change in the curriculum of elementary school, middle school, and high school students as part of the district’s implementation of the New Jersey Student Learning Standards in Science.

- **“Learning for Justice” Frameworks:**

<https://www.learningforjustice.org/frameworks>

Lessons and resources - <https://www.learningforjustice.org/classroom-resources>

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online learning tools including SplashLearn, Prodigy, XtraMath, Brain Pop

HUMAN AND PROFESSIONAL RESOURCES

- Laurie’s Notes from Big Ideas
- Math Specialists
- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
- *About Teaching Mathematics, 4th edition* by Marilyn Burns
- *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention* by Jennifer Bay-Williams and Gina Kling

TEACHER NOTES

