

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



Mathematics

Grade 2

Date Adopted: August 2022



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CURRICULUM WRITING TEAM

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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	Numbers and Arrays	9 days (September)	p. T-38 <ul style="list-style-type: none"> ● Array Flip and Find ● Skills Trainer ● Rolling Dice ● Pom-Pom Arrays ● Hole Punch Arrays
2	Fluency and Strategies within 20	13 days (September/October)	p. T-100 <ul style="list-style-type: none"> ● Joey Jump ● Skills Trainer ● Paper Plate Addition ● Fact Family Dice ● Addition or Subtraction War
3	Addition to 100 Strategies	11 days (October)	p. T-150 <ul style="list-style-type: none"> ● Three in a Row: Addition ● Skills Trainer ● Find the Missing Addend ● Choosing a Strategy ● Popsicle Stick Addition
4	Fluently Add within 100	11 days (November)	p. T-200 <ul style="list-style-type: none"> ● Solve and Cover: Addition ● Skills Trainer ● Addition Tic-Tac-Toe ● Spin It! ● Add It Up
5	Subtraction to 100 Strategies	12 days (November/December)	p. T-260 <ul style="list-style-type: none"> ● Three in a Row: Subtraction ● Skills Trainer ● Choose and Solve ● Mystery Hundred Chart ● Find Out About Me

6	Fluently Subtract within 100	11 days (December/January)	p. T-310 <ul style="list-style-type: none"> ● Solve and Cover: Subtraction ● Skills Trainer ● Animal Weight Subtraction ● Subtraction Tic-Tac-Toe ● Subtraction Riddle
7	Understand Place Value to 1,000	9 days (January)	p. T-348 <ul style="list-style-type: none"> ● Naming Numbers Flip and Find ● Skills Trainer ● Place Value Foldable ● Flip, Model, and Write
8	Count and Compare Numbers to 1,000	10 days (January/February)	p. T-392 <ul style="list-style-type: none"> ● Number Boss ● Skills Trainer ● Compare Chomp ● Roll, Spin, and Skip Count ● Number Puzzle
9	Add Numbers within 1,000	13 days (February)	p. T-458 <ul style="list-style-type: none"> ● Three in a Row: Three-Digit Addition ● Skills Trainer ● Addition Puzzle ● Domino Add ● Memory Addition Match
10	Subtract Numbers within 1,000	13 days (February/March)	p. T-520 <ul style="list-style-type: none"> ● Greatest and Least ● Skills Trainer ● Color by Number ● Spin and Subtract ● Subtraction Roll and Race
11	Measure and Estimate Lengths	12 days (March)	p. T-576 <ul style="list-style-type: none"> ● Spin and Cover ● Skills Trainer ● Customary Unit Sort ● Metric Identity Card ● House Measurements

12	Solve Length Problems	8 days (April)	<p>p. T-606</p> <ul style="list-style-type: none"> ● Draw and Cover ● Skills Trainer ● Story Spinners ● Even or Odd Difference ● Centimeter Cube Snakes
13	Represent and Interpret Data	11 days (April/May)	<p>p. T-660</p> <ul style="list-style-type: none"> ● Spin and Graph ● Skills Trainer ● Grab and Graph ● Design and Graph ● Measure and Plot
14	Money and Time	14 days (May)	<p>p. T-728</p> <ul style="list-style-type: none"> ● Flip and Find ● Skills Trainer ● Coin Boss ● Coin Drop ● Compare and Contrast Clocks
15	Identify and Partition Shapes	12 days (May/June)	<p>p. T-784</p> <ul style="list-style-type: none"> ● Three in a Row: Equal Shares ● Skills Trainer ● Color by Polygons ● Rectangle Boss ● Partitioning Clay Shapes



UNIT TITLE

Numbers and Arrays

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 1, 9 days (September)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students will draw upon their understanding of the doubles concept of addition to explore new mathematical terms such as: *equal groups*, *array*, and *repeated addition*. Students first gain an understanding of even and odd numbers by learning that even numbers are numbers that can be shown as two equal parts, and odd numbers cannot. Students use linking cubes and counters to model even and odd numbers. Students then learn to interpret a model of equal groups to arrange them as an array and write a repeated addition problem. An array shows equal groups in an organized way using rows and columns and can help students count more easily.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- 2.OA.C.3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
- 2.OA.C.4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Use properties of addition and subtraction as strategies.
- Fluently add and subtract within 10.
- Determine the unknown number to complete addition and subtraction equations.

<p>ENDURING UNDERSTANDINGS:</p> <ul style="list-style-type: none"> ● Identify odd and even numbers. ● Explain whether a number is even or odd. ● Create an array. ● Write equations. 	<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> ● How are even numbers and odd numbers different? ● How can you use models and equations to show a number in different ways?
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UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand numbers and arrays.

STUDENTS WILL BE ABLE TO:

- Tell whether a number is even or odd.
- Use an addition equation to model even and odd numbers.
- Determine the total number of objects in equal groups.
- Determine the total number of objects in an array.
- Make an array to solve a word problem.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction.

	<ul style="list-style-type: none"> ● <i>Math By the Book: Lesson 3, Even Steven and Odd Todd</i> by Kathryn Cristaldi (see <i>Math by the Book</i> Math Intervention binder)
1.1	<ul style="list-style-type: none"> ● Model a number using pairs of linking cubes. ● Tell whether a number can be shown as two equal parts. ● Explain how I know a number is even or odd. <p>https://www.mathmusicals.com/#/grade/2/evens-and-odds/</p>
1.2	<ul style="list-style-type: none"> ● Model a number using pairs in a grid. ● Write an addition equation to match the grid. ● Tell whether the number is even or odd.
1.3	<ul style="list-style-type: none"> ● Identify the number of groups and the number of objects in each group. ● Write a repeated addition equation. ● Tell how many objects there are in all. <p>https://www.mathmusicals.com/#/grade/2/the-pet-cruise-song-everybody-have-fun/</p>
1.4	<ul style="list-style-type: none"> ● Identify the number of rows and columns in an array. ● Write a repeated addition equation. ● Tell how many objects there are in all.
1.5	<ul style="list-style-type: none"> ● Explain when an array helps me solve a word problem. ● Make an array to model the problem. ● Use repeated addition to solve the problem.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers ● <i>Math By the Book: Lesson 4, Parade</i> by Donald Crews (see <i>Math by the Book</i> Math Intervention binder) <p>https://www.mathmusicals.com/#/grade/1/a-celebration-of-friendship/</p>
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: *Mine!* by Rachel Bright, p. T-7.
- Social Studies: Show pictures of flags from different countries to students and count components, determining if there is an even or odd number, p. T-7.

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

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

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

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

P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

COMPUTER SCIENCE AND DESIGN THINKING:

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

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

Framework for 21st Century Learning

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

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils. The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.
- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSL and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.
- **Diversity, Equity, and Inclusion:** The ability to listen and grow empathy makes way for greater awareness of the importance of community, one's own culture, others' culture, the differences and similarities amongst people around the world, of the issues facing humanity, and of our shared interest in the success of all people. Having a "global perspective" means that we strive to educate students with the global understanding necessary to address the challenges and successes of our interdependent world. In the Berkeley Heights Public Schools, we are committed to overcoming challenges and to building interest and capacity amongst our students to be engaged with finding and celebrating commonalities and solutions to global problems, and we are committed to ensuring that our community is diverse, equitable, and inclusive. Our mission statement is to

honor the diversity of our community and foster inclusiveness and acceptance through a three-tiered approach: celebration, communication, and education.

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

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

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

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

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- iReady Adaptive Learning Platform
- Online Learning tools including Splash Learn, Prodigy, XtraMath, BrainPop
- *Math by the Book* series

HUMAN AND PROFESSIONAL RESOURCES

- *Math Work Stations* by Debbie Diller
- BHPS Math specialists
- Laurie's Notes from Big Ideas Math
- *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
- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE			
Fluency and Strategies within 20			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 2, 13 days (September/October)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this unit, students recall the addition and subtraction strategies previously learned to fluently compute within 20, such as doubles, near doubles, making ten, add in any order, think addition, count back, and count on to subtract. These strategies are reviewed and supported by models such as fingers, acting out, pictures, drawings, and manipulatives. Students will use these tools to build an understanding of strategies and explain their thinking. A new strategy, <i>get to 10</i>, is introduced in this chapter using an open number line. Students will build on their operational fluency and number sense in a variety of ways.</p> <p>Additionally, in this unit students are expected to master the various addition and subtraction situations. Students encounter many different types of problems, such as <i>add to</i>, <i>take from</i>, <i>put together</i>, <i>take apart</i>, and <i>compare</i>, with different parts unknown. To model these problems students will use tools such as ten frames, linking cubes, part-part-whole mats, number lines, and addition fact charts. These addition and subtraction word problems will allow students to practice and apply operational fluency while thinking critically.</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"> ● 2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ● 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers. 			

- 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Use properties of addition and subtraction as strategies.
- Fluently add and subtract within 10.
- Solve addition and subtraction word problems within 20.
- Determine the unknown number to complete addition and subtraction equations.
- Use strategies to add within 100.

ENDURING UNDERSTANDINGS:

- Identify when to use a strategy.
- Explain a strategy to help solve a problem.
- Use a strategy to help solve a problem.
- Reflect on the strategy used.

ESSENTIAL QUESTIONS:

- How can you use patterns and strategies to find sums and differences for basic facts?
- Why is it important to be able to add and subtract accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand strategies of addition and subtraction.

STUDENTS WILL BE ABLE TO:

- Add in any order to find a sum.
- Use the doubles plus 1 and doubles minus 1 strategies to find a sum.
- Add three numbers.
- Use the make a 10 strategy to add two numbers.
- Use the count on and count back strategies to find a difference.
- Write related addition and subtraction equations.
- Use the get to 10 strategy to subtract.
- Add and subtract within 20.
- Solve addition and subtraction word problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none">● Introduction of vocabulary, optional pre-test, and center introduction.● <i>Math By the Book: Lesson 2, Dinner at the Panda Palace</i> by Stephanie Calmenson (see <i>Math by the Book</i> Math Intervention binder)
2.1	<ul style="list-style-type: none">● Use the same addends to write two addition equations.● Explain what happens when the order of the addends change. https://www.mathmusicals.com/#/grade/2/it-all-adds-up/
2.2	<ul style="list-style-type: none">● Identify when to use the doubles plus (or minus) 1 strategy.● Use a double to help find the sum.● Explain the doubles plus (or minus) 1 strategy.
2.3	<ul style="list-style-type: none">● Choose two numbers to add first.● Add a third number to the sum.● Explain the strategy I used to add three numbers.
2.4	<ul style="list-style-type: none">● Break apart one addend to make a ten.● Explain how to use the make a 10 strategy to add two numbers.● Use a 10s fact to find the sum.
2.5	<ul style="list-style-type: none">● Use a number line to find a difference.● Explain the count on and count back strategies.
2.6	<ul style="list-style-type: none">● Solve an addition equation.● Use what I know about the addition equation to solve a subtraction equation.● Explain how knowing related facts can help me solve equations. https://www.mathmusicals.com/#/grade/2/add-on-the-number-line/
2.7	<ul style="list-style-type: none">● Write partner numbers to get to 10 when subtracting.● Subtract the other partner number from 10.● Complete the subtraction equation.

2.8	<ul style="list-style-type: none"> ● Use mental strategies to solve equations. ● Explain the strategy I used.
2.9	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Use a strategy to solve. ● Explain what strategy I used to solve.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: *The Mission of Addition* by Brian P. Cleary, p. T-45
- Physical Education: Play “Subtraction Bowling”, p. T-81

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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

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

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

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

P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

COMPUTER SCIENCE AND DESIGN THINKING:

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

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

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GLOBAL THINKING:

- Amistad and Holocaust:

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

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

- **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.

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TEACHER NOTES



UNIT TITLE

Addition to 100 Strategies

CONTENT AREA: Mathematics **GRADE LEVEL:** 2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Chapter 3, 11 days (October)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students will continue working with addition by adding two-digit addends and various strategies for finding their sum. Students will draw upon their understanding of place value, focusing on the decomposition of a number into parts as tens and ones. The hundreds chart will support students as they transfer numbers to an open number line and use it as a tool to add and count on by ten. Students show “jumps” on the open number line in groups of ten to visually indicate the difference. Additionally, students will support the modeling of two-digit addition using base ten blocks to decompose into tens and ones. Base ten blocks provide a physical manipulative that supports making a ten and compensation, setting the foundation for the introduction of regrouping to add.

KEY UNDERSTANDINGS

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

- NEW JERSEY STUDENT LEARNING STANDARDS:**
- 2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
 - 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Solve addition and subtraction word problems within 20.
- Determine the unknown number to complete addition and subtraction equations.

- Use strategies to add within 100.

ENDURING UNDERSTANDINGS:

- Identify addition patterns.
- Explain which strategy I used to write a sum.
- Explain which strategy I used to write a sum.
- Write a sum.
- Solve addition problems.

ESSENTIAL QUESTIONS:

- How do you use place value to add 2-digit numbers, and what are some different ways to add 2-digit numbers?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand addition.

STUDENTS WILL BE ABLE TO:

- Use an open number line to add tens.
- Use an open number line to add tens and ones.
- Use place value to add two numbers.
- Break apart a number to add.
- Use compensation to add.
- Choose a strategy to add two numbers
- Solve two-step addition problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 7, Jingle Dancer</i> by Cynthia L. Smith (see <i>Math by the Book</i> Math Intervention binder)
3.1	<ul style="list-style-type: none"> ● Use an open number line to count on by tens. ● Describe patterns when counting by tens. ● Write the sum.
3.2	<ul style="list-style-type: none"> ● Use an open number line to count on by tens and by ones. ● Describe patterns when counting by tens and by ones. ● Write the sum.
3.3	<ul style="list-style-type: none"> ● Break apart the addends into tens and ones. ● Add the tens and the ones. ● Write the sum, regrouping if necessary. <p>https://www.mathmusicals.com/#/grade/2/whats-their-score/</p>
3.4	<ul style="list-style-type: none"> ● Break apart an addend into tens and ones. ● Add the tens to the first addend, then add the ones. ● Write the sum.
3.5	<ul style="list-style-type: none"> ● Explain how to use compensation to add. ● Take ones from an addend to make the other addend a ten. ● Write the sum.
3.6	<ul style="list-style-type: none"> ● Choose a strategy to solve. ● Add the numbers and write the sum. ● Explain the strategy used.
3.7	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used to solve.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice

Connect and Grow	<ul style="list-style-type: none"> Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
Chapter Assessment	<ul style="list-style-type: none"> Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

- <https://docs.google.com/document/d/1v5NF2k0cQogh1KcSPRxgvj7AUejTkr0Dnz2J92-9qe4/edit?usp=sharing>

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: *Zero the Hero* by Joan Holub, p. T-107
- Social Studies: Make distances between cities or landmarks on a map and add to find the total distance, p. T-119.
- Science: Discuss tagging animals to study their populations and provide word problems about tagging animals to add and compare the sums of animals, p. T-125.
- Art: Show students images of pixel art and add together the number of squares in each color, p. T-131.

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TEACHER NOTES



UNIT TITLE			
Fluently Add within 100			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
Chapter 4, 11 days (November)			
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this unit, students are introduced to the standard algorithm for adding two-digit numbers written in vertical format, which will be supported by the fluency within 20 and within 100 strategies that they have been practicing thus far. Students continue to use their understanding of place value to add two-digit numbers. Base ten blocks are used to introduce partial sums and are an important model to connect this concept for students. After they gain an understanding of partial sums, students are introduced to regrouping. Tools such as place value frames with a regrouping box are used as supports and are gradually removed as students become more proficient. The unit wraps up with one- and two-step word problems using two-digit numbers with and without regrouping.</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">● 2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.● 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.● 2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.			
PREREQUISITE KNOWLEDGE AND SKILLS:			
<ul style="list-style-type: none">● Solve addition and subtraction word problems within 20.			

- Determine the unknown number to complete addition and subtraction equations.
- Use strategies to add within 100.

ENDURING UNDERSTANDINGS:

- Identify addition patterns.
- Explain which strategy I used to write a sum.
- Explain which strategy I used to write a sum.
- Write a sum.
- Solve addition problems.

ESSENTIAL QUESTIONS:

- How do you use patterns, strategies, and models to add two-digit numbers?
- Why is it important to add two-digit numbers accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand addition.

STUDENTS WILL BE ABLE TO:

- Use partial sums to add.
- Use partial sums to add.
- Use regrouping to add.
- Use regrouping when needed to add.
- Add two-digit numbers.
- Add up to 3 two-digit numbers.
- Solve one- and two-step addition problems.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
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ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 1, Hot Day on Abbott Avenue</i> by Karen English (see <i>Math by the Book</i> Math Intervention binder) <p style="text-align: center;">https://www.mathmusicals.com/#/grade/2/whats-their-score/</p>
4.1	<ul style="list-style-type: none"> ● Write an addition equation to add the tens. ● Write an addition equation to add the ones. ● Add the partial sums.
4.2	<ul style="list-style-type: none"> ● Add the tens from each number. ● Add the ones from each number. ● Add the partial sums.
4.3	<ul style="list-style-type: none"> ● Make quick sketches to show regrouping. ● Show 10 ones regrouped as 1 ten. ● Solve the addition problem.
4.4	<ul style="list-style-type: none"> ● Use place-value to rewrite an addition problem. ● Show 10 ones regrouped as 1 ten. ● Solve the addition problem.
4.5	<ul style="list-style-type: none"> ● Choose a strategy to solve. ● Find the sum.
4.6	<ul style="list-style-type: none"> ● Choose two of the ones digits to add first. ● Add the other one's digit. ● Add the tens to find the sum. <p style="text-align: center;">https://www.mathmusicals.com/#/grade/2/build-a-bridge/</p>
4.7	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used to solve.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice

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Chapter Assessment	<ul style="list-style-type: none"> Chapter Test B
Cumulative Practice (optional)	<ul style="list-style-type: none"> Optional cumulative review of chapters 1-4.

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: *Sir Cumference and All the King's Tens: A Math Adventure* by Cindy Neuschwander, p. T-157.
- Physical Education: Provide number cards with two-digit numbers. Student partners will call out "Tens!" or "Ones!" and the other will do the place value "amount" of jumping jacks, p. T-163.
- Science: Create two-digit addition word problems using contexts from science lessons, p. T-175.
- Art: Students will draw a store with four items and add a two-digit price to each item. Students will exchange drawings with a peer and "buy" items from their drawing, adding up the sum to find their total cost, p. T-187.

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TEACHER NOTES



UNIT TITLE

Subtraction to 100 Strategies

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 5, 12 days (November/December)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, student learning switches focus to subtraction using the same fundamentals of place value and strategies as support. Before learning the standard subtraction algorithm, students practice various ways of decomposing, or breaking apart, numbers. Proficiency in composing and decomposing before relying on the standard algorithm helps students to be flexible in their judgements of whether their answers are reasonable. This unit introduces two-digit minuends and subtrahends and a variety of strategies to find their difference. It is important to continue to provide opportunities for students to practice subtraction fact fluency within 20, as some students may still not be completely fluent. Students will apply subtraction strategies within 20 when subtracting within 100 using the hundred chart and an open number line model. Students will relate addition to subtraction to use the *add on to subtract* strategy along with other strategies that focus on *decomposition* and *compensation* mental math strategies. These strategies build proficiency in problem solving and prepare students for one- and two-step word problems at the end of the unit.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Solve addition and subtraction word problems within 20.
- Determine the unknown number to complete addition and subtraction equations.
- Use strategies to add within 100.

ENDURING UNDERSTANDINGS:

- Identify subtraction patterns.
- Explain which strategy I used to find a difference.
- Write a difference.
- Solve subtraction problems.

ESSENTIAL QUESTIONS:

- How do you use place value to subtract 2-digit numbers with and without regrouping?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand subtraction.

STUDENTS WILL BE ABLE TO:

- Use an open number line to subtract tens.
- Use an open number line to subtract tens and ones.
- Use addition to subtract on an open number line.
- Break apart one-digit numbers to subtract.
- Break apart two-digit numbers to subtract.
- Use compensation to subtract.
- Choose a strategy to subtract.
- Solve two-step subtraction problems.

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

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 8, Too Many Toys</i> by David Shannon (see <i>Math by the Book</i> Math Intervention binder) <p style="margin-left: 20px;">https://www.mathmusicals.com/#/grade/2/the-top-of-the-pyramid/</p>
5.1	<ul style="list-style-type: none"> ● Use an open number line to count back by tens. ● Describe patterns when counting back by tens. ● Write the difference.
5.2	<ul style="list-style-type: none"> ● Use an open number line to count back by tens and ones. ● Describe patterns when counting back by tens and ones. ● Write the difference.
5.3	<ul style="list-style-type: none"> ● Count on from a number to a greater number. ● Explain how to count on to subtract. ● Write the difference.
5.4	<ul style="list-style-type: none"> ● Break apart the number being subtracted to get to a decade number. ● Subtract the other partner number to find the difference.
5.5	<ul style="list-style-type: none"> ● Break apart the number being subtracted into tens and ones. ● Subtract the tens. ● Break apart the ones to get to a decade number. ● Subtract the other partner number to find the difference
5.6	<ul style="list-style-type: none"> ● Add or subtract to make the number being subtracted a decade number. ● Explain how to compensate for what I added or subtracted. ● Complete the subtraction equation.
5.7	<ul style="list-style-type: none"> ● Choose a strategy to subtract. ● Subtract and write the difference. ● Explain the strategy I used.
5.8	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used to solve.

Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art: Students create a bookmark that shows two ways to model a subtraction equation on a number line, p. T-211.
- Science: Discuss goldfish and different sized aquariums. Create subtraction problems for students about fish in aquariums, p. T-217.
- Physical Education: Divide the class into two groups and students will race to the board to solve the subtraction problem, p. T-229.
- ELA: Students will write a subtraction story problem and switch to solve a partner's, p. T-253.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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

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

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

P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

COMPUTER SCIENCE AND DESIGN THINKING:

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

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

Framework for 21st Century Learning

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

GLOBAL THINKING:

- **Amistad and Holocaust:**
N.J.S.A 18A 52:16A-88 Every board of education shall incorporate the information regarding the contributions of African-Americans to our country in an appropriate place in the curriculum of elementary and secondary school students.
N.J.S.A. 18A:35-28 Every board of education shall include instruction on the Holocaust and genocides in an appropriate place in the curriculum of all elementary and secondary school pupils.

The instruction shall further emphasize the personal responsibility that each citizen bears to fight racism and hatred whenever and wherever it happens.

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online Learning tools including Splash Learn, Prodigy, XtraMath, BrainPop
- *Math by the Book* series

HUMAN AND PROFESSIONAL RESOURCES

- *Math Work Stations* by Debbie Diller
- BHPS Math specialists
- Laurie's Notes from Big Ideas Math

- *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
- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE

Fluently Subtract within 100

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 6, 11 days (December/January)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students will apply strategies for subtracting within 20 and extend them to subtracting within 100. Students will use open number lines, subtraction charts with regrouping boxes, and base ten blocks to demonstrate subtraction with and without regrouping. The teaching of this concept heavily relies on the concrete, representational, abstract (CRA) model of mathematics instruction. Base ten blocks help students to conceptualize the math behind the standard subtraction algorithm. These concrete manipulatives are paired with teaching students to draw “quick sketches” of the base ten blocks. Students should feel comfortable using the concrete (base ten blocks) and representational (quick sketches) ways of representing the subtraction problems before moving to the concept of regrouping in the standard vertical subtraction algorithm. When learning this process, students use a subtraction chart with regrouping boxes alongside a quick sketch and is eventually replaced with a t-chart without regrouping boxes. It is important to use specific language when teaching this concept; when a 10 is exchanged, or regrouped, from the tens place to a group of 10 ones in the ones place, we call it *regrouping*, not *borrowed*. Students practice this concept with one- and two-step word problems at the end of the unit.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Solve addition and subtraction word problems within 20.
- Determine the unknown number to complete addition and subtraction equations.
- Use strategies to add within 100.

ENDURING UNDERSTANDINGS:

- Identify subtraction patterns.
- Explain which strategy I used to find a difference.
- Show regrouping.
- Model subtraction problems.

ESSENTIAL QUESTIONS:

- How can you use patterns, strategies, and models to subtract two-digit numbers?
- Why is it important to subtract numbers accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand subtraction fluently.

STUDENTS WILL BE ABLE TO:

- Use models and regrouping to subtract a one-digit number from a two-digit number.
- Use models to subtract a one-digit number from a two-digit number.
- Use models to subtract a two-digit number from a two-digit number.
- Subtract a one- or two-digit number from a two-digit number.
- Use addition to check subtraction.
- Subtract two-digit numbers.
- Solve one- and two-step problems.

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

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 9, A Bike Like Sergio's</i> by Maribeth Boelts (see <i>Math by the Book</i> Math Intervention binder) <p style="margin-left: 20px;">https://www.mathmusicals.com/#/grade/2/the-top-of-the-pyramid/</p>
6.1	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 ten for 10 ones if regrouping. ● Model the subtraction. ● Solve for the difference.
6.2	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 ten for 10 ones if regrouping. ● Solve for the difference.
6.3	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 ten for 10 ones if regrouping. ● Model the subtraction. ● Solve for the difference.
6.4	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 ten for 10 ones if regrouping. ● Solve for the difference.
6.5	<ul style="list-style-type: none"> ● Use a part-part-whole model to show subtraction. ● Solve a subtraction problem. ● Use addition to check the difference. <p style="margin-left: 20px;">https://www.mathmusicals.com/#/grade/2/how-much-faster/</p>
6.6	<ul style="list-style-type: none"> ● Choose a strategy to solve. ● Find the difference.
6.7	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used to solve.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice

Connect and Grow	<ul style="list-style-type: none"> Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
Chapter Assessment	<ul style="list-style-type: none"> Chapter Test B

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art: Students will create two subtraction equations with and without regrouping. Students will model the equations on a poster using craft sticks as “tens” and beads or sequins as “ones”, p. T- 267.
- Physical Education: Prepare index cards with one-digit numbers being subtracted from two-digit numbers. Partners will run out to the index card, bring it back and solve the problem together in a relay race style, p. T-273.
- ELA: *Shark Swimathon* by Stuart J. Murphy, p. T-279.
- Science: Study and track weather patterns for a month. Count the sunny days and subtract them from the total days in the month to find out how many were not sunny, p. T-285.
- Social Studies: Discuss Betsy Ross and her flag design. Subtract 50 - 13 to find out how many states were added to the country. Use addition to check the answer, p. T-291.

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

RESOURCES

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HUMAN AND PROFESSIONAL RESOURCES

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- BHPS Math specialists
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- *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
- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE			
Understand Place Value to 1,000			
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT			
CONTENT AREA: Mathematics		GRADE LEVEL: 2	
UNIT FOCUS - SUMMARY OF UNIT			
<p>In this unit, students build upon their prior knowledge of counting, writing, and comparing numbers within 120. They have an understanding of tens and ones and computation using place value. The following big ideas are introduced in this unit: 1) numbers can be decomposed, or broken apart, and composed, or joined together, in various ways, 2) The location of a digit in a number determines its value, 3) Place value is based on groups of ten. One ten is made up of 10 ones, and 10 ones can be joined to make 1 ten. One hundred is made up of 10 tens, and 10 tens can be joined to make 1 hundred, 4) The groupings of ones, tens, and hundreds can be taken apart in different, but equivalent, ways, 5) There are patterns to the way numbers are formed, and 6) Patterns and grouping allow us to count more efficiently.</p> <p>Base ten blocks are used throughout the unit to model numbers to 1,000. Students can use base ten blocks to make equivalent collections of hundreds, tens, and ones and represent and record these collections with drawings and numbers. Students also practice using content-specific vocabulary, such as <i>digit</i>, <i>tens</i>, <i>tens place</i>, <i>ones</i>, <i>ones place</i>, <i>hundreds</i>, and <i>hundreds place</i>. They will represent and write numbers in three different forms: standard form, expanded form, and word form. This will help them develop a strong place value understanding and support them as they move into adding and subtracting two- and three-digit numbers in the following units.</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"> 2.NBT.A.1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: 			

- a. 100 can be thought of as a bundle of ten tens — called a “hundred.”
- b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
- 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Understand the value of each digit in a two-digit number.
- Understand a group of 10 ones as a ten.
- Understand the numbers 11 to 19 as a ten and some ones.
- Name and write numbers to 120.

ENDURING UNDERSTANDINGS:

- Identify different numbers.
- Explain the values of numbers.
- Model and write numbers.
- Represent numbers in different ways.

ESSENTIAL QUESTIONS:

- How do you use place value to find the values of numbers and describe numbers in different ways?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand place value.

STUDENTS WILL BE ABLE TO:

- Identify groups of tens as hundreds.
- Model and write numbers to 1,000.
- Understand the values of digits in a number.
- Write numbers in standard form, expanded form, and word form.
- Represent numbers in different ways.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

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

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book</i>: Lesson 5, <i>Max's Words</i> by Kate Banks (see <i>Math by the Book</i> Math Intervention binder)
7.1	<ul style="list-style-type: none"> ● Group 10 tens as a hundred. ● Tell how many tens and hundreds are modeled. ● Write the number.
7.2	<ul style="list-style-type: none"> ● Tell how many hundreds, tens, and ones are modeled. ● Write the number when the hundreds, tens, and ones are given.
7.3	<ul style="list-style-type: none"> ● Tell the value of the digit in the ones place. ● Tell the value of the digit in the tens place. ● Tell the value of the digit in the hundreds place.
7.4	<ul style="list-style-type: none"> ● Read and write numbers in standard form. ● Read and write numbers in expanded form. ● Read and write numbers in word form. ● When given a number in one form, write it in a different form.
7.5	<ul style="list-style-type: none"> ● Draw a quick sketch to model a three-digit number. ● Tell the value of the digit in each place value. ● Show two ways to model and write a number.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: Have students create and write a short story about being 100 years old using exactly 100 letters and numbers. Once completed, students use a colored pencil to lightly circle groups of 10 letters and numbers within their story, p. T-317.
- Science: Discuss the 5 main categories of vertebrates: fish, amphibians, reptiles, mammals, and birds. Model three-digit numbers of these animals using place value mats and base ten blocks, p. T-323.
- Physical Education: Set up a three-station obstacle course during which students solve a base ten problem at each station and perform an exercise, p. T-335.
- Social Studies: Discuss Morse code. Have students write three-digit numbers in Morse code, switch with a partner, and then model the partner's number with base ten blocks, p. T-341.

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

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

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

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

P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

- Relationship Skills

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

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 NJSLS 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 NJSLS – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

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

GLOBAL THINKING:

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

towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

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

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

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

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

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

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online Learning tools including Splash Learn, Prodigy, XtraMath, BrainPop
- *Math by the Book* series

HUMAN AND PROFESSIONAL RESOURCES

- *Math Work Stations* by Debbie Diller
- Math specialists
- Laurie's Notes from Big Ideas Math
- *Guided Math: A Framework for Mathematics Instruction* by Laney Sammons
- *About Teaching Mathematics, 4th edition* by Marilyn Burns
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- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE	
Count and Compare Numbers to 1,000	
CONTENT AREA:	Mathematics
GRADE LEVEL:	2
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT	
Unit 8, 10 days (January/February)	
UNIT FOCUS - SUMMARY OF UNIT	
<p>In this unit, students build upon the last unit’s concept of modeling numbers within 1,000 to help students notice patterns and compare numbers. First, students extend the counting sequence by counting by ones, fives, tens, and hundreds using a number line or hundreds chart to model jumps. Students will notice patterns in skip counting that relate to the base ten system. The second half of the unit focuses on comparing numbers using inequalities and inequality symbols ($>$, $<$, $=$). Students use place value and number lines to determine how to “write a comparison sentence using symbols” or “use symbols to show the comparison of numbers”. Content-specific vocabulary such as <i>greater than</i>, <i>less than</i>, and <i>equal to</i> will be used to compare numbers and explain thinking.</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"> ● 2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s. ● 2.NBT.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. ● 2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. 	
<p>PREREQUISITE KNOWLEDGE AND SKILLS:</p> <ul style="list-style-type: none"> ● Understand the value of each digit in a two-digit number. ● Understand a group of 10 ones as a ten. ● Understand the numbers 11 to 19 as a ten and some ones. 	

<p>ENDURING UNDERSTANDINGS:</p> <ul style="list-style-type: none"> ● Identify patterns. ● Skip count. ● Compare numbers and their values. ● Represent numbers in different ways. 	<p>ESSENTIAL QUESTIONS:</p> <ul style="list-style-type: none"> ● How can you use place value to model, write, and compare 3-digit numbers?
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<p>UNIT LEARNING TARGETS (STUDENTS WILL KNOW):</p> <ul style="list-style-type: none"> ● Understand counting and place value.
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<p>STUDENTS WILL BE ABLE TO:</p> <ul style="list-style-type: none"> ● Skip count within 120 in different ways. ● Skip count within 1,000 in different ways. ● Identify patterns to find missing numbers. ● Identify numbers that are 1, 10, or 100 more and less than a number. ● Use symbols to compare two numbers up to 1,000. ● Use a number line to compare two numbers up to 1,000.
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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 ● Math notebooks ● Student performance (Explore and Grow, Think and Grow, Show and Grow, Apply and Grow: Practice, Think and Grow: Modeling Real Life)

<p>SUMMATIVE ASSESSMENTS</p> <ul style="list-style-type: none"> ● Required Chapter Test B ● iReady and LinkIt (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 TE and in Assessment Book) ● Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):	
Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction.

	<ul style="list-style-type: none"> ● <i>Math By the Book: Lesson 6, How Many Seeds in a Pumpkin?</i> by Margaret McNamara (see <i>Math by the Book Math Intervention binder</i>) https://www.mathmusicals.com/#/grade/2/put-in-the-hours/
8.1	<ul style="list-style-type: none"> ● Skip count by ones. ● Skip count by fives. ● Skip count by tens.
8.2	<ul style="list-style-type: none"> ● Skip count by fives. ● Skip count by tens. ● Skip count by hundreds.
8.3	<ul style="list-style-type: none"> ● Use place value to describe the pattern. ● Count on by tens from a number. ● Count on by hundreds from a number. ● Complete the number sequence.
8.4	<ul style="list-style-type: none"> ● Write numbers that are 1 more and 1 less than a number. ● Write numbers that are 10 more and 10 less than a number. ● Write numbers that are 100 more and 100 less than a number. ● Explain which digit changes when finding 1, 10, or 100 more or less than a number.
8.5	<ul style="list-style-type: none"> ● Start with the greatest place value when comparing two numbers. ● Identify the greater (lesser) number. ● Say and write the symbol to compare two numbers. ● Explain how to use place value to compare.
8.6	<ul style="list-style-type: none"> ● Locate each number on the number line. ● Write a symbol (=, <, >) to compare the numbers. ● Explain how to use the number line to compare.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B
Cumulative Practice (optional)	<ul style="list-style-type: none"> ● Optional cumulative review of chapters 1-8.

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Physical Education: Play cup stacking using cups with the multiples of five, ten, or hundred written on them to practice skip counting, p. T-355.
- Science: Discuss recycling and water conservation with students. Solve a problem relating to water usage using skip counting, p. T-361.
- Art: Students will create a hanging paper display to identify numbers 1, 10, and 100 more and less than a given number, p. T-373.
- ELA: Discuss opposite words with students and take a survey of students of which opposite word they prefer. Record and use symbols to compare preferences, p. T-379.
- Social Studies: In small groups provide students with the Century Events Timeline Cards Instructional Resource. Discuss events and students will compare and order cards from earliest to most recent occurrence, p. T-385.

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TEACHER NOTES



UNIT TITLE

Add Numbers within 1,000

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 9, 13 days (February)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students will transfer their fluency with addition within 100 and understanding of place value to learning addition within 1,000. Students will develop fact fluency in multi-digit addition by building upon their knowledge of basic facts. For example, if a student knows $5 + 4 = 9$, they can extend this fact to knowing $50 + 40 = 90$ and $500 + 400 = 900$. This knowledge is helpful when using tools and strategies such as an open number line, base ten blocks, compensation, and partial sums to demonstrate the understanding of addition within 1,000. The unit begins with a focus on mental math, adding ten and one hundred to a three digit number and noting the change in the sum. Then, students are exposed to various strategies for adding within 1,000 before relying on the standard addition algorithm for solving. Flexibility of thinking and use of strategies should be encouraged and students should choose the method that best works for them. Anchor charts, instructional resources, and materials from Chapters 4 and 5 should be displayed and utilized to remind and connect students to addition within 100 strategies.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
- 2.NBT.B.7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

- 2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
- 2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Mentally find 10 more or 10 less than a two-digit number.
- Use models, properties, and strategies to subtract a decade number from a two-digit number.
- Use properties of addition and subtraction as strategies.

ENDURING UNDERSTANDINGS:

- Identify 10 and 100.
- Count on from a number in different ways.
- Explain how to use different counting strategies.
- Represent numbers in different ways.

ESSENTIAL QUESTIONS:

- What are some strategies for adding 3-digit numbers?
- Why is it important to add accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand adding numbers.

STUDENTS WILL BE ABLE TO:

- Use mental math to add 10 and add 100.
- Use an open number line to add hundreds and tens.
- Use an open number line to add.
- Use compensation to add.
- Use partial sums to add.
- Use models to add.
- Add three-digit numbers.
- Add up to 4 two-digit numbers.
- Choose and explain a strategy to add.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

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

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 10, Too Many Pumpkins</i> by Linda White (see <i>Math by the Book Math Intervention binder</i>) https://www.mathmusicals.com/#/grade/2/build-a-bridge/
9.1	<ul style="list-style-type: none"> ● Add 10 or 100 to a number and write the sum. ● Explain what happens to the digit in the tens place when adding 10. ● Explain what happens to the digit in the hundreds place when adding 100.
9.2	<ul style="list-style-type: none"> ● Show jumps of hundreds and tens on an open number line. ● Count on from a starting number in different ways. ● Write the sum.
9.3	<ul style="list-style-type: none"> ● Show jumps of hundreds, tens, and ones on an open number line. ● Count on from a starting number in different ways. ● Write the sum.
9.4	<ul style="list-style-type: none"> ● Explain how to use compensation to add. ● Add to or take from an addend to make a hundred. ● Write the sum.
9.5	<ul style="list-style-type: none"> ● Add the hundreds from each number. ● Add the tens from each number. ● Add the ones from each number. ● Add the partial sums.
9.6	<ul style="list-style-type: none"> ● Explain when regrouping is needed. ● Make quick sketches to show regrouping. ● Show 10 ones regrouped as 1 ten or 10 tens regrouped as 1 hundred. ● Solve the addition problem.

9.7	<ul style="list-style-type: none"> ● Explain when regrouping is needed. ● Show 10 ones regrouped as 1 ten or 10 tens regrouped as 1 hundred. ● Solve the addition problem.
9.8	<ul style="list-style-type: none"> ● Explain what compatible numbers are. ● Explain how to add digits in like place values in any order. ● Add the ones, tens, and then the hundreds to find the sum.
9.9	<ul style="list-style-type: none"> ● Choose a strategy to add. ● Solve for the sum. ● Explain the strategy used.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Social Studies: Discuss “decade” and “century”. Students can calculate how old they’ll be in a certain amount of decades or centuries, p. T-403.
- Physical Education: Write a three-digit addition equation on the board. Students will stomp to represent a jump of 10 or jump to represent a jump of 100 as if on a giant open number line, p. T-409.
- Music: Students write a math song to list the steps of how to solve three-digit addition equations using an open number line, p. T-415.
- Art: Students create and decorate their own anchor chart using compensation to add three-digit numbers, p. T-421.
- Science: Discuss insects that have the prefix *centi-* and *milli-*. Create addition problems to add the number of legs of different insects together, p. T-439.
- ELA: Students will choose and write about their preferred strategy for adding three-digit numbers, p. T-451.

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

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 NJSLSTechnology, outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.
- Standard 8.2 Design Thinking - This standard, previously standard 8.2 Technology Education of the 2014 NJSLS – Technology, outlines the technological design concepts and skills essential for

technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

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

GLOBAL THINKING:

- **Amistad and Holocaust:**

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

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

- **LGBTQIA+:** In accordance with the Inclusive Curriculum Bill A1335, signed into law in NJ in 2020, this document is to include instruction, and instructional materials for Grades 5-12, that accurately portray political, economic, and social contributions of persons with disabilities and lesbian, gay, bisexual, and transgender people. This curricular document includes classroom materials that are in alignment with NJSLs and Core Curriculum Content Standards and ensures that students receive diverse instruction in history, the social sciences, and other content areas, which cultivates respect towards minority groups, allows students to appreciate differences, and acquires the skills and knowledge needed to function effectively with people of various backgrounds.

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

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

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

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

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

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
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TEACHER NOTES



UNIT TITLE				
Subtract Numbers within 1,000				
CONTENT AREA:		Mathematics	GRADE LEVEL:	
			2	
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT				
Unit 10, 13 days (February/March)				
UNIT FOCUS - SUMMARY OF UNIT				
<p>In this unit, students are introduced to the final computation concepts of the second grade curriculum, and are expected to be fluent with multi-digit addition and subtraction in Grade 3. During this chapter students apply their knowledge of place value and fluency in subtraction within 100 while learning to subtract multi-digit numbers within 1,000. Strategies for subtracting two-digit numbers from previous chapters as well as tools such as base ten blocks and open number lines help students build the foundations of subtraction within 1,000. Students first practice fluency with subtracting 10 less and 100 less using open number lines, hundreds charts, and base ten blocks. Students then move into learning the compensation strategy for three-digit numbers as well as how to use models and draw quick sketches to understand when regrouping is needed. These concrete models and strategies are used before the standard algorithm is introduced in Lesson 6 with a place value mat. Students are taught the standard algorithm but should also feel comfortable choosing other strategies and tools to subtract when flexibility is needed. Anchor charts displaying these resources should be on display for student reference.</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"> ● 2.NBT.B.7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. ● 2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. 				

- 2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Mentally find 10 more or 10 less than a two-digit number.
- Use models, properties, and strategies to subtract a decade number from a two-digit number.
- Use properties of addition and subtraction as strategies.

ENDURING UNDERSTANDINGS:

- Identify subtraction patterns.
- Use a number line to count backwards.
- Explain how to use different subtraction strategies.
- Model subtraction problems.

ESSENTIAL QUESTIONS:

- What are some strategies for subtracting 3-digit numbers?
- Why is it important to subtract accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand subtracting numbers.

STUDENTS WILL BE ABLE TO:

- Use mental math to subtract 10 and subtract 100.
- Use an open number line to subtract hundreds and tens.
- Use a number line to subtract.
- Use compensation to subtract.
- Use models to subtract.
- Subtract three-digit numbers.
- Subtract from three-digit numbers with zeros.
- Use addition to subtract on an open number line.
- Choose and explain a strategy to subtract.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

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

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. https://www.mathmusicals.com/#/grade/2/click-click-flash-flash/
10.1	<ul style="list-style-type: none"> ● Subtract 10 or 100 from a number and write the difference. ● Explain what happens when you subtract 10 or 100 from a number.
10.2	<ul style="list-style-type: none"> ● Use an open number line to count back by hundreds and tens from the starting number. ● Write the difference.
10.3	<ul style="list-style-type: none"> ● Use an open number line to count back by hundreds, tens, and ones from the starting number. ● Write the difference.
10.4	<ul style="list-style-type: none"> ● Add to or subtract from both numbers. ● Write the numbers that make it easier to subtract. ● Write the difference. ● Explain how to use compensation to subtract.
10.5	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 hundred for 10 tens or 1 ten for 10 ones if regrouping. ● Model the subtraction. ● Solve for the difference.
10.6	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 hundred for 10 tens or 1 ten for 10 ones if regrouping. ● Solve for the difference.
10.7	<ul style="list-style-type: none"> ● Tell whether regrouping is needed. ● Exchange 1 hundred for 10 tens or 1 ten for 10 ones if regrouping. ● Solve for the difference.
10.8	<ul style="list-style-type: none"> ● Count on from a number to the starting number.

	<ul style="list-style-type: none"> ● Add the hundreds, tens, and ones. ● Write the difference.
10.9	<ul style="list-style-type: none"> ● Choose a strategy to subtract. ● Solve for the difference. ● Explain the strategy used.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art: Discuss beadwork and embroidered fabric. Create problems based on the art, p. T-465.
- Physical Education: Discuss running marathons and races. Create problems based on the events, p. T-471.
- Social Studies: Discuss the Oregon Trail. Create a scenario and solve problems regarding the distances traveled, p. T-477.
- ELA: Create a list of nouns and provide each student with a three-digit number. Students will create a word problem with a noun and their number, and then switch to solve with a partner.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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

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- Social Awareness
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TEACHER NOTES



UNIT TITLE				
Measure and Estimate Lengths				
CONTENT AREA:		Mathematics	GRADE LEVEL:	
			2	
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT				
Unit 11, 12 days (March)				
UNIT FOCUS - SUMMARY OF UNIT				
<p>In this unit, students build upon their prior knowledge of comparing sizes of objects by observing length, weight, volume, etc. to distinguish between objects' lengths. Students learn to use customary and metric measuring units to determine the lengths of various objects. Centimeter and inch rulers, yardsticks and meter sticks, and measuring tapes are used to measure lengths, and students learn which tools are appropriate for various situations. They use five measuring units: inch, foot, yard, centimeter, and meter to measure and compare lengths of real-life objects in the classroom. Additionally, students learn to estimate lengths of objects using real-world objects as reference points. Anchor charts are created to catalog images of objects and their lengths to help students visualize the general size of the measuring units they are learning about. Ultimately, students are building a mental image of the size of these measuring units and how they compare to other measuring units they know.</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"> ● 2.MD.A.1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. ● 2.MD.A.2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. ● 2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters. ● 2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. 				
<p>PREREQUISITE KNOWLEDGE AND SKILLS:</p> <ul style="list-style-type: none"> ● Use same-size length units to measure the length of an object. 				

- Measure an object with no gaps or overlays.
- Order three objects by length.
- Indirectly compare the lengths of two objects.

ENDURING UNDERSTANDINGS:

- Define length.
- Explain how to use a ruler to measure objects.
- Compare the measurements of different objects.
- Measure objects.

ESSENTIAL QUESTIONS:

- What are some of the methods, tools, and units that can be used to estimate and measure length?
- Why is it important to know how to measure items accurately?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand measurement.

STUDENTS WILL BE ABLE TO:

- Measure the length of an object in centimeters.
- Measure the length of an object in centimeters or meters.
- Estimate the length of an object in centimeters or meters.
- Measure the length of an object in inches.
- Use an inch ruler, yardstick, or measuring tape to measure an object in inches, feet, or yards.
- Estimate the length of an object in inches, feet, or yards.
- Measure the same object using two different measurement units.
- Compare the lengths of two objects.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book</i>: Lesson 13, <i>Anna Carries Water</i> by Olive Senior (see <i>Math by the Book</i> Math Intervention binder) <p style="margin-left: 20px;">https://www.mathmusicals.com/#/grade/2/tight-squeeze/</p>
11.1	<ul style="list-style-type: none"> ● Use a centimeter ruler to measure an object. ● Tell how long the object is. ● Explain how to use a centimeter ruler to measure objects.
11.2	<ul style="list-style-type: none"> ● Tell whether an object should be measured in centimeters or meters. ● Measure the object. ● Tell how long the object is.
11.3	<ul style="list-style-type: none"> ● Compare the length of an object to another object. ● Tell whether the object is longer or shorter than the other object. ● Tell about how long the object is.
11.4	<ul style="list-style-type: none"> ● Use an inch ruler to measure the object. ● Tell how long the object is. ● Explain how to use an inch ruler to measure objects.
11.5	<ul style="list-style-type: none"> ● Tell whether the object should be measured in inches, feet, or yards. ● Choose the correct tool. ● Measure the object. ● Tell how long the object is.
11.6	<ul style="list-style-type: none"> ● Compare the length of an object to another. ● Tell whether the object is longer or shorter than the other object. ● Tell about how long the object is.
11.7	<ul style="list-style-type: none"> ● Measure an object using one unit. ● Measure the object again using a different unit. ● Compare the measurements.
11.8	<ul style="list-style-type: none"> ● Measure two objects. ● Tell which object is longer and which object is shorter. ● Write an equation to tell how much longer or shorter one object is than the other.

Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/
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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art: Students will create their own monster out of colored paper and measure different parts of their monster, p. T-527.
- ELA/Science: Discuss metric and customary units of measure and how they are used in the United States. Students will write or discuss why a scientist might want to use metric units, p. T-533.
- Social Studies/Art: Study totem poles created by different tribes of Native Americans. Students will create their own totem poles and measure them, p. T-539.
- ELA: *Inch by Inch* by Leo Lionni, p. T-545.
- Physical Education: Students will jump as high as they can to stick a sticky note to a wall. Students will then measure the height of the jump, p. 551.

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TEACHER NOTES



UNIT TITLE

Solve Length Problems

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 12, 8 days (April)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students solve word problems involving length measurement. They are using their understanding of measurement and length from the previous chapter to strengthen their problem-solving skills. The strategies focused on in this chapter can be applied to many mathematical problems, yet this unit puts them in the context of measurement. The problem-solving strategy presented in this chapter is explicit and students can use it throughout the remainder of their schooling and beyond. First, students determine what information is given in the problem by reading carefully, underlining key information, making sketches, and jotting notes. After careful reading, students identify what the question is asking, a crucial step to shift their focus from what information is provided to what they need to find. Next, students choose a strategy that will use the given information, solve for what the question is asking, and explain their strategy to check their work. In order to execute this problem-solving strategy in various problems, students may use models such as number lines, bar models, and equations to show their thinking.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
- 2.MD.B.6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Solve addition and subtraction word problems within 20.
- Use models, properties, and strategies to add within 100.
- Use same-size length units to measure the length of an object.

ENDURING UNDERSTANDINGS:

- Define length.
- Explain how different measurement tools are used.
- Compare measurement tools to solve problems.
- Reflect on the measurement strategy used.

ESSENTIAL QUESTIONS:

- How can you use measurement tools and strategies to solve problems about length?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand length problems.

STUDENTS WILL BE ABLE TO:

- Use a number line to solve length word problems.
- Solve *compare* length word problems.
- Solve length word problems to find missing measurements.
- Solve length word problems.

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

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book</i>: Lesson 14, <i>Giraffe Problems</i> by Jory John (see <i>Math by the Book</i> Math Intervention binder) https://www.mathmusicals.com/#/grade/2/what-do-you-know/
12.1	<ul style="list-style-type: none"> ● Identify what information is given and what the question is asking. ● Write an equation using a question mark for the unknown. ● Use a number line to solve the problem. ● Explain how a ruler and a number line are similar.
12.2	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Write an equation using a question mark for the unknown. ● Use the bar model to solve the problem.
12.3	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Write an equation using a question mark for the unknown. ● Break apart a number to solve the problem.
12.4	<ul style="list-style-type: none"> ● Identify what information is given in the word problem. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used to solve.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/

Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B
Cumulative Practice (optional)	<ul style="list-style-type: none"> ● Optional cumulative review of chapters 1-12.

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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

INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Social Studies: Discuss the jobs of community members in your area. Create problems about the lengths of different community helper vehicles, p. T-583.
- ELA: *Measuring Penny* by Loreen Leedy, p. T-589.
- Physical Education: Provide the following word problem for students to fill in and act out: “You walk ___(a)___ steps in the classroom and then walk some more in the hallway. You walk a total of ___(b)___ steps. How many steps did you walk in the hallway?”, p. T-595.
- Art: Provide students with a word problem to solve and then apply the information to make a n actual necklace and bracelet, p. T-601.

STATE REQUIREMENTS

CAREER READINESS, LIFE LITERACIES, AND KEY SKILLS

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

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

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

P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
- [Math Musicals SEL](#)
- Brain Breaks ([GoNoodle](#), [Jack Hartmann](#) on YouTube, etc.)

COMPUTER SCIENCE AND DESIGN THINKING:

<https://www.nj.gov/education/cccs/2020/2020%20NJSLCSDT.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 NJSLCSDT, 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 NJSLCSDT – Technology, outlines the technological design concepts and skills essential for technological and engineering literacy. The new framework design, detailed previously, includes Engineering Design, Ethics and Culture, and the Effects of Technology on the Natural world among the disciplinary concepts.

Framework for 21st Century Learning

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

GLOBAL THINKING:

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

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

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
- *iReady* Adaptive Learning Platform
- Online Learning tools including Splash Learn, Prodigy, XtraMath, BrainPop
- *Math by the Book* series

HUMAN AND PROFESSIONAL RESOURCES

- *Math Work Stations* by Debbie Diller
- BHPS Math specialists
- Laurie's Notes from Big Ideas Math
- *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
- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE					
Represent and Interpret Data					
CONTENT AREA:		Mathematics	GRADE LEVEL:		2
UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT					
Unit 13, 11 days (April/May)					
UNIT FOCUS - SUMMARY OF UNIT					
<p>In this unit, students learn to sort items (the data) into groups with a defining characteristic. Each characteristic becomes a category that is represented in a table or graph. Students can ask and answer questions about the data, bringing their understanding of addition and subtraction into a real-world data context. The following foundational big ideas are focused on in this unit: 1) There is a four-step process for statistics: asking a question, collecting data, analyzing data, and interpreting data, 2) Data are organized to answer questions, and 3) Different types of data representations can more easily provide different kinds of information. Students learn to represent data in different ways as tally charts, picture graphs, bar graphs, and line plots, and then draw conclusions from their representations. Students practice asking and answering questions based on what the data show. Students begin by telling what they notice and progress to answering more complex two-step questions as well as asking their own questions about data.</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"> ● 2.MD.D.9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. ● 2.MD.D.10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. 					
<p>PREREQUISITE KNOWLEDGE AND SKILLS:</p> <ul style="list-style-type: none"> ● Organize data into categories. ● Compare data. 					

- Use data to ask and answer questions.
- Solve addition and subtraction word problems within 20.

ENDURING UNDERSTANDINGS:

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

ESSENTIAL QUESTIONS:

- How do tally charts, picture graphs, bar graphs, and line plots help you interpret data and solve problems?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand data.

STUDENTS WILL BE ABLE TO:

- Use a tally chart to organize and understand data.
- Understand the data shown by a picture graph.
- Use data to make picture graphs.
- Understand the data shown by a bar graph.
- Use data to make bar graphs.
- Use data to make line plots.
- Measure objects and make line plots.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 19, What Can You Do with a Paleta?</i> by Carmen Tafolla (see <i>Math by the Book Math Intervention binder</i>) <p>https://www.mathmusicals.com/#/grade/2/emerald-gold-and-sapphire/</p>
13.1	<ul style="list-style-type: none"> ● Create a tally chart to sort the data. ● Use a tally chart to answer questions.
13.2	<ul style="list-style-type: none"> ● Use a picture graph to answer questions. ● Explain how to use a picture graph.
13.3	<ul style="list-style-type: none"> ● Understand the data shown on a tally chart. ● Use a tally chart to make a picture graph. ● Ask and answer questions about a picture graph.
13.4	<ul style="list-style-type: none"> ● Use a bar graph to answer questions. ● Explain how to use a bar graph.
13.5	<ul style="list-style-type: none"> ● Understand the data shown on a tally chart. ● Use a tally chart to make a bar graph. ● Ask and answer questions about a bar graph.
13.6	<ul style="list-style-type: none"> ● Use data to make a line plot. ● Answer questions about line plots. ● Explain how to use a line plot.
13.7	<ul style="list-style-type: none"> ● Measure the lengths of several objects. ● Record the data in a table. ● Use the table to make a line plot. ● Ask and answer questions about a line plot.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice ● <i>Math By the Book: Lesson 20, The Ugly Vegetables</i> by Grace Lin (see <i>Math by the Book Math Intervention binder</i>)
Connect and Grow	<ul style="list-style-type: none"> ● Centers ● <i>Math By the Book: Lesson 18, Harvesting Friends</i> by Kathleen Contreras (see <i>Math by the Book Math Intervention binder</i>) <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- Art: Put multiple different colored straws in a container and have students pull out a handful of straw to organize them by color and record the data in a tally chart, p. T-617.
- Science: Keep track of weather and organize the different types of weather in a picture graph, p. T-623.
- Social Studies: Introduce symbols of the United States and their meanings. Make a class picture graph of favorite American symbols and generate questions about the data, p. T-629.
- ELA: *Lemonade for Sale* by Stuart J. Murphy, p. T-635.

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TEACHER NOTES



UNIT TITLE

Money and Time

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 14, 14 days (May)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students learn to work with two important concepts: time and money, while also continuing to work with problem-solving situations and building reasoning skills. First, students are introduced to four coins: penny, nickel, dime, and quarter, as well as the \$1, \$5, \$10, and \$20 bills. They learn to use the ¢ and \$ signs appropriately while evaluating a group of coins to see if the collection is enough to purchase a specific item, ordering coins according to value, and finding different combinations of coins with the same total value. There are no problems involving both coins and bills, nor are there problems with coin amounts greater than 100 (one dollar).

Next, students study time to the hour, half hour, and nearest 5 minus. They use digital clocks, analog clocks and verbal statements to represent time and also convert time from one format to another. Students also learn to use a.m. and p.m. to describe the times of various events. They use the words *before* and *after* the hour to describe time, such as ten minutes after 6 or 20 minutes before 10. They will also learn expressions such as half past 8 or quarter to 3. Word problems in the context of time will challenge students to find start and stop times as well as some elapsed time.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s.
- 2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- 2.MD.C.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

- 2.MD.C.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Use models, properties, and strategies to add within 100.
- Mentally find 10 more or 10 less than a two-digit number.
- Use models, properties, and strategies to subtract a decade number from a two-digit number.
- Tell time to the hour and half hour using an analog clock.
- Tell time to the hour and half hour using a digital clock.

ENDURING UNDERSTANDINGS:

- Identify the values of coins and bills and times on a clock.
- Choose a strategy to solve money and time problems.
- Compare the value of one coin to another and tell the time.
- Solve money and time problems.

ESSENTIAL QUESTIONS:

- How can you find the total value of a group of coins and solve problems using money?
- How do you show time on analog and digital clocks and solve problems using time?
- Why is it important to understand time and money?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand money and time.

STUDENTS WILL BE ABLE TO:

- Find the total value of a group of coins.
- Order a group of coins to find the total value.
- Show money amounts in different ways.
- Use coins to make one dollar.
- Solve word problems to make change from one dollar.
- Find the total value of a group of bills.
- Solve money word problems.
- Tell time to the nearest five minutes.
- Describe the time before or after the hour in different ways.
- Describe the time using a.m. and p.m.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

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

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

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

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book</i>: Lesson 15, <i>A Chair for My Mother</i> by Vera B. Williams (see <i>Math by the Book</i> Math Intervention binder) https://www.mathmusicals.com/#/grade/2/too-many-pennies/
14.1	<ul style="list-style-type: none"> ● Tell the value of a penny, nickel, dime, and quarter. ● Count the value of each coin to find the total value of the group. ● Explain what the cent sign means.
14.2	<ul style="list-style-type: none"> ● Tell the value of a penny, nickel, dime, and quarter. ● Order a group of coins from the greatest value to the least value. ● Count the value of each coin to find the total value of the group.
14.3	<ul style="list-style-type: none"> ● Show a money amount one way. ● Show a money amount another way. ● Explain how each group of coins shows the same amount.
14.4	<ul style="list-style-type: none"> ● Tell the value of a penny, nickel, dime, and quarter. ● Tell and show how to make a dollar using coins. ● Explain what the dollar sign means.
14.5	<ul style="list-style-type: none"> ● Identify what information is given. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used.
14.6	<ul style="list-style-type: none"> ● Tell the value of each dollar bill. ● Count the value of each bill to find the total value of the group.

14.7	<ul style="list-style-type: none"> ● Identify what information is given. ● Identify what the question is asking. ● Choose a strategy to solve. ● Explain the strategy used.
14.8	<ul style="list-style-type: none"> ● Show the time on a digital clock. ● Show the time on an analog clock. ● Explain how to tell time to the nearest five minutes.
14.9	<ul style="list-style-type: none"> ● Describe the time before and after the hour. ● Describe the time in different ways.
14.10	<ul style="list-style-type: none"> ● Show the time on a digital clock. ● Show the time on an analog clock. ● Tell whether an event takes place in the a.m. or p.m.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice ● <i>Math By the Book: Lesson 16, Common Threads: Adam’s Day at the Market</i> by Huda Essa (see <i>Math by the Book</i> Math Intervention binder) <p>https://www.mathmusicals.com/#/grade/2/making-change/</p>
Connect and Grow	<ul style="list-style-type: none"> ● Centers ● <i>Math By the Book: Lesson 17, Summer Sun Risin’</i> by W. Nikola-Lisa (see <i>Math by the Book</i> Math Intervention binder) <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>
Chapter Assessment	<ul style="list-style-type: none"> ● Chapter Test B

OPPORTUNITIES FOR DIFFERENTIATION (SUPPORT AND ENRICHMENT):

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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: *The Penny Pot* by Stuart J. Murphy, p. T-667.
- Art: Provide students with real coins and assign a specific amount less than 100 cents. Students can order the coins according to value and create a crayon-rubbing drawing of the coins, p. T-673.
- Social Studies: Discuss the different faces on the coins and how students can use the images on the coins to remember their names and values.

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P21 FRAMEWORK (Partnership for 21st Century Learning):

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

SOCIAL AND EMOTIONAL COMPETENCIES AND SUBCOMPETENCIES (SEL):

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

SEL Learning Activities:

- [CASEL Fundamentals of SEL](#)
- [Guiding Questions for Classroom Discussion](#)
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COMPUTER SCIENCE AND DESIGN THINKING:

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- Standard 8.1 Computer Science - previously a strand entitled 'Computational Thinking: Programming' in standard 8.2 of the 2014 NJSLS Technology, outlines a comprehensive set of

concepts and skills, such as data and analysis, algorithms and programming, and computing systems.

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

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

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

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

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

RESOURCES

CORE INSTRUCTIONAL AND MATERIAL RESOURCES

- *Big Ideas Math*, 2022
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- *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
- *Well Played: Building Mathematical Thinking Through Number Games and Puzzles, Grades K-2* by Linda Dacey, Karen Gartland, and Jayne Bamford Lynch

TEACHER NOTES



UNIT TITLE

Identify and Partition Shapes

CONTENT AREA:

Mathematics

GRADE LEVEL:

2

UNIT NUMBER and SUGGESTED PACING GUIDE FOR UNIT

Unit 15, 12 days (May/June)

UNIT FOCUS - SUMMARY OF UNIT

In this unit, students draw upon their knowledge of shapes and vocabulary like *side* and *vertex* (*vertices*) to identify and describe polygons. They learn the new vocabulary word *angle* and *right angle* while also practicing drawing polygons accurately. Students also identify, draw, describe the three-dimensional shape, *cube*. Next, students move into focusing on partitioning shapes and identifying equal shares. They learn to model halves, thirds and fourths in various shapes and also compare equal shares in the same figure. A key concept from this introduction to fractions is that different numbers of equal shares can make a whole. For example, two halves make a whole or three thirds make a whole. Students are also exposed to a related topic studying how to cover a rectangle with a certain amount of squares, touching upon the concept of area.

KEY UNDERSTANDINGS

MATHEMATICAL PRACTICES:

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

NEW JERSEY STUDENT LEARNING STANDARDS:

- 2.OA.B.2. Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.
- 2.OA.C.4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
- 2.G.A.1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- 2.G.A.2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

- 2.G.A.3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

PREREQUISITE KNOWLEDGE AND SKILLS:

- Understand the difference between defining attributes of shapes and non-defining attributes of shapes.
- Build and draw shapes with given attributes.
- Solve addition and subtraction word problems within 20.
- Fluently add and subtract within 10.
- Partition circles and rectangles into two and four equal shares.
- Describe equal shares as halves, fourths, quarters, half of, fourth of, and quarter of.
- Understand that the more equal shares, the smaller the share.

ENDURING UNDERSTANDINGS:

- Name shapes.
- Explain information about shapes.
- Compare one shape to another.
- Draw different shapes.

ESSENTIAL QUESTIONS:

- What are some two-dimensional shapes and three-dimensional shapes, and how can you show equal parts of shapes?
- How can we find two-dimensional shapes and three-dimensional shapes in the real world?

UNIT LEARNING TARGETS (STUDENTS WILL KNOW):

- Understand shapes.

STUDENTS WILL BE ABLE TO:

- Identify and describe two-dimensional shapes.
- Identify angles of a polygon.
- Draw shapes given a description.
- Identify, draw, and describe cubes.
- Show a rectangle as equal squares.
- Identify shapes that show halves, thirds, and fourths.
- Draw lines to show halves, thirds, and fourths of a shape.
- Draw to show halves, thirds, and fourths in different ways.

ASSESSMENT - EVIDENCE OF LEARNING AND UNDERSTANDING

FORMATIVE ASSESSMENTS

- Chapter Test A (optional pre-assessment for chapter)
- Quizzes
- Homework

- Anecdotal notes
- Exit tickets
- Math notebooks
- Student performance (Explore and Grow, Think and Grow, Show and Grow, Apply and Grow: Practice, Think and Grow: Modeling Real Life)

SUMMATIVE ASSESSMENTS

- Required Chapter Test B
- iReady and LinkIt (according to district Assessment Calendar)

ALTERNATE ASSESSMENTS

- Chapter Performance Task
- Chapter Alternative Assessments (last page of each chapter in TE and in Assessment Book)
- Cumulative Practice Assessments

LEARNING PLAN/INSTRUCTIONAL STRATEGIES

LEARNING ACTIVITIES AND INSTRUCTIONAL STRATEGIES (INCLUDE MODELS):

Lesson Number	Success Criteria
Chapter Opener	<ul style="list-style-type: none"> ● Introduction of vocabulary, optional pre-test, and center introduction. ● <i>Math By the Book: Lesson 11, The Old Truck</i> by Jarrett Pumphrey and Jerome Pumphrey (see <i>Math by the Book Math Intervention binder</i>) https://www.mathmusicals.com/#/grade/2/the-polygon-song/
15.1	<ul style="list-style-type: none"> ● Identify the number of sides. ● Identify the number of vertices. ● Name the shape.
15.2	<ul style="list-style-type: none"> ● Tell how many angles a shape has. ● Tell how many right angles a shape has. ● Name the shape.
15.3	<ul style="list-style-type: none"> ● Identify a shape based on the number of sides, angles, or vertices. ● Identify the number of right angles a shape has. ● Draw and name the shape.
15.4	<ul style="list-style-type: none"> ● Recognize a cube. ● Draw a cube. ● Tell the number of faces, edges, and vertices a cube has.
15.5	<ul style="list-style-type: none"> ● Use square tiles to show rows and columns in a rectangle. ● Tell how many square tiles cover the rectangle.

	<ul style="list-style-type: none"> ● Write an equation to match the rows and columns in a rectangle.
15.6	<ul style="list-style-type: none"> ● Tell whether a shape shows equal or unequal shares. ● Tell whether a shape shows halves, thirds, or fourths. ● Explain how a shape shows halves, thirds, or fourths.
15.7	<ul style="list-style-type: none"> ● Tell how many halves, thirds, or fourths make a whole. ● Draw lines to show halves, thirds, or fourths. ● Name the equal shares as halves, thirds, or fourths. ● Compare the size of halves, thirds, and fourths of the same shape.
15.8	<ul style="list-style-type: none"> ● Draw to show halves, thirds, or fourths. ● Draw to show halves, thirds, or fourths another way. ● Compare the equal shares of each shape.
Connect and Grow	<ul style="list-style-type: none"> ● Performance Task (optional) ● Activity ● Chapter Practice
Connect and Grow	<ul style="list-style-type: none"> ● Centers ● <i>Math By the Book: Lesson 12, Ugly Pie</i> by Lisa Wheeler (see <i>Math by the Book</i> Math Intervention binder) <p>https://www.mathmusicals.com/#/grade/2/a-celebration-of-friendship/</p>
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INTERDISCIPLINARY CONNECTIONS AND CROSS-CONTENT STANDARDS:

- ELA: Students choose a two-dimensional shape and write a “What Shape Am I?” riddle to be solved by a partner, p. T-735.
- Art: Give a description of a polygon by listing the number of sides, vertices, and right angles it has. Students will draw the shape and write its name on a piece of paper or whiteboard, p. T-747.
- Social Studies: Study the architecture of different shaped buildings, especially those that are cube shaped. Have students design their own cube-shaped buildings, p. T-753.
- Physical Education: Set up a rectangular grid on the floor and have students act as tiles by standing in the boxes. Students will write equations to match how many students fill the boxes, p. T-759.
- Music: Have students fold a sheet of paper into halves, thirds, or fourths. Sing the words of an equal shares song to follow along with movements, p. T-765.

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