

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



Mathematics

Grade 4

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

CHAPTER NUMBER	CHAPTER TITLE	SUGGESTED PACING	MATH CENTERS
1	Place Value Concepts	8 Days- September	Center 1: Place Value Plug In Center 2: Skills Trainer Center 3: Greatest, Least, Arrange! Center 4: Flip, Read, and Write Center 5: Anchor Chart Round * T-30
2	Add and Subtract Multi-Digit Numbers	9 Days- September/ October	Center 1: Race to the Moon Center 2: Skills Trainer Center 3: Rolling, Rounding, and Solving Center 4: Flip, Solve, Repeat Center 5: World Problem Write *T-66
3	Multiply by One-Digit Numbers	15 Days- October	Center 1: Multiplication Quest Center 2: Skills Trainer Center 3: Multiplication Puzzle Center 4: Greatest (or least) Product Center 5: Multiplication Spoons *T-134
4	Multiply by Two-Digit Numbers	12 Days- November	Center 1: Multiplication Boss Center 2: Skills Trainer Center 3: Two-Digit Four in a Row Center 4: Pyramid Puzzle Center 5: Word Problem Match Up *T-196

5	Divide Multi-Digit Numbers by One-Digit Numbers	13 Days- November/ December	Center 1: Division Dots Center 2:Skills Trainer Center 3:Division Fact Puzzle Center 4:Remainder Takes All Center 5:Divide and Race *T-258
6	Factors, Multiples, and Patterns	9 Days- December/ January	Center 1: Multiple Line Up Center 2:Skills Trainer Center 3:Prime and Composite Dots Center 4: Block Patterns Center 5:Challenge the Calculator *T-302
7	Understand Fraction Equivalence and Comparison	10 Days- January	Center 1: Fraction Boss Center 2:Skills Trainer Center 3:Equivalent Domino Fraction Center 4: Flip and Compare Center 5: Sorting Fractions *T-338
8	Add and Subtract Fractions	13 Days- January/ February	Center 1: Three in a Row Center 2: Skills Trainer Center 3: Draw and Decompose Fractions Center 4: Make a Whole Center 5: Flip and Find *TE Page 406
9	Multiply Whole Numbers and Fractions	9 Days- February	Center 1: Three In a Row Center 2: Skills Trainer Center 3: Multiple of a Unit Fraction Picture Center 4: Roll a Whole Number and Multiply by a Fraction Domino Center 5: Fraction Match up *TE Page 442
10	Relate Fractions and Decimals	11 Days- March	Center 1: Decimal Boss Center 2: Skills Trainer Center 3: Roll to Compare

			<p>Decimals Center 4: Decimal Fraction Designs Center 5: Write Money as Fractions and Decimals *TE Page 492</p>
11	Understand Measurement Equivalence	14 Days- March/ April	<p>Center 1: Conversion Flip and Find Center 2: Skills Trainer Center 3: Rock, Paper, Scissors Center 4: Fraction Plot Center 5: Equivalence Flip *TE Page 554</p>
12	Use Perimeter and Area Formulas	8 Days- April/May	<p>Center 1: Area Roll and Conquer Center 2: Skills Trainer Center 3: Area and Perimeter Search Center 4: Flip and Spin Center 5: Create and Solve *TE Page</p>
13	Identify and Draw Lines and Angles	12 Days- May/June	<p>Center 1: Geometry Dots Center 2: Skills Trainer Center 3: Sticker Line and Angles Center 4: Art Angles Center 5: Skate Around the Rink *TE Page 646</p>
14	Identify Symmetry and Two Dimensional Shapes	9 Days- June	<p>Center 1: Pyramid Climb and Slide Center 2: Skills Trainer Center 3: Insect Names Center 4: Triangle Foldable Center 5: Quadrilateral Picture *TE Page 682</p>

* Teachers may want to consider addressing chapters 12,13, and 14 earlier in the year so that students are introduced to perimeter, area, and geometry prior to NJSLA testing.



Unit Title			
Place Value Concepts			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 1 - 8 Days (September)			
UNIT FOCUS - SUMMARY OF UNIT			
A major strand in Grade 4 is developing depth of conceptual place value understanding. This chapter focuses on place value relationships, concept of number, and then rounding. These ideas will form a basis for ideas to come; properties of operations and fluency of multi-digit arithmetic.			
KEY UNDERSTANDINGS			
MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/index.shtml			
NEW JERSEY STUDENT LEARNING STANDARDS: <ul style="list-style-type: none"> ● 4.NBT.A.1 - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. ● 4.NBT.A.2- Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. ● 4.NBT.A.3- Use place value understanding to round multi-digit whole numbers to any place. 			
PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS): <ul style="list-style-type: none"> ● Use place value to round numbers to the nearest 10 or 100. 			
ENDURING UNDERSTANDINGS (Chapter success criteria): <ul style="list-style-type: none"> ● Define the value of a number. 		ESSENTIAL QUESTIONS: <ul style="list-style-type: none"> ● Why do we need to understand place value? 	

<ul style="list-style-type: none"> ● Explain how to use symbols to compare two numbers. ● Compare the value of two identical digits in a number. ● Read and write multi-digit numbers in multiple forms. 	
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UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand place value

STUDENTS WILL BE ABLE TO:

- Identify the values of digits in multi-digit numbers.
- Read and write multi-digit numbers in different forms.
- Use place value to compare two multi-digit numbers.
- Use place value to round multi-digit numbers.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition)
- Cumulative Practice Assessments
- STEAM Performance Tasks

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary

1.1	<ul style="list-style-type: none"> ● Identify the first six place value names. ● Identify the value of each digit in a number. ● Compare the values of two of the same digits in a number.
1.2	<ul style="list-style-type: none"> ● Write a number in standard form. ● Read and write a number in word form. ● Write a number in expanded form.
1.3	<ul style="list-style-type: none"> ● Explain how to compare two numbers with the same number of digits. ● Use the symbols $<$, $>$, and $=$ to compare two numbers.
1.4	<ul style="list-style-type: none"> ● Explain which digit I use to round and why. ● Round a multi-digit number to any place.
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/1v5NF2k0cQoghIKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Language Arts- design trading cards (T-7)
- Social Studies/Art- Research city's populations (T-13)
- Science- Discuss endangered species (T-25)

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

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>

https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

Suggested Brain Breaks (Go Noodle- <https://app.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* Version 2022
- *iReady* Adaptive Learning Platform

- Online Learning Tools including Splash Learn, Prodigy, XtraMath, Brainpop

HUMAN AND PROFESSIONAL RESOURCES

- Laurie's Notes from Big Ideas
- BHPS Math Specialist
- *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



Unit Title			
Add and Subtract Multi-Digit Numbers			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 2- 9 Days (September/October)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>This chapter returns to the operations of addition and subtraction, further with multi-digit numbers. We hope that all students have mastered the basic addition and subtraction facts within 20. If this is not the case, students need interventions that will help them master the facts. Drill, particularly in the absence of reasoning, is not an effective intervention. You must first determine what facts the student does know, as these can be useful in learning the unknown facts. The intervention needed must intentionally and explicitly teach the reasoning strategies students missed earlier in their learning.</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"> ● 4.OA.A.3- Solve multistep word problems posed with whole numbers and having whole- number answers using the four operations, including problems in which remainders must be interpreted. 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. ● 4.NBT.B.4- Fluently add and subtract multi-digit whole numbers using the standard algorithm. 			
<p>PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):</p> <ul style="list-style-type: none"> ● Fluently add and subtract within 1,000. ● Use all operations to solve two-step word problems. 			

- Write an equation for a word problem using a letter as the unknown quantity.
- Check the reasonableness of an answer.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Estimate a sum or difference.
- Explain which strategy I used to write a sum or difference.
- Write a sum or difference.
- Solve addition and subtraction problems.

ESSENTIAL QUESTIONS:

- How can we understand adding and subtracting numbers?
- Why is it important to add and subtract accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand adding and subtracting numbers

STUDENTS WILL BE ABLE TO:

- Use rounding to estimate sums and differences.
- Add multi-digit numbers and check whether the sum is reasonable.
- Subtract multi-digit numbers and check my answer.
- Use strategies to add and subtract multi-digit numbers.
- 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
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LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
2.1	<ul style="list-style-type: none"> ● Use rounding to estimate a sum. ● Use rounding to estimate a difference. ● Explain what happens when I round to different place values.
2.2	<ul style="list-style-type: none"> ● Use place value to line up the numbers in an addition problem. ● Add multi-digit numbers, regrouping when needed. ● Estimate a sum to check whether my answer is reasonable.
2.3	<ul style="list-style-type: none"> ● Use place value to line up the numbers in a subtraction problem. ● Subtract multi-digit numbers, regrouping when needed. ● Estimate a difference or use addition to check my answer.
2.4	<ul style="list-style-type: none"> ● Use strategies to add multi-digit numbers. ● Use strategies to subtract multi-digit numbers.
2.5	<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 and check whether my answer is reasonable.
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- Creatures of the Great Barrier Reef (T-37)
- Social Studies- Growth of a population over years (T-43)
- Art- Create and anchor chart on favorite strategy (T-55)

STATE REQUIREMENTS

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SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>

https://static.bigideasmath.com/protected/content/sel/mr122_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

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- **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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RESOURCES

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TEACHER NOTES



Unit Title			
Multiply by One-Digit Numbers			
CONTENT AREA:	Mathematics	GRADE LEVEL:	4
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 3- 15 Days (October)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>This chapter and the next focus on multiplication of multi-digit numbers by one and two-digit numbers. Students understand multiplication as repeated addition or as arrays of rows and columns. This understanding helps students learn their multiplication facts and we build upon it to introduce multi-digit multiplication.</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"> ● 4.OA.A.1- Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. ● 4.OA.A.2- Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. ● 4.OA.A.3- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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. ● 4.NBT.A.1- Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. ● 4.NBT.A.3- Use place value understanding to round multi-digit whole numbers to any place. 			

- 4.NBT.B.5- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):

- Explain multiplication as the total number of objects in a given number of equal groups.
- Use drawings and equations to solve multiplication and division word problems within 100.
- Use place value to round numbers to the nearest 10 or 100.
- Fluently add and subtract within
- Multiply a one-digit number by multiples of 10 within 100.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Find the product of two numbers.
- Use rounding to estimate a product
- Write multiplication problems.
- Solve a problem using an equation.

ESSENTIAL QUESTIONS:

- How can we understand multiplying one-digit numbers?
- Why is it important to know how to multiply accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplying one-digit numbers

STUDENTS WILL BE ABLE TO:

- Use multiplication to compare two numbers.
- Use place value to multiply by tens, hundreds, or thousands.
- Use rounding to estimate products.
- Use the Distributive Property to multiply.
- Use expanded form and the Distributive Property to multiply
- Use place value and partial products to multiply.
- Multiply two-digit numbers by one-digit numbers.
- Multiply multi-digit numbers by one-digit numbers
- Use properties to multiply
- Solve multi-step word problems involving multiplication.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition)
- Cumulative Practice Assessments
- STEAM Performance Tasks

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

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
3.1	<ul style="list-style-type: none"> ● Write addition or multiplication equations given a comparison sentence. ● Write a comparison sentence given an addition or a multiplication equation. ● Solve comparison word problems involving multiplication.
3.2	<ul style="list-style-type: none"> ● Find the product of a one-digit number and a multiple of ten, one hundred, or one thousand. ● Describe a pattern when multiplying by tens, hundreds, or thousands. Math Musical Link: https://mathmusicals.com/#/grade/4/monster-in-my-house/
3.3	<ul style="list-style-type: none"> ● Use rounding to estimate a product. ● Find two estimates that a product is between. ● Tell whether a product is reasonable. Math Musical Link: https://mathmusicals.com/#/grade/4/calling-my-squad/
3.4	<ul style="list-style-type: none"> ● Draw an area model to multiply. ● Use known facts to find a product. ● Explain how to use the Distributive Property.
3.5	<ul style="list-style-type: none"> ● Use an area model to multiply. ● Use expanded form and the Distributive Property to find a product.
3.6	<ul style="list-style-type: none"> ● Use place value to tell the value of each digit in a number. ● Write the partial products for a multiplication problem.

	<ul style="list-style-type: none"> ● Add the partial products to find a product.
3.7	<ul style="list-style-type: none"> ● Multiply to find the partial products. ● Show 10 ones regrouped as 1 ten. ● Find the product.
3.8	<ul style="list-style-type: none"> ● Multiply to find the partial products. ● Show how to regroup more than 10 tens. ● Find the product.
3.9	<ul style="list-style-type: none"> ● Use the Commutative Property of Multiplication to multiply. ● Use the Associative Property of Multiplication to multiply. ● Use the Distributive Property to multiply.
3.10	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve using letters to represent the unknown numbers. ● Solve a problem using an equation.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B
Cumulative Practice	Cumulative Practice, STEAM Performance Task (optional)

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhlKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Physical Education- Jumping Jacks (T-73)
- Science- Magnifying objects (T-79)
- Social Studies- Map Scale (T-85)
- Art- Artistic representation of Distributive Property (T-91)
- English Language Arts- Look up the word EXPAND (T-97)
- Science- Nutrition facts (T-121)

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

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>

https://static.bigideasmath.com/protected/content/sel/mr122_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

Suggested Brain Breaks (Go Noodle- <https://app.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

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GLOBAL THINKING:

- **Amistad and Holocaust:**
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TEACHER NOTES



Unit Title					
Multiply by Two-Digit Numbers					
CONTENT AREA:		Mathematics	GRADE LEVEL:		4
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT					
Chapter 4- 12 Days (November)					
UNIT FOCUS - SUMMARY OF UNIT					
Chapters 3 and 4 focus on multiplication of multi-digit numbers by one- and two-digit numbers. Students understand multiplication as repeated addition, or arrays of rows and columns. This understanding helped students learn their multiplication facts and we build upon it to introduce multi-digit multiplication.					
KEY UNDERSTANDINGS					
MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/Index.shtml					
NEW JERSEY STUDENT LEARNING STANDARDS: <ul style="list-style-type: none"> ● 4.OA.A.3- Solve multistep word problems posed with whole numbers and having whole- number answers using the four operations, including problems in which remainders must be interpreted. 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. ● 4.NBT.B.5- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 					
PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS): <ul style="list-style-type: none"> ● Fluently add and subtract within 1,000. ● Multiply a one-digit number by multiples of 10 within 100. 					

- Use properties as strategies to multiply and divide.
- Fluently multiply and divide within 100.
- Use multiplication facts to divide.
- Use place value to round numbers to the nearest 10 or 100.
- Use all operations to solve two-step word problems.
- Write an equation for a word problem using a letter as the unknown quantity.
- Check the reasonableness of an answer.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Find the product of two numbers.
- Use rounding to estimate a product.
- Write multiplication problems.
- Solve a problem using an equation.

ESSENTIAL QUESTIONS:

- What methods can we use to multiply two-digit numbers?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplying two-digit numbers.

STUDENTS WILL BE ABLE TO:

- Use place value and properties to multiply by multiples of ten.
- Use rounding and compatible numbers to estimate products.
- Use area models and partial products to multiply.
- Use area models and the Distributive Property to multiply.
- Use place value and partial products to multiply.
- Multiply two-digit numbers.
- Use strategies to multiply two-digit numbers.
- Solve multi-step word problems involving two-digit multiplication.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition)
- Cumulative Practice Assessments
- STEAM Performance Tasks

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

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
4.1	<ul style="list-style-type: none">● Use place value to multiply by multiples of ten.● Use the Associative Property to multiply by multiples of ten.● Describe a pattern with zeros when multiplying by multiples of ten.
4.2	<ul style="list-style-type: none">● Use rounding to estimate a product.● Use compatible numbers to estimate a product.● Explain different ways to estimate a product.
4.3	<ul style="list-style-type: none">● Use an area model to break apart the factors of a product.● Relate an area model to partial products.● Add partial products to find a product.
4.4	<ul style="list-style-type: none">● Use an area model and partial products to multiply.● Use an area model and the Distributive Property to multiply.
4.5	<ul style="list-style-type: none">● Use place value to tell the value of each digit in a number.● Write the partial products for a multiplication problem.● Add the partial products to find a product.
4.6	<ul style="list-style-type: none">● Multiply to find partial products.● Show how to regroup ones, tens, and hundreds.● Add partial products to find a product.
4.7	<ul style="list-style-type: none">● Choose a strategy to multiply.● Multiply two-digit numbers.● Explain the strategy I used to multiply.
4.8	<ul style="list-style-type: none">● Understand a problem.● Make a plan to solve using letters to represent the unknown numbers.● Solve a problem using an 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/1v5NF2k0cQoqhIKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art- Discuss creating an advertisement or commercial (T-147)
- Social Studies- Estimate the amount of words in the Declaration of Independence (T-153)
- Science- Calculating crops using area models (T-159)
- Physical Education- Game using dice to teach Partial Products (T-171)

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TEACHER NOTES



Unit Title			
Divide Multi-Digit Numbers by One-Digit Numbers			
CONTENT AREA:	Mathematics	GRADE LEVEL:	4
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 5- 13 Days (November/December)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In Grade 3, multiplication facts and the inverse relationship between multiplication and division were used to help students learn division facts. Now, students are ready to explore division of a multi-digit number by a one-digit number. There are two concepts or interpretations of division: fair-shares (partition) and measurement (repeated subtraction). Students will use partial quotients, with and without remainders, to develop a written record of a division problem. A connection is made to area models used in multiplication. Students need time to use models, sketches, and their own language to represent their thinking. In the last few lessons of the chapter, the problems include zeros in the quotient or dividend. Regrouping thousands, hundreds, or tens is necessary, and attention to place value is important.</p>			
KEY UNDERSTANDINGS			
MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/index.shtml			
NEW JERSEY STUDENT LEARNING STANDARDS:			
<ul style="list-style-type: none">● 4.OA.A.3- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.● 4.OA.B.4- Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.			

- 4.NBT.B.6- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):

- Fluently multiply and divide within 100.
- Use multiplication facts to divide.
- Fluently add and subtract within 1,000.
- Use properties as strategies to multiply and divide.
- Explain the relationship between multiplication and division.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Divide a number.
- Use division facts to estimate a quotient.
- Write division problems.
- Solve division problems.

ESSENTIAL QUESTIONS:

- In what ways can we divide one-digit numbers?
- Why is it important to know how to divide accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand dividing one-digit numbers.

STUDENTS WILL BE ABLE TO:

- Use place value to divide tens, hundreds, or thousands.
- Use division facts and compatible numbers to estimate quotients.
- Use models to find quotients and remainders.
- Use partial quotients to divide.
- Use partial quotients to divide and find remainders.
- Divide two-digit numbers by one-digit numbers.
- Divide multi-digit numbers by one-digit numbers.
- Divide by one-digit numbers.
- Solve multi-step word problems involving division.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition)
- Cumulative Practice Assessments
- STEAM Performance Tasks

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
5.1	<ul style="list-style-type: none"> ● Divide a multiple of ten, one hundred, or one thousand by a one-digit number. ● Explain how to use place value and division facts to divide tens, hundreds, or thousands.
5.2	<ul style="list-style-type: none"> ● Use division facts and compatible numbers to estimate a quotient. ● Find two estimates that a quotient is between.
5.3	<ul style="list-style-type: none"> ● Use models to divide numbers that do not divide evenly. ● Find a quotient and a remainder. ● Interpret the quotient and the remainder in a division problem.
5.4	<ul style="list-style-type: none"> ● Explain how to use an area model to divide. ● Write partial quotients for a division problem. ● Add the partial quotients to find a quotient
5.5	<ul style="list-style-type: none"> ● Use partial quotients to divide. ● Find a remainder.
5.6	<ul style="list-style-type: none"> ● Divide to find the partial quotients. ● Show how to regroup 1 or more tens. ● Use place value to record the partial quotients.
5.7	<ul style="list-style-type: none"> ● Use place value to divide. ● Show how to regroup thousands, hundreds, or tens. ● Find a quotient and a remainder.
5.8	<ul style="list-style-type: none"> ● Use place value to divide.

	<ul style="list-style-type: none"> ● Explain why there might be a 0 in the quotient. ● Find a quotient and a remainder.
5.9	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve using letters to represent the unknown numbers. ● Solve a problem using an 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/1v5NF2k0cQoghKcSPRxgvi7AUeiTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Science- Students calculate the number of words that different animals can understand (T-203)
- English Language Arts- Read *Divide and Ride* by Stuart J. Murphy (T-215)
- Social Studies- Use Partial Quotients to find the height of the Sphinx (T-221)

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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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

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Framework for 21st Century Learning

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GLOBAL THINKING:

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TEACHER NOTES



Unit Title			
Factors, Multiples, and Patterns			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 6- 9 Days (December/January)			
UNIT FOCUS - SUMMARY OF UNIT			
In this chapter, students will expand their understanding of factors and multiples. They will learn about prime and composite numbers, the first abstract math concepts taught to upper elementary students.			
KEY UNDERSTANDINGS			
MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/Index.shtml			
NEW JERSEY STUDENT LEARNING STANDARDS: <ul style="list-style-type: none"> ● 4.OA.B.4- Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. ● 4.OA.C.5- Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. 			
PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS): <ul style="list-style-type: none"> ● Fluently multiply and divide within 100. ● Use multiplication facts to divide. ● Use properties of addition and multiplication to explain addition and multiplication patterns. 			
ENDURING UNDERSTANDINGS (Chapter success criteria): <ul style="list-style-type: none"> ● Find the factors of a number. 		ESSENTIAL QUESTIONS: <ul style="list-style-type: none"> ● How can we use factors, multiples, and patterns to solve problems? 	

- Explain the differences between factors and multiples.
- Compare the different features of different numbers and shapes.
- Apply an appropriate strategy to show relationships in numbers and shapes.

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand factors, multiples, and patterns.

STUDENTS WILL BE ABLE TO:

- Use models to find factor pairs.
- Use division to find factor pairs.
- Understand the relationship between factors and multiples.
- Tell whether a given number is prime or composite.
- Create and describe number patterns.
- Create and describe shape patterns.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
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Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
6.1	<ul style="list-style-type: none"> ● Draw area models that show a product. ● Find the factors of a number. ● Find the factor pairs for a number.
6.2	<ul style="list-style-type: none"> ● Divide to find factor pairs. ● Use divisibility rules to find factor pairs. <p>Math Musical Link: https://mathmusicals.com/#/grade/4/here-comes-ultra-the-divisibility-song/</p>
6.3	<ul style="list-style-type: none"> ● Tell whether a number is a multiple of another number. ● Tell whether a number is a factor of another number. ● Explain the relationship between factors and multiples.
6.4	<ul style="list-style-type: none"> ● Explain what prime and composite numbers are. ● Identify prime and composite numbers.
6.5	<ul style="list-style-type: none"> ● Create a number pattern given a number rule. ● Describe features of a number pattern.
6.6	<ul style="list-style-type: none"> ● Create a shape pattern given a rule. ● Find the shape at a given position in a pattern. ● Describe features of a shape pattern.
Connect and Grow	Performance Task, Activity, Chapter Practice
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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Physical Education- Arrange chairs in a rectangular array (T-265)
- Art- Discuss I Saw the Figure 5 in Gold by Demuth and have students create their own (T-277)

- Science- Discuss the patterns that pufferfish make (T-295)

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TEACHER NOTES



Unit Title			
Understand Fraction Equivalence and Comparison			
CONTENT AREA:	Mathematics	GRADE LEVEL:	4
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 7- 10 Days (January)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this grade, students learn about the equivalence of fractions and begin work on fraction operations. This chapter is about understanding fraction equivalence and using equivalent fractions to compare fractions. Key terms in this chapter are equivalent fractions, common factor, and benchmark.</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"> ● 4.NF.A.1- Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. ● 4.NF.A.2- Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model. 			
<p>PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):</p> <ul style="list-style-type: none"> ● Explain why fractions are equivalent. ● Use a model to show equivalent fractions. ● Create equivalent fractions. ● Write counting numbers as fractions. 			

- Identify fractions that are counting numbers.
- Compare two fractions using symbols.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Define equivalent fractions.
- Explain how multiplication can be used to find equivalent fractions.
- Compare the numerators and denominators of two fractions.
- Find the factors of a number.

ESSENTIAL QUESTIONS:

- How can we understand fractions and use them to solve problems?
- Why is it important to understand fractions?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand fractions.

STUDENTS WILL BE ABLE TO:

- Model and write equivalent fractions.
- Use multiplication to find equivalent fractions.
- Use division to find equivalent fractions.
- Compare fractions using benchmarks.
- Compare fractions using equivalent fractions.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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- Quizzes
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Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
7.1	<ul style="list-style-type: none"> ● Use an area model to find equivalent fractions. ● Use a number line to find equivalent fractions. ● Write equivalent fractions.
7.2	<ul style="list-style-type: none"> ● Multiply a numerator and a denominator by a chosen number. ● Multiply to find equivalent fractions. ● Explain why multiplication can be used to find equivalent fractions.
7.3	<ul style="list-style-type: none"> ● Find the factors of a number. ● Find the common factors of a numerator and denominator. ● Divide to find equivalent fractions.
7.4	<ul style="list-style-type: none"> ● Compare a fraction to a benchmark of $\frac{1}{2}$ or 1. ● Use a benchmark to compare two fractions.
7.5	<ul style="list-style-type: none"> ● Compare the numerators and denominators of two fractions. ● Make the numerators or the denominators of two fractions the same. ● Compare fractions with like numerators or like denominators.
Connect and Grow	Performance Task, Activity, Chapter Practice
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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Music- Glasses of water with different sounds (T-309)
- Language Arts- Read *Sir Cumference and the Fraction Faire: A math Adventure* by Cindy Neuschwander (T-315)
- Science- Think about fractions of Isaac Newton's Life (T-321)

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TEACHER NOTES



Unit Title

Add and Subtract Fractions

CONTENT AREA:

Mathematics

GRADE LEVEL:

4

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 8- 13 Days (January/February)

UNIT FOCUS - SUMMARY OF UNIT

Students should have a good understanding of the meaning of fractions and how to represent fractions using an area model or number line. They have studied fraction equivalence and generated equivalent fractions using multiplication and division. In prior grades, students compared fractions with the same numerator, same denominator, and by using a number line. In the last chapter, they used benchmark fractions to compare fractions. This prerequisite work has prepared students to now begin operations with fractions.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 4.NF.B.3- Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
- 4.NF.B.3a- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- 4.NF.B.3b- Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.
- 4.NF.B.3c- Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- 4.NF.B.3d- Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):

- Explain what a fraction represents.
- Identify fractions of a whole.
- Explain what fractions represent using a number line.
- Plot fractions on a number line.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Use a number line to add fractions.
- Write a fraction as a sum of unit fractions.
- Solve a problem using fractions.
- Model different types of fractions.

ESSENTIAL QUESTIONS:

- How do you add or subtract fractions that have the same denominator?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understanding adding and subtracting fractions.

STUDENTS WILL BE ABLE TO:

- Use area models and number lines to add fractions.
- Write a fraction as a sum of fractions.
- Add fractions with like denominators.
- Use area models and number lines to subtract fractions.
- Subtract fractions with like denominators.
- Write mixed numbers as fractions and fractions as mixed numbers.
- Add mixed numbers with like denominators.
- Subtract mixed numbers with like denominators.
- Solve multi-step word problems involving fractions and mixed numbers.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition)
- Cumulative Practice Assessments
- STEAM Performance Tasks

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
8.1	<ul style="list-style-type: none"> ● Use an area model to add fractions. ● Use a number line to add fractions. ● Explain what it means to add fractions.
8.2	<ul style="list-style-type: none"> ● Write a fraction as a sum of unit fractions. ● Write a fraction as a sum of two fractions. ● Write a fraction as a sum of fractions in more than one way.
8.3	<ul style="list-style-type: none"> ● Use models to add fractions. ● Use a rule to add fractions. ● Explain how to add fractions with like denominators.
8.4	<ul style="list-style-type: none"> ● Use an area model to subtract fractions. ● Use a number line to subtract fractions. ● Explain what it means to subtract fractions.
8.5	<ul style="list-style-type: none"> ● Use models to subtract fractions. ● Use a rule to subtract fractions. ● Explain how to subtract fractions with like denominators. <p>Math Musical Link: https://mathmusicals.com/#/grade/4/all-dressed-up/</p>
8.6	<ul style="list-style-type: none"> ● Model a mixed number. ● Write a mixed number as a fraction. ● Write a fraction greater than 1 as a mixed number
8.7	<ul style="list-style-type: none"> ● Add fractional parts and whole number parts of mixed numbers with like denominators. ● Use equivalent fractions to add mixed numbers with like denominators. ● Explain two ways to add mixed numbers with like denominators.
8.8	<ul style="list-style-type: none"> ● Subtract fractional parts and whole number parts of mixed numbers with like denominators.

	<ul style="list-style-type: none"> ● Use equivalent fractions to subtract mixed numbers with like denominators. ● Explain two ways to subtract mixed numbers with like denominators.
8.9	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem using an 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/1v5NF2k0cQoghIKcSPRxgvi7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- English Language Arts- Write a Story about Fraction Friends (T-357)
- Social Studies- Flags around the World (T-363)
- Physical Education- Bowling with Equations (T-369)
- Science- Measuring Arm Span (T-399)

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

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>

https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

Suggested Brain Breaks (Go Noodle- <https://app.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.
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- 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 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* Version 2022
- *i-Ready* Adaptive Learning Platform
- Online Learning Tools including Splash Learn, Prodigy, XtraMath, Brainpop

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TEACHER NOTES



Unit Title			
Multiply Whole Numbers and Fractions			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 9- 9 Days (February)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this unit, students will learn to multiply whole numbers by fractions and will include: Identifying a fraction as a sum of unit fractions; writing a fraction as a sum of unit fractions, finding the product of a whole number and a fraction, and solving problems using fractions.</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"> ● 4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. ● 4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. ● 4.NF.B.4b Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. ● 4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. 			
<p>PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):</p> <ul style="list-style-type: none"> ● Explain multiplication as the total number of objects in a given number of equal groups. ● Use drawings and equations to solve multiplication and division word problems within 100. ● Explain what a fraction represents. ● Identify fractions of a whole. 			

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Identify a fraction as a sum of unit fractions.
- Write a fraction as a sum of unit fractions.
- Find the product of a whole number and a fraction.
- Solve a problem using fractions.

ESSENTIAL QUESTIONS:

- How do you multiply fractions by whole numbers?
- How can you write a product of a whole number and a fraction as a product of a whole number and a unit fraction?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand multiplying whole numbers and fractions.

STUDENTS WILL BE ABLE TO:

- Write fractions as multiples of unit fractions.
- Write multiples of fractions as multiples of unit fractions.
- Multiple whole numbers and fractions.
- Multiply whole numbers and mixed numbers.
- Solve multi-step word problems involving fractions and mixed numbers.

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, Think and Grow, Show and Grow, Apply 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	Optional Pre-Test/Introduction of Vocabulary
9.1	<ul style="list-style-type: none"> ● Write a fraction as a sum of unit fractions. ● Use multiplication to rewrite a sum of unit fractions. ● Write a fraction as a multiple of a unit fraction.
9.2	<ul style="list-style-type: none"> ● Write a fraction as a multiple of a unit fraction. ● Write a multiple of a fraction as a multiple of a unit fraction. ● Find the product of a whole number and a unit fraction.
9.3	<ul style="list-style-type: none"> ● Write a multiple of a fraction as a multiple of a unit fraction. ● Use a rule to find the product of a whole number and a fraction. ● Explain why the rule used to multiply a whole number and a fraction makes sense.
9.4	<ul style="list-style-type: none"> ● Write a mixed number as a fraction to multiply. ● Use the Distributive Property to multiply. ● Find the product of a whole number and a mixed number.
9.5	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem using an equation.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art- Draw Fruit Equations (T-413)
- Science- Building Tornado Bottles (T-419)
- Physical Education- Fraction Hopscotch (T-425)

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https://static.bigideasmath.com/protected/content/sel/mr122_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

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TEACHER NOTES



Unit Title				
Relate Fractions and Decimals				
CONTENT AREA:		Mathematics	GRADE LEVEL:	
			4	
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT				
Chapter 10- 11 Days (March)				
UNIT FOCUS - SUMMARY OF UNIT				
<p>Students have seen many examples of decimal numbers prior to this introductory chapter. Decimals are used in our monetary system and many measurement situations. Even if students do not understand the context or the notation, they have been seeing and hearing numbers that are different from whole numbers and fractions. In this chapter, a few of the important ideas about decimals and place value are developed, along with the connection between fractions and decimals.</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"> ● 4.NF.C.6- Use decimal notation for fractions with denominators 10 or 100. ● 4.NF.C.5-Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. ● 4.NF.C.7-Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions. ● 4.MD.A.2- Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 				
PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):				

- Explain what a fraction represents.
- Identify fractions of a whole.
- Create equivalent fractions.
- Compare two fractions using symbols.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Identify fractions involving tenths as decimals.
- Write fractions involving hundredths as decimals.
- Compare two decimals.
- Justify the operation I used to solve a problem.

ESSENTIAL QUESTIONS:

- Why is it important to understand decimals and fractions?
- Why can you record tenths and hundredths as decimals and fractions?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Write a fraction or mixed number involving tenths as a decimal.
- Write a fraction or mixed number involving hundredths as a decimal.
- Write tenths and hundredths as equivalent fractions and decimals.
- Compare decimals to the hundredths place.
- Use equivalent fractions to add decimal fractions and decimals.
- Write amounts of money in different ways.
- Add, subtract, multiply, and divide amounts of money.

STUDENTS WILL BE ABLE TO:

- Understand fractions and decimals.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
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ALTERNATE ASSESSMENTS

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- Cumulative Practice Assessments
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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
10.1	<ul style="list-style-type: none"> ● Extend a place value chart to include tenths. ● Write fractions involving tenths as decimals. ● Write mixed numbers involving tenths as decimals.
10.2	<ul style="list-style-type: none"> ● Extend a place value chart to include hundredths. ● Write fractions involving hundredths as decimals. ● Write mixed numbers involving hundredths as decimals.
10.3	<ul style="list-style-type: none"> ● Write tenths as hundredths in both fraction form and decimal form. ● Write hundredths as tenths in both fraction form and decimal form. ● Explain what equivalent decimals are.
10.4	<ul style="list-style-type: none"> ● Choose a strategy to compare two decimals. ● Use the symbols $<$, $>$, and $=$ to compare two decimals to the hundredths place.
10.5	<ul style="list-style-type: none"> ● Use equivalent fractions to add decimal fractions. ● Use equivalent fractions to add decimals.
10.6	<ul style="list-style-type: none"> ● Write money amounts using a dollar sign and a decimal point. ● Write money amounts as fractions or mixed numbers. ● Write money amounts as decimals. Math Musical Link: https://mathmusicals.com/#/grade/4/counting-coins/
10.7	<ul style="list-style-type: none"> ● Use the four operations to solve money problems. ● Explain why I used the operation I did to solve.
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/1v5NF2k0cQoqhIKcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Physical Education- Decimal Point Ball (T-449)
- Art- Fraction/ Decimal Flower (T-455)
- Science- Healthy Food Prices (T-479)
- Social Studies- Goods and Services (T-485)

STATE REQUIREMENTS

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- Responsible Decision-making
- Relationship Skills

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>
https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf
https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

Suggested Brain Breaks (Go Noodle- <https://app.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.
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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.

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

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

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

RESOURCES

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TEACHER NOTES



Unit Title			
Understand Measurement Equivalence			
CONTENT AREA: Mathematics GRADE LEVEL: 4			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 11- 14 Days (March/April)			
UNIT FOCUS - SUMMARY OF UNIT			
The chapter presents equivalent measures in the context of problem solving. The chapter visits familiar measuring units and introduces new measurement units, such as ton, varied metric units, and month (amounts of time).			
KEY UNDERSTANDINGS			
MATHEMATICAL PRACTICES: https://www.nj.gov/education/standards/math/Index.shtml			
NEW JERSEY STUDENT LEARNING STANDARDS: <ul style="list-style-type: none"> ● 4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. ● 4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. ● 4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) . Solve problems involving addition and subtraction of fractions by using information presented in line plots. 			
PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS): <ul style="list-style-type: none"> ● Measure liquid volume and mass using standard units. ● Fluently multiply and divide within 100. ● Use multiplication facts to divide. 			

- Explain what a fraction represents.
- Identify fractions of a whole.
- Draw a line plot to show data.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Identify different units of length.
- Write lengths using equivalent measures.
- Compare sizes of units of length.
- Solve a problem using measurements.

ESSENTIAL QUESTIONS:

- How can you use measurement equivalence to solve problems?
- How can you compare metric units of length, mass, or liquid volume?
- How can you compare customary units of length, weight, or liquid volume?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Write lengths using equivalent metric measures.
- Write masses and capacities using equivalent metric measures.
- Write lengths using equivalent customary measures.
- Write weights using equivalent customary measures.
- Write capacities using equivalent customary measures.
- Make line plots and use them to solve problems.
- Write amounts of time using equivalent measures.
- Solve multi-step word problems involving elapsed time.
- Add and subtract mixed measures.

STUDENTS WILL BE ABLE TO:

- Understand measurement equivalence.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

- Chapter Test B- Required
- LinkIt (According to district assessment calendar)
- iReady (According to district assessment calendar)

ALTERNATE ASSESSMENTS

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

- STEAM Performance Tasks

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
11.1	<ul style="list-style-type: none"> ● Compare sizes of metric units of length. ● Write metric lengths using smaller metric units. ● Make tables of equivalent metric lengths.
11.2	<ul style="list-style-type: none"> ● Compare sizes of metric units of mass and capacity. ● Write metric masses and capacities using smaller metric units. ● Make tables of equivalent metric measures.
11.3	<ul style="list-style-type: none"> ● Compare sizes of customary units of length. ● Write customary lengths using smaller customary units. ● Make tables of equivalent customary lengths.
11.4	<ul style="list-style-type: none"> ● Compare sizes of customary units of weight. ● Write customary weights using smaller customary units. ● Make tables of equivalent customary weights.
11.5	<ul style="list-style-type: none"> ● Compare sizes of customary units of capacity. ● Write customary capacities using smaller customary units. ● Make tables of equivalent customary capacities. <p>Math Musical Link: https://mathmusicals.com/#/grade/4/however-you-like-it-the-measurement-song/</p>
11.6	<ul style="list-style-type: none"> ● Make a line plot. ● Interpret a line plot. ● Use a line plot to solve a real-life problem.
11.7	<ul style="list-style-type: none"> ● Compare sizes of units of time. ● Write amounts of time using smaller units. ● Make tables of equivalent amounts of time.
11.8	<ul style="list-style-type: none"> ● Understand a problem. ● Make a plan to solve. ● Solve a problem. <p>Math Musical Link: https://mathmusicals.com/#/grade/4/a-measure-of-time/</p>

11.9	<ul style="list-style-type: none"> ● Write measures using smaller units. ● Use regrouping to rewrite a mixed measure
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers
Chapter Assessment	Chapter Test B
Cumulative Practice	Cumulative Practice, 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:

- Social Studies- Draw a Map (T-499)
- Science- Weighing Water (T-505)
- English Language Arts- *The Witches* by Roald Dahl (T-523)
- Physical Education- Marathon Word Problems (T-541)

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):

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

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TEACHER NOTES



Unit Title

Use Perimeter and Area Formulas

CONTENT AREA: Mathematics **GRADE LEVEL:** 4

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 12- 8 Days (April)

UNIT FOCUS - SUMMARY OF UNIT

In this chapter, students will learn about formulas and how to use them to solve real-life problems in the context of areas and perimeters of rectangles. More on the specific topics in the chapter is below. The problems in the chapter provide students the opportunity to build their problem-solving skills.

KEY UNDERSTANDINGS

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 4.MD.A.3-Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- 4.OA.A.3-Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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):

- Use drawings and equations to solve multiplication and division word problems within 100.
- Find an unknown number in a multiplication or division equation.
- Explain the relationship between the concepts of area, multiplication, and addition.
- Solve problems involving perimeter and polygons.
- Compare the perimeter and area of polygons.
- Use all operations to solve two-step word problems.

- Write an equation for a word problem using a letter as the unknown quantity.
- Check the reasonableness of an answer.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Define perimeter.
- Find the perimeter of a shape.
- Compare perimeter and area.
- Model perimeter and area.

ESSENTIAL QUESTIONS:

- How can you use formulas for perimeter and area to solve problems?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Use a formula to find the perimeter of a rectangle.
- Use a formula to find the area of a rectangle.
- Find unknown measures of rectangles.
- Solve multi-step word problems involving perimeter or area.

STUDENTS WILL BE ABLE TO:

- Understand perimeter and area formulas.

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, Think and Grow, Show and Grow, Apply and Grow)

SUMMATIVE ASSESSMENTS

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ALTERNATE ASSESSMENTS

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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
12.1	<ul style="list-style-type: none"> ● Write a formula for the perimeter of a rectangle. ● Find the perimeter of a rectangle.
12.2	<ul style="list-style-type: none"> ● Write a formula for the area of a rectangle. ● Find the area of a rectangle.
12.3	<ul style="list-style-type: none"> ● Find an unknown measure of a rectangle given the area. ● Find an unknown measure of a rectangle given the perimeter.
12.4	<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):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Social Studies- Perimeter of States (T-567)
- English Language Arts- Comic Strips (T-573)
- Art- Dimensions of Famous Paintings (T-585)

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TEACHER NOTES



Unit Title			
Identify and Draw Lines and Angles			
CONTENT AREA:			
Mathematics		GRADE LEVEL:	
		4	
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 13- 12 Days (May)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>This chapter formalizes some of the geometry and measurement topics that students have seen in earlier grades, such as basic geometry building blocks, which include point, line, and angle (two dimensional figures). These figures are also used to generate real-world problems that students solve using strategies introduced in the chapter.</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"> ● 4.G.A.1- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. ● 4.MD.C.5- Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. ● 4.MD.C.6- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. ● 4.MD.C.7-Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the 			

parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.

PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):

- Identify shapes by name and attributes.
- Compare shapes using their attributes.
- Identify examples and non-examples of quadrilaterals.

ENDURING UNDERSTANDINGS (Chapter success criteria):

- Name angles.
- Measure angles.
Compare sizes of angles to create different
compare sizes of angles to create different
patterns.
- Measure and draw angles.

ESSENTIAL QUESTIONS:

- How can you draw and identify lines and angles?
- How can you measure angles and solve problems involving angle measures?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand lines and angles.

STUDENTS WILL BE ABLE TO:

- Identify and draw points, lines, line segments, and rays.
- Identify and draw angles.
- Identify and draw intersecting lines, parallel lines, and perpendicular lines.
- Measure angles using degrees.
- Find the measures of angles.
- Measure and draw angles.
- Find the measure of an angle using its parts.
- Find the measures of unknown angles.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
13.1	<ul style="list-style-type: none"> ● Identify points, lines, line segments, and rays. ● Name points, lines, line segments, and rays. ● Draw points, lines, line segments, and rays.
13.2	<ul style="list-style-type: none"> ● Identify angles as right, straight, acute, or obtuse. ● Name angles. ● Draw angles.
13.3	<ul style="list-style-type: none"> ● Identify intersecting lines, parallel lines, and perpendicular lines. ● Draw intersecting lines, parallel lines, and perpendicular lines.
13.4	<ul style="list-style-type: none"> ● Use fractional parts of a circle to measure angles. ● Explain how degrees are related to fractional parts of a circle.
13.5	<ul style="list-style-type: none"> ● Find the angle measures of a pattern block. ● Use a pattern block to find an angle measure.
13.6	<ul style="list-style-type: none"> ● Use a protractor to measure an angle. ● Use a protractor to draw an angle.
13.7	<ul style="list-style-type: none"> ● Identify the parts of an angle. ● Find the measure of an angle by adding its parts. ● Write an equation to find an angle measure.
13.8	<ul style="list-style-type: none"> ● Describe how a pair of angles are related. ● Write an equation to find an unknown angle measure. ● Solve an equation to find an unknown angle measure.
Connect and Grow	Performance Task, Activity, Chapter Practice
Connect and Grow	Centers

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQoqhIKcSPRxcgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Science- Fields of Vision (T-603)
- Art- Real life Images with Intersecting, Parallel, and Perpendicular Lines (T-609)
- Physical Education- Create Angles (T-615)
- Social Studies- Discussing Degrees with Compasses (T- 633)

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

<https://www.state.nj.us/education/students/safety/sandp/sel/SELCompetencies.pdf>

SEL Learning Activities:

<https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>

https://static.bigideasmath.com/protected/content/sel/mrl22_sel_ele.pdf

https://static.bigideasmath.com/protected/content/sel/mm_4thgrade_sel.pdf

Suggested Brain Breaks (Go Noodle- <https://app.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

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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.
- **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* Version 2022
- *i-Ready* Adaptive Learning Platform
- Online Learning Tools including Splash Learn, Prodigy, XtraMath, Brainpop

HUMAN AND PROFESSIONAL RESOURCES

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- BHPS Math Specialist
- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
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TEACHER NOTES



Unit Title			
Identify Symmetry and Two Dimensional Shapes			
CONTENT AREA:	Mathematics	GRADE LEVEL:	4
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 14- 9 Days (May/June)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>This chapter applies line symmetry to the study of identifying and classifying triangles and quadrilaterals. Students studied these shapes in earlier grades but never formally developed any definitions or descriptions of the figures. They have also worked with line symmetry, but not in a formal approach like this chapter uses.</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"> ● 4.G.A.3-Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. ● 4.G.A.2-Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 			
<p>PREREQUISITE KNOWLEDGE AND SKILLS (PROGRESSIONS):</p> <ul style="list-style-type: none"> ● Divide shapes into equal parts. ● Identify shapes by name and attributes. ● Compare shapes using their attributes. ● Identify examples and non-examples of quadrilaterals. 			

<p>ENDURING UNDERSTANDINGS (Chapter success criteria):</p> <ul style="list-style-type: none"> ● Define symmetry. ● Describe two-dimensional shapes. ● Compare angles and shapes. ● Draw different angles and shapes. 	<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> ● How do you recognize symmetry in a polygon? ● How can you classify triangles and quadrilaterals?
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<p>UNIT LEARNING TARGETS (STUDENTS WILL KNOW):</p> <ul style="list-style-type: none"> ● Identify shapes that have line symmetry. ● Draw symmetric shapes. ● Classify triangles by their sides. ● Classify triangles by their angles. ● Classify quadrilaterals
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<p>STUDENTS WILL BE ABLE TO:</p> <ul style="list-style-type: none"> ● Understand symmetry and two-dimensional shapes
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ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING
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<p>FORMATIVE ASSESSMENTS</p> <ul style="list-style-type: none"> ● Chapter Test A (Optional Pre Assessment for Chapter) ● Quizzes ● Homework ● Anecdotal notes ● Exit tickets/slips ● Math notebooks ● Student performance (Explore and Grow, Think and Grow, Show and Grow, Apply and Grow)

<p>SUMMATIVE ASSESSMENTS</p> <ul style="list-style-type: none"> ● Chapter Test B- Required ● LinkIt (According to district assessment calendar) ● iReady (According to district assessment calendar)
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<p>ALTERNATE ASSESSMENTS</p> <ul style="list-style-type: none"> ● Chapter Performance Task ● Chapter Alternative Assessments (Last page of each chapter in Teacher’s Edition) ● Cumulative Practice Assessments ● STEAM Performance Tasks
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LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	Optional Pre-Test/Introduction of Vocabulary
14.1	<ul style="list-style-type: none"> ● Determine whether a shape has line symmetry. ● Identify how many lines of symmetry a shape has. ● Draw each line of symmetry a shape has.
14.2	<ul style="list-style-type: none"> ● Draw a symmetric shape given one half of the shape and a line of symmetry. ● Draw a symmetric shape given one half of the shape.
14.3	<ul style="list-style-type: none"> ● Identify sides of a triangle with the same length. ● Identify sides of a triangle with different lengths. ● Use sides to classify a triangle. <p>Math Musical Link: https://mathmusicals.com/#/grade/4/sie-scalene-isosceles-equilateral/ </p>
14.4	<ul style="list-style-type: none"> ● Identify an angle as right, acute, or obtuse. ● Use angles to classify a triangle. ● Use angles and sides to classify a triangle.
14.5	<ul style="list-style-type: none"> ● Identify parallel sides and sides with the same length in a quadrilateral. ● Identify right angles of a quadrilateral. ● Use angles and sides to classify a quadrilateral.
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- Symmetry in Nature (T- 653)
- Social Studies- Classifying Flags (T-659)
- English Language Arts- Triangle Comic Strips (T-665)
- Art- Isosceles Triangle Pennants (T-665)

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