Grade 1: Unit 2
Add and Subtract Within 20
Course Philosophy/Description

In mathematics, students will learn to address a range of tasks focusing on the application of concepts, skills and understandings. Students will be asked to solve problems involving the key knowledge and skills for their grade level as identified by the NJSLS; express mathematical reasoning and construct a mathematical argument and apply concepts to solve model real world problems. The balanced math instructional model will be used as the basis for all mathematics instruction.

First grade Mathematics consists of the following domains: Operations and Algebraic Thinking (OA), Numbers and Operations in Base Ten (NBT), Measurement and Data (MD), and Geometry (G). In first grade, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.

4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.
ESL Framework

This ESL framework was designed to be used by bilingual, dual language, ESL and general education teachers. Bilingual and dual language programs use the home language and a second language for instruction. ESL teachers and general education or bilingual teachers may use this document to collaborate on unit and lesson planning to decide who will address certain components of the SLO and language objective. ESL teachers may use the appropriate leveled language objective to build lessons for ELLs which reflects what is covered in the general education program. In this way, whether it is a pull-out or push-in model, all teachers are working on the same Student Learning Objective connected to the New Jersey Student Learning Standards. The design of language objectives are based on the alignment of the World-Class Instructional Design Assessment (WIDA) Consortium’s English Language Development (ELD) standards with the New Jersey Student Learning Standards (NJSL). WIDA’s ELD standards advance academic language development across content areas ultimately leading to academic achievement for English learners. As English learners are progressing through the six developmental linguistic stages, this framework will assist all teachers who work with English learners to appropriately identify the language needed to meet the requirements of the content standard. At the same time, the language objectives recognize the cognitive demand required to complete educational tasks. Even though listening and reading (receptive) skills differ from speaking and writing (expressive) skills across proficiency levels the cognitive function should not be diminished. For example, an Entering Level One student only has the linguistic ability to respond in single words in English with significant support from their home language. However, they could complete a Venn diagram with single words which demonstrates that they understand how the elements compare and contrast with each other or they could respond with the support of their home language (L1) with assistance from a teacher, para-professional, peer or a technology program.

http://www.state.nj.us/education/modelcurriculum/ela/ELLOverview.pdf
<table>
<thead>
<tr>
<th>#</th>
<th>Student Learning Objective</th>
<th>NJSLS</th>
<th>Instruction: 8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Use addition and subtraction <strong>within 10</strong> to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.</td>
<td>1.OA.A.1*</td>
<td>Assessment: 1 week</td>
</tr>
<tr>
<td>2</td>
<td>Determine if addition and subtraction equations, <strong>within 20</strong>, are true or false.</td>
<td>1.OA.D.7*</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Solve addition and subtraction equations, <strong>within 20</strong>, by finding the missing whole number in any position.</td>
<td>1.OA.D.8*</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Apply properties of operations as strategies (Associative Property) to add or subtract <strong>within 20</strong>.</td>
<td>1.OA.B.3*</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Add and subtract whole numbers <strong>within 20</strong>, demonstrating fluency for addition and subtraction within 10. Use various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc.</td>
<td>1.OA.C.6*</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Solve addition word problems with three whole numbers with sums less than or equal to 20.</td>
<td>1.OA.A.2*</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Organize, represent, and interpret data with up to three categories, compare the number of data points among the categories, and find the total number of data points.</td>
<td>1.MD.C.4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Compose and decompose numbers to 20 to identify the value of the number in the tens and ones place.</td>
<td>1.NBT.B.2a, 2b</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Use the meaning of tens and ones digits to record comparisons of 2 two-digit numbers using &gt;, =, and &lt; symbols.</td>
<td>1.NBT.B.3</td>
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<tr>
<td>10</td>
<td>Count to 120 orally, read and write numerals, and write numerals to represent the number of objects (up to 120).</td>
<td>1.NBT.A.1*</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Solve subtraction problems, within 10, by representing subtraction as an unknown added problem and finding the unknown addend</td>
<td>1.OA.B.4*</td>
<td></td>
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</tbody>
</table>
Research about Teaching and Learning Mathematics

Structure teaching of mathematical concepts and skills around problems to be solved (Checkly, 1997; Wood & Sellars, 1996; Wood & Sellars, 1997)

Encourage students to work cooperatively with others (Johnson & Johnson, 1975; Davidson, 1990)

Use group problem-solving to stimulate students to apply their mathematical thinking skills (Artzt & Armour-Thomas, 1992)

Students interact in ways that support and challenge one another’s strategic thinking (Artzt, Armour-Thomas, & Curcio, 2008)

Activities structured in ways allowing students to explore, explain, extend, and evaluate their progress (National Research Council, 1999)

There are three critical components to effective mathematics instruction (Shellard & Moyer, 2002):

- Teaching for conceptual understanding
- Developing children’s procedural literacy
- Promoting strategic competence through meaningful problem-solving investigations

Teachers should be:

- Demonstrating acceptance and recognition of students’ divergent ideas
- Challenging students to think deeply about the problems they are solving, extending thinking beyond the solutions and algorithms required to solve the problem
- Influencing learning by asking challenging and interesting questions to accelerate students’ innate inquisitiveness and foster them to examine concepts further
- Projecting a positive attitude about mathematics and about students’ ability to “do” mathematics

Students should be:

- Actively engaging in “doing” mathematics
- Solving challenging problems
- Investigating meaningful real-world problems
- Making interdisciplinary connections
- Developing an understanding of mathematical knowledge required to “do” mathematics and connect the language of mathematical ideas with numerical representations
- Sharing mathematical ideas, discussing mathematics with one another, refining and critiquing each other’s ideas and understandings
- Communicating in pairs, small group, or whole group presentations
- Using multiple representations to communicate mathematical ideas
- Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations
- Using technological resources and other 21st century skills to support and enhance mathematical understanding
Mathematics is not a stagnant field of textbook problems; rather, it is a dynamic way of constructing meaning about the world around us, generating knowledge and understanding about the real world every day. Students should be metaphorically rolling up their sleeves and “doing mathematics” themselves, not watching others do mathematics for them or in front of them. (Protheroe, 2007)

Balanced Mathematics Instructional Model

Balanced math consists of three different learning opportunities: guided math, shared math, and independent math. Ensuring a balance of all three approaches will build conceptual understanding, problem solving, computational fluency, and procedural fluency. Building conceptual understanding is the focal point of developing mathematical proficiency. Students should frequently work on rigorous tasks, talk about the math, explain their thinking, justify their answer or process, build models with graphs or charts or manipulatives, and use technology.

When balanced math is used in the classroom it provides students opportunities to:

- solve problems
- make connections between math concepts and real-life situations
- communicate mathematical ideas (orally, visually and in writing)
- choose appropriate materials to solve problems
- reflect and monitor their own understanding of the math concepts
- practice strategies to build procedural and conceptual confidence

Teacher builds conceptual understanding by modeling through demonstration, explicit instruction, and think alouds, as well as guiding students as they practice math strategies and apply problem solving strategies. (whole group or small group instruction)

Teacher and students practice mathematics processes together through interactive activities, problem solving, and discussion. (whole group or small group instruction)

Students practice math strategies independently to build procedural and computational fluency. Teacher assesses learning and reteaches as necessary. (whole group instruction, small group instruction, or centers)
## Effective Pedagogical Routines/Instructional Strategies

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<th>Analyze Student Work</th>
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<td>Connect Previous Knowledge to New Learning</td>
<td>Identify Student’s Mathematical Understanding</td>
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<td>Making Thinking Visible</td>
<td>Identify Student’s Mathematical Misunderstandings</td>
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<td>Develop and Demonstrate Mathematical Practices</td>
<td>Interviews</td>
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<tr>
<td>Inquiry-Oriented and Exploratory Approach</td>
<td>Role Playing</td>
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<tr>
<td>Multiple Solution Paths and Strategies</td>
<td>Diagrams, Charts, Tables, and Graphs</td>
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<tr>
<td>Use of Multiple Representations</td>
<td>Anticipate Likely and Possible Student Responses</td>
</tr>
<tr>
<td>Explain the Rationale of your Math Work</td>
<td>Collect Different Student Approaches</td>
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<tr>
<td>Quick Writes</td>
<td>Multiple Response Strategies</td>
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<td>Pair/Trio Sharing</td>
<td>Asking Assessing and Advancing Questions</td>
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<td>Turn and Talk</td>
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<td>Gallery Walks</td>
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<td>Small Group and Whole Class Discussions</td>
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<td>Student Modeling</td>
<td>Pressing for Accuracy and Reasoning</td>
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<td></td>
<td>Maintain the Cognitive Demand</td>
</tr>
</tbody>
</table>
Educational Technology

Standards

8.1.2.A.4, 8.1.2.E.1, 8.2.2.A.2, 8.2.2.A.3, 8.2.2.C.1, 8.2.2.E.3

- Technology Operations and Concepts
  - Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
    Example: Students will navigate websites such as Imagine Math Facts, MobyMax, SplashMath, Extramath, Learnzillion, Khan Academy.

- Research and Information Fluency
  - Use digital tools and online resources to explore a problem or issue.
    Example: Students will access on-line interactive resources, such as number lines and base ten blocks, to solve addition and subtraction problems within 20. Students can create graphs using online tools.
      https://www.mathlearningcenter.org/resources/apps
      http://nlvm.usu.edu/en/nav/grade_g_1.html

- The Nature of Technology:Creativity and Innovation
  - Describe how designed products and systems are useful at school, home, and work.
    Example: Students will explain how tools such as ten frames, number lines, and part-part-whole mats are useful.
  - Identify a system and the components that work together to accomplish its purpose.
    Example: Students will explain how ten frames, number lines, and part-part-whole mats represent how to find a solution to a problem.

- Design
  - Brainstorm ideas on how to solve a problem or build a product.
    Example: Students will work together to create drawings or equations to represent and solve addition word problems with three addends.

- Computational Thinking: Programming
  - Create algorithms (a sets of instructions) using a pre-defined set of commands (e.g., to move a student or a character through a maze).
    Example: Students will create a set of instructions explaining why addition or subtraction equations within 20 are true or false.

Link: http://www.state.nj.us/education/cccs/2014/tech/
Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

- **CRP2. Apply appropriate academic and technical skills.**
  Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

  **Example:** Students will apply prior knowledge when solving real world problems. Students will make sound judgements about the use of specific tools, such as ten frames, number lines, part-part-whole mats, or base ten blocks. Students choose appropriate tools to explore and deepen understanding of addition and subtraction concepts. Students will use data from graphs to solve real world problems.

- **CRP4. Communicate clearly and effectively and with reason.**
  Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others’ time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

  **Example:** Students will communicate precisely using clear definitions and provide carefully formulated explanations when constructing arguments. Students will communicate and defend mathematical reasoning using objects, drawings, diagrams, and/or actions. Students will ask probing questions to clarify or improve arguments.
Career Ready Practices

- **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**
  Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

  **Example:** Students will understand the meaning of a problem and look for entry points to its solution. They will analyze information, make conjectures, and plan a solution pathway to solve one and two step word problems involving addition or subtraction. Students will monitor and evaluate progress and change course as necessary.

- **CRP12. Work productively in teams while using cultural global competence.**
  Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

  **Example:** Students will work collaboratively in groups to solve mathematical tasks. Students will listen to or read the arguments of others and ask probing questions to clarify or improve arguments. They will be able to explain why strategies based on place value and properties of operations work.
### WIDA Proficiency Levels

At the given level of English language proficiency, English language learners will process, understand, produce or use:

<table>
<thead>
<tr>
<th>Level</th>
<th>Characteristics</th>
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</thead>
</table>
| **6- Reaching** | • Specialized or technical language reflective of the content areas at grade level  
• A variety of sentence lengths of varying linguistic complexity in extended oral or written discourse as required by the specified grade level  
• Oral or written communication in English comparable to proficient English peers |
| **5- Bridging** | • Specialized or technical language of the content areas  
• A variety of sentence lengths of varying linguistic complexity in extended oral or written discourse, including stories, essays or reports  
• Oral or written language approaching comparability to that of proficient English peers when presented with grade level material. |
| **4- Expanding** | • Specific and some technical language of the content areas  
• A variety of sentence lengths of varying linguistic complexity in oral discourse or multiple, related sentences or paragraphs  
• Oral or written language with minimal phonological, syntactic or semantic errors that may impede the communication, but retain much of its meaning, when presented with oral or written connected discourse, with sensory, graphic or interactive support |
| **3- Developing** | • General and some specific language of the content areas  
• Expanded sentences in oral interaction or written paragraphs  
• Oral or written language with phonological, syntactic or semantic errors that may impede the communication, but retain much of its meaning, when presented with oral or written, narrative or expository descriptions with sensory, graphic or interactive support |
| **2- Beginning** | • General language related to the content area  
• Phrases or short sentences  
• Oral or written language with phonological, syntactic, or semantic errors that often impede the communication when presented with one to multiple-step commands, directions, or a series of statements with sensory, graphic or interactive support |
| **1- Entering** | • Pictorial or graphic representation of the language of the content areas  
• Words, phrases or chunks of language when presented with one-step commands directions, WH-, choice or yes/no questions, or statements with sensory, graphic or interactive support |
## Language Development Supports For English Language Learners

To Increase Comprehension and Communication Skills

### Environment

- Welcoming and stress-free
- Respectful of linguistic and cultural diversity
- Honors students’ background knowledge
- Sets clear and high expectations
- Includes routines and norms
- Is thinking focused vs. answer-seeking
- Offers multiple modalities to engage in content learning and to demonstrate understanding
- Includes explicit instruction of specific language targets
- Provides participation techniques to include all learners
- Integrates learning centers and games in a meaningful way
- Provides opportunities to practice and refine receptive and productive skills in English as a new language
- Integrates meaning and purposeful tasks/activities that:
  - Are accessible by all students through multiple entry points
  - Are relevant to students’ lives and cultural experiences
  - Build on prior mathematical learning
  - Demonstrate high cognitive demand
  - Offer multiple strategies for solutions
  - Allow for a language learning experience in addition to content

### Sensory Supports*

- Real-life objects (realia) or concrete objects
- Physical models
- Manipulatives
- Pictures & photographs
- Visual representations or models such as diagrams or drawings
- Videos & films
- Newspapers or magazines
- Gestures
- Physical movements
- Music & songs

### Graphic Supports*

- Graphs
- Charts
- Timelines
- Number lines
- Graphic organizers
- Graphing paper

### Interactive Supports*

- In a whole group
- In a small group
- With a partner such as *Turn-and-Talk*
- In pairs as a group (first, two pairs work independently, then they form a group of four)
- In triads
- Cooperative learning structures such as *Think-Pair-Share*
- Interactive websites or software
- With a mentor or coach

### Verbal and Textual Supports

- Labeling
- Students’ native language
- Modeling
- Repetitions
- Paraphrasing
- Summarizing
- Guiding questions
- Clarifying questions
- Probing questions
- Leveled questions such as *What? Where? When? Why?*
- Questioning prompts & cues
- Word Banks
- Sentence starters
- Sentence frames
- Discussion frames
- Talk moves, including *Wait Time*

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BUILDING EQUITY IN YOUR TEACHING PRACTICE

How do the essential questions highlight the connection between the big ideas of the unit and equity in your teaching practice?

**CONTENT INTEGRATION**
Teachers use examples and content from a variety of cultures & groups.

This unit / lesson is connected to other topics explored with students.

There are multiple viewpoints reflected in the content of this unit / lesson.

The materials and resources are reflective of the diverse identities and experiences of students.

The content affirms students, as well as exposes them to experiences other than their own.

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**KNOWLEDGE CONSTRUCTION**
Teachers help students understand how knowledge is created and influenced by cultural assumptions, perspectives & biases.

This unit / lesson provides context to the history of privilege and oppression.

This unit / lesson addresses power relationships.

This unit / lesson help students to develop research and critical thinking skills.

This curriculum creates windows and mirrors* for students.

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**PREJUDICE REDUCTION**
Teachers implement lessons and activities to assert positive images of ethnic groups & improve intergroup relations.

This unit / lesson help students question and unpack biases & stereotypes.

This unit / lesson help students examine, research and question information and sources.

The curriculum encourage discussion and understanding about the groups of people being represented.

This unit / lesson challenges dominant perspectives.

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**EQUITABLE PEDAGOGY**
The instruction has been modified to meet the needs of each student.

Students feel respected and their cultural identities are valued.

Additional supports have been provided for students to become successful and independent learners.

Opportunities are provided for student to reflect on their learning and provide feedback.

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**EMPOWERING SCHOOL CULTURE**
Using the other four dimensions to create a safe and healthy educational environment for all.

There are opportunities for students to connect with the community.

My classroom is welcoming and supportive for all students?

I am aware of and sensitive to the needs of my students and their families.

There are effective parent communication systems established. Parents can talk to me about issues as they arise in my classroom.

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Culturally Relevant Pedagogy Examples

- **Integrate Relevant Word Problems:** Contextualize equations using word problems that reference student interests and cultures.  
  **Example:** Create and use word problems that include student interests, current events, and/or relevance to real-world situations in order to make problems relatable to students when adding to, taking from, putting together, taking apart, comparing, and solving addition word problems with three whole numbers. Using content that students can relate to adds meaning, value, and connection.

- **Learn About Your Students:** Open communication should uncover your students’ learning styles. Distribute surveys and questionnaires, and hold discussions.  
  **Example:** Have students survey the class to collect data regarding various student interests. Students can create a pictograph or bar graph with up to three categories.

- **Use Learning Stations:** Provide a range of material by setting up learning stations.  
  **Example:** Reinforce understanding of concepts and skills by promoting learning through student interests and modalities, experiences and/or prior knowledge. Encourage the students to make choices in content based upon their strengths, needs, values and experiences. Providing students with choice boards will give them a sense of ownership to their learning and understanding.

- **Present New Concepts Using Student Vocabulary:** Use student diction to capture attention and build understanding before using academic terms.  
  **Example:** Teach math vocabulary in various modalities for students to remember. Use multi-modal activities, analogies, realia, visual cues, graphic representations, gestures, pictures practice and cognates. Model to students that some vocabulary has multiple meanings. Have students create the Word Wall with their definitions and examples to foster ownership. Work with students to create a variety of sorting and match games of vocabulary words in this unit. Students can work in teams or individually to play these games for approximately 10-15 minutes each week. This will give students a different way of becoming familiar with the vocabulary rather than just looking up the words or writing the definition down.

- **Everyone has a Voice:** Create a classroom environment where students know that their contributions are expected and valued.  
  **Example:** Norms for sharing are established that communicate a growth mindset for mathematics. All students are capable of expressing mathematical thinking and contributing to the classroom community. Students learn new ways of looking at problem solving by working with and listening to each other.
## Differentiated Instruction

### Accommodate Based on Students Individual Needs: Strategies

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<tr>
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<th>Processing</th>
<th>Comprehension</th>
<th>Recall</th>
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<tbody>
<tr>
<td>Extra time for assigned tasks</td>
<td>Extra Response time</td>
<td>Precise processes for balanced math</td>
<td>Teacher-made checklist</td>
</tr>
<tr>
<td>Adjust length of assignment</td>
<td>Have students verbalize steps</td>
<td>instructional model</td>
<td>Use visual graphic organizers</td>
</tr>
<tr>
<td>Timeline with due dates for</td>
<td>Repeat, clarify or reword directions</td>
<td>Short manageable tasks</td>
<td>Reference resources to promote</td>
</tr>
<tr>
<td>reports and projects</td>
<td>Mini-breaks between tasks</td>
<td>Brief and concrete directions</td>
<td>independence</td>
</tr>
<tr>
<td>Communication system</td>
<td>Provide a warning for transitions</td>
<td>Provide immediate feedback</td>
<td>Visual and verbal reminders</td>
</tr>
<tr>
<td>between home and school</td>
<td>Partnering</td>
<td>Small group instruction</td>
<td>Graphic organizers</td>
</tr>
<tr>
<td>Provide lecture notes/outline</td>
<td></td>
<td>Emphasize multi-sensory learning</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assistive Technology</th>
<th>Tests/Quizzes/Grading</th>
<th>Behavior/Attention</th>
<th>Organization</th>
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<tr>
<td>Computer/whiteboard</td>
<td>Extended time</td>
<td>Consistent daily structured routine</td>
<td>Individual daily planner</td>
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<tr>
<td>Tape recorder</td>
<td>Study guides</td>
<td>Simple and clear classroom rules</td>
<td>Display a written agenda</td>
</tr>
<tr>
<td>Video Tape</td>
<td>Shortened tests</td>
<td>Frequent feedback</td>
<td>Note-taking assistance</td>
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<tr>
<td></td>
<td>Read directions aloud</td>
<td></td>
<td>Color code materials</td>
</tr>
</tbody>
</table>

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**Recall**
- Teacher-made checklist
- Use visual graphic organizers
- Reference resources to promote independence
- Visual and verbal reminders
- Graphic organizers

**Organization**
- Individual daily planner
- Display a written agenda
- Note-taking assistance
- Color code materials
Differentiated Instruction

Accommodate Based on Content Specific Needs:

- Teacher modeling

- Review pre-requisite skills and mental math strategies. These strategies may include review of using doubles, doubles plus one, number partners for 10, counting on, counting back, place value.

- Use drawings to represent problems involving addition and subtraction.

- Use manipulatives such as counters, color tiles, unifix cubes or base ten blocks to assist in solving addition or subtraction problems and understanding place value.

- Use a hundred chart, ten frames, number lines, part-part-whole mat, and number bonds for addition and subtraction.

- Use hundred chart to assist with counting and reading numerals to 100.

- Chart academic vocabulary with visual representations.

- Use models, drawings and objects to visually see that the quantity on the left side of the equal sign is the same as the quantity on the right side.

- Use fact family triangles and number bonds to find the missing unknown numbers.
## Interdisciplinary Connections

*Model interdisciplinary thinking to expose students to other disciplines.*

### Social Studies Connection:
**A Day at the Beach:** Social Studies Standard 6.1.4.B.4
- Learn all about the beach (pollution, safety, games) at: [http://water.epa.gov/learn/kids/beachkids/](http://water.epa.gov/learn/kids/beachkids/)

**Piggy Bank:** Social Studies Standard 6.1.4.C.10
- Read about the complete history of the Piggy Bank at: [https://www.thevintagenews.com/2017/03/23/the-history-of-piggy-banks/](https://www.thevintagenews.com/2017/03/23/the-history-of-piggy-banks/)

### Science Connection:
**A Day at the Beach:** Science Standard 1-LSI-2
- Student can research how the shapes of animals exterior shells help them to survive.

### ELA Connection:
**Language Arts Standard** RL.1.1

**The Crayon Box:**
- Read: My Crayons Talk by Patricia Hubbard

**French Fries:**
- Read: My Crayons Talk by Patricia Hubbard

### Possible Read Alouds:
- *Two of Everything* by Lily Toy Hung  [https://www.youtube.com/watch?v=TY_NP528ph4](https://www.youtube.com/watch?v=TY_NP528ph4)
- *The Very Hungry Caterpillar* by Eric Carle  [https://www.youtube.com/watch?v=PbLPMjxUXmI](https://www.youtube.com/watch?v=PbLPMjxUXmI)
- *One Too Many* by Gianna Morino
- *Who Stole the Cookie from the Cookie Jar?*
- *Two Ways to Count to 10* by Ruby Dee
- *The Doorbell Rang* by Pat Hutchins  [https://www.youtube.com/watch?v=ESHLF92_rBw](https://www.youtube.com/watch?v=ESHLF92_rBw)
- *12 Ways to Make 11* by Anna Wilkinson  [https://www.youtube.com/watch?v=JaczjHGRB0](https://www.youtube.com/watch?v=JaczjHGRB0)
# Enrichment

## What is the purpose of Enrichment?

- The purpose of enrichment is to provide extended learning opportunities and challenges to students who have already mastered, or can quickly master, the basic curriculum. Enrichment gives the student more time to study concepts with greater depth, breadth, and complexity.
- Enrichment also provides opportunities for students to pursue learning in their own areas of interest and strengths.
- Enrichment keeps advanced students engaged and supports their accelerated academic needs.
- Enrichment provides the most appropriate answer to the question, “What do you do when the student already knows it?”

**Enrichment is…**

- Planned and purposeful
- *Different*, or differentiated, work – not just *more* work
- Responsive to students’ needs and situations
- A promotion of high-level thinking skills and making connections within content
- The ability to apply different or multiple strategies to the content
- The ability to synthesize concepts and make real world and cross-curricular connections
- Elevated contextual complexity
- Sometimes independent activities, sometimes direct instruction
- Inquiry based or open ended assignments and projects
- Using supplementary materials in addition to the normal range of resources
- Choices for students
- Tiered/Multi-level activities with flexible groups (may change daily or weekly)

**Enrichment is not…**

- Just for gifted students (some gifted students may need intervention in some areas just as some other students may need frequent enrichment)
- Worksheets that are more of the same (busywork)
- Random assignments, games, or puzzles not connected to the content areas or areas of student interest
- Extra homework
- A package that is the same for everyone
- Thinking skills taught in isolation
- Unstructured free time
Assessments

**Required District/State Assessments**
- Unit Assessments
- SGO Assessments

**Suggested Formative/Summative Classroom Assessments**
- Describe Learning Vertically
- Identify Key Building Blocks
- Make Connections (between and among key building blocks)
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Drag and Drop Items
- Use of Equation Editor
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Accountable talk
- Projects
- Portfolio
- Observation
- Graphic Organizers/Concept Mapping
- Presentations
- Role Playing
- Teacher-Student and Student-Student Conferencing
- Homework
# New Jersey Student Learning Standards

1.OA.A.1
Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. *(benchmarked)*

1.OA.D.7
Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.* *(benchmarked)*

1.OA.D.8
Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _.* *(benchmarked)*

1.OA.B.3
Apply properties of operations as strategies to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) (Students need not use formal terms for these properties)* *(benchmarked)*

1.OA.C.6
Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). *(benchmarked)*

1.OA.A.2
Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. *(benchmarked)*
# New Jersey Student Learning Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.MD.C.4</strong></td>
<td>Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</td>
</tr>
</tbody>
</table>
| **1.NBT.B.2** | Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:  
  1.NBT.B.2. a. 10 can be thought of as a bundle of ten ones — called a "ten."  
  1.NBT.B.2. b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. |
<p>| <strong>1.NBT.B.3</strong> | Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols &gt;, =, and &lt;. |
| <strong>1.NBT.A.1</strong> | Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. * (benchmarked) |
| <strong>1.OA.B.4</strong> | Understand subtraction as an unknown-addend problem. <em>For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.</em> |</p>
<table>
<thead>
<tr>
<th>Mathematical Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Make sense of problems and persevere in solving them.</td>
</tr>
<tr>
<td>2. Reason abstractly and quantitatively.</td>
</tr>
<tr>
<td>3. Construct viable arguments and critique the reasoning of others.</td>
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<tr>
<td>4. Model with mathematics.</td>
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<td>5. Use appropriate tools strategically.</td>
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<td>6. Attend to precision.</td>
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<tr>
<td>7. Look for and make use of structure.</td>
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<tr>
<td>8. Look for and express regularity in repeated reasoning.</td>
</tr>
</tbody>
</table>
### Grade: One  
#### Unit: 2 (Two)  
#### Topic: Add and Subtract Within 20

<table>
<thead>
<tr>
<th>NJSLs:</th>
<th>1.OA.A.1, 1.OA.D.7, 1.OA.D.8, 1.OA.B.3, 1.OA.C.6, 1.OA.A.2, 1.MD.C.4, 1.NBT.B.2a2b, 1.NBT.B.3, 1.NBT.A.1, 1.OA.B.4</th>
</tr>
</thead>
</table>

**Unit Focus:**
- Represent and solve problems involving addition and subtraction
- Work with addition and subtraction equations
- Understand and apply properties of operations and the relationship between addition and subtraction
- Add and subtract within 20
- Represent and interpret data
- Understand place value
- Extend the counting sequence

### New Jersey Student Learning Standard(s):

1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, *e.g.*, by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. *(benchmarked)*

**Student Learning Objective 1:** Use addition and subtraction within 10 to solve problems, including word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.

**Modified Student Learning Objectives/Standards:**

M.EE.1.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), or acting out situations.

<table>
<thead>
<tr>
<th>MPs</th>
<th>Evidence Statement Key/Clarifications</th>
<th>Skills, Strategies &amp; Concepts</th>
<th>Essential Understandings/Questions (Accountable Talk)</th>
<th>Tasks/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 1</td>
<td>Tasks should include all problem situations and all of their subtypes and language variants. Mastery is expected in “Add To” and “Take”</td>
<td>Contextual problems that are closely connected to students’ lives should be used to develop fluency with addition and subtraction. Students should be exposed to the four different addition and subtraction</td>
<td>How can you find a missing part of a number when one part and the whole are given?</td>
<td>IFL Task(s) – Set of Related Lessons named “The Relationship Between Addition and Subtraction”</td>
</tr>
</tbody>
</table>
| From” - Result and Change Unknown Problems, “Put Together/Take Apart” Problems, “Compare” – Difference Unknown, Bigger Unknown (more version) and Smaller Unknown (fewer version) Problems (for more information see CCSS Table 1, p. 88 and OA Progression, p. 9.) | situations and their relationship to the position of the unknown. Students use objects/manipulatives or drawings to represent the different situations. Symbols can be used to represent unknown numbers. The symbol (unknown) can be in any position. **Result Unknown, Total Unknown, and Both Addends Unknown** problems are the least complex for students. The next level of difficulty includes **Change Unknown, Addend Unknown, and Difference Unknown**.

The most difficult for students are Start Unknown and versions of Bigger and Smaller Unknown (compare problems).

Solve “take from” and “take apart” situational tasks using a variety of strategies and part-part-whole mats.

Determine if the “unknown” in a situational task represents a part of the situation or the whole amount in a situation.

Provide opportunities for students to participate in shared problem-solving activities to solve word problems. | How can you write a number sentence (equation) to show subtraction? How can you write a subtraction sentence (equation) to represent a story about taking away or comparing? How do you explain how addition and subtraction are related? What are two ways you can write a subtraction number sentence (equation)? Part-part-whole relationships exist within both addition and subtraction and because of these relationships, when one quantity is unknown, known quantities can then be used to determine the unknown.

What strategies can be used to solve story problems with an unknown part? *(unknown result, unknown change, and unknown addend)*

What is a part-part-whole relationship? | (IFL-Unit does not address “adding to”)

**Additional Tasks:**

Add to with Result Unknown and Put Together with Result Unknown

1.OA.1 Add to with Change Unknown math stories

Task 1 Result Unknown

Task 7 Change Unknown

Task 10 Initial Unknown

Addition and Subtraction Word Problems Step-by-Step Lesson

Word Problems (Different Types)

A Day at the Beach
| Collaborating in small groups to develop problem-solving strategies using a variety of models such as drawings, words, and equations with symbols for the unknown numbers to find the solutions. Additionally students need the opportunity to explain, write and reflect on their problem-solving strategies. The situations for the addition and subtraction story problems should use numbers within 20 and align with the twelve situations found in Table 1 of the Common Core State Standards (CCSS) for Mathematics. Interpret tables and diagrams. **SPED Strategies:** Provide manipulatives such as counters.

| What equations can be written to represent a part-part-whole relationship? |
| Pose word problems as warm-ups. Teacher models. Students write and illustrate their own story word problem. Provide anchor charts as a point of reference. Students use objects or drawings to represent the different situations. |

ELL Strategies:
Introduce and chart academic vocabulary with visuals: add, addition fact, sum, subtract, subtraction fact, difference, related facts.

Draw solutions and use selected technical words to demonstrate understanding of math problems read orally by drawing pictures to depict the action of the problem.

Use key, selected technical vocabulary in phrases and short sentences with drawings to demonstrate understanding of math problems read orally by drawing pictures to depict the action of the problem; then explain orally the solution using provided sentence frames.

New Jersey Student Learning Standard(s):
1.OA.D.7: Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2. *(benchmarked)

Student Learning Objective 2: Determine if addition and subtraction equations, within 20, are true or false.

Modified Student Learning Objectives/Standards: N/A

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<tr>
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<tbody>
<tr>
<td>MP 2</td>
<td>Interviews (individual or small group) should target students’ understanding of the equal sign.</td>
<td>Students need early exposure to the phrasing “the same as” when they are dealing with number problems that contain the equal sign.</td>
<td>Two or more expressions/equations are equivalent if they represent the same quantity.</td>
<td>IFL Task(s) – Set of Related Lessons named “The Relationship...</td>
</tr>
<tr>
<td>MP 3</td>
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<td>MP 6</td>
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<td>MP 7</td>
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</table>
The use of models, drawings, and objects is especially useful in helping students to visually see that the quantity on the left side of the equal sign is the same as the quantity on the right side. False equations should be presented to students to identify, as well. For example, $6 + 0 = 6 + 1$.

**Example:**
Which of the following equations are true and which are false?
- $6 = 6$
- $5 + 2 = 2 + 5$
- $7 = 8 - 1$
- $4 + 1 = 5 + 2$

The concept of a balance or a see-saw is a visual tool that assists students in understanding that the amounts on either side must be the same.

**SPED Strategies:**
Write and orally count forward or backward from 0-20 to solve addition and subtraction problems using a word wall, number line, hundreds chart and illustrations/diagrams/drawings.

Interchanging the language of “equal to” and “the same as” as well as “not equal to” and “not the same as” will help students grasp the meaning of the equal sign.

Can students model number sentences (equations) and show that quantities on both sides of an equal sign must be the same?

Can students recognize when two sides of an equation (or two quantities) are not equal?

Can students articulate with words and/or diagrams why two sides of an equation are not equal?

Two or more expressions/equations are equivalent if they represent the same quantity.

**Between Addition and Subtraction**

**Additional Tasks:**
- Equal or Not?
- Is the Scale Balanced
- Number Sentences
- Valid Equalities
- Equal Sums AO.8
- DOL Circle What Is True
Students should understand that “equality” means “the same quantity as”. In order for students to avoid the common pitfall that the equal sign means “to do something” or that the equal sign means “the answer is,” they need to be able to:

- Express their understanding of the meaning of the equal sign;
- Know that the equal sign represents a relationship between two equal quantities.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: equal, equal sign, equation, not equal, true, false

The teacher explains orally and models with connecting cubes or counters how to determine if an equation is true/false.

Support by stating orally or writing the correct numbers and mathematical symbols to demonstrate understanding of several complex equations using visuals (graphic organizer, connecting cubes, etc.). Then demonstrate understanding of true and false by sorting equations presented visually.
New Jersey Student Learning Standard(s):
1.OA.D.8: Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ - 3, 6 + 6 = _.* *(benchmarked)*

Student Learning Objective 3: Solve addition and subtraction equations, within 20, by finding the missing whole number in any position.

Modified Student Learning Objectives/Standards: N/A

<table>
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<tr>
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</table>
| MP 2 | Interviews (individual or small group) should target students’ thinking strategies for determining the unknown in an addition or subtraction equation relating 3 whole numbers. Thinking strategies expected in Grade 1 (Level 2 and 3) are defined in 1.OA.6 and in OA Progression (p. 14-17.) | Fact families are a good strategy in helping students to relate addition and subtraction to one another. Teachers should guide students to the understanding that if a student knows that 2 + 3 = 5, then they can use that knowledge to solve 5 = ? + 2. Helping students to master the process of using subtraction to find the missing addend as well as using addition to find the missing portion in a subtraction problem will assist in students’ ability to fluently solve these problems. The use of manipulatives, technologies, models, and drawings can aid in helping students to visualize the unknown portion in an algebraic problem. **SPED Strategies:** Provide concrete and visual models. Provide graphic organizers and possible foldables. | Do students understand that addition and subtraction are related to one another? Can students reason and communicate how to solve for an unknown portion in a number sentence? Can students explain the role the equal sign plays in algebraic equations in that they understand that both sides of the equal sign must have identical values? | Lesson 16  
Find the Missing Number  
Addition Word Problems |
| MP 6 | | | | |
| MP 7 | | | | |

---

*benchmarked*
Pre-teach vocabulary words in student friendly language.

Provide regular opportunities to practice.

Clarify key concepts.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: equation, equal sign, missing, missing number.

Follow step-by-step oral directions with teacher modeling and manipulatives (fact family triangles, number bonds, number line, playing card, etc.). Then identify orally and in writing the missing number in an addition or subtraction equation.

Follow two-step oral directions to complete a math problem. Then identify the missing number in an addition or subtraction equation orally and in writing using a sentence starter/frame.
New Jersey Student Learning Standard(s):
1.OA.B.3: Apply properties of operations as strategies to add and subtract. *Examples: If \(8 + 3 = 11\) is known, then \(3 + 8 = 11\) is also known.* *(Commutative property of addition.)* To add \(2 + 6 + 4\), the second two numbers can be added to make a ten, so \(2 + 6 + 4 = 2 + 10 = 12\). *(Associative property of addition.)* *(Students need not use formal terms for these properties.)* *(benchmarked)*

**Student Learning Objective 4:** Apply properties of operations as strategies *(Associative Property)* to add or subtract within 20.

Modified Student Learning Objectives/Standards: N/A

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>MP 2</td>
<td>Tasks should not expect students to know the names of the properties.</td>
<td>Students must understand the concept of fact families.</td>
<td>The associative property for addition of whole numbers allow computations to be performed flexibly.</td>
<td>Farm</td>
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<tr>
<td>MP 7</td>
<td>Interviews (individual or small group) should target students’ application of properties of operations to add and subtract.</td>
<td>When adding, students can look for ways to “make 10” in order to make computing sums and differences easier. For example, to add (2+6+4), using the associative property to first add (6+4) allows for the expression to become (2+(6+4) = 2 + 10 = 12).</td>
<td>Subtraction is not commutative or associative for whole numbers.</td>
<td>LS.1.OA.3. Associative 3 Addends</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td><strong>Examples:</strong></td>
<td>Can students explain that addition and subtraction are related, in that there are “families” of facts?</td>
<td>1.OA.3-M2-Topic-A-Lesson-2</td>
</tr>
<tr>
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<td><strong>Doubles</strong> Adding two of the same number together such as (2+2=4) or (5+5=10).</td>
<td>Can students utilize a variety of strategies to find sums and differences?</td>
<td>1.OA.3-M2-Topic-A-Lesson-6</td>
</tr>
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<td><strong>Doubles Plus One</strong> A fact like (6 + 7), these are the steps to think through:</td>
<td>Can students communicate the reasoning behind the strategies they used in computing sums and differences?</td>
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<td>• Double the lower number, which in this case would give you (6 + 6 =12).</td>
<td>In addition, three quantities can be combined in any order and the whole quantity will remain the same. <em>(Associative Property of Addition).</em></td>
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<td>• Now add one: (The second 6 was a 7, remember?)&lt;br&gt;• Think 6 + 6 + 1 = 13 or 12 + 1 = 13.&lt;br&gt;• Now say the fact: 6 + 7 = 13</td>
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<td><strong>Doubles Minus One</strong>&lt;br&gt;A fact like 7+8, these are the steps to think through:&lt;br&gt;• Double the higher number, which in this case would give you 8+8=16.&lt;br&gt;• Now subtract one: 16-1=15.&lt;br&gt;• Think (8+8)-1=15 or 16-1=15.&lt;br&gt;• Now say the fact: 7+8=15.</td>
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<td>Students do not need to know the specific names of properties; however, practice in using the processes within those properties will benefit their learning in later grade levels. For example, to add 5 + 6 + 4, the second two numbers can be added to make a ten, so 5 + 6 + 4 = 5 + 10 = 15.&lt;br&gt;(Associative property of addition.)&lt;br&gt;Ask students to solve sets of addition equations with three addends, make “noticings” about the sets, and agree or disagree with a claim about the commutative property.</td>
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<tr>
<td><strong>SPED Strategies:</strong> Explain orally and in writing the properties of operations to find sums or differences within 20 using three different colored connecting cubes. Provide manipulatives to students to serve as a visual (counters, unifix cubes, etc). Model for student. Show videos/tutorials.</td>
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<tr>
<td><strong>ELL Strategies:</strong> Introduce and chart academic vocabulary with visuals: sum, difference, add, subtract, order. Use sentence starters to explain orally and in writing the properties of operations to find sums or differences within 20 using key vocabulary in a series of simple sentences. Students maintain a math journal to demonstrate growth in math writing and reasoning.</td>
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</tbody>
</table>
New Jersey Student Learning Standard(s):
1.OA.C.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). *(benchmarked)*

**Student Learning Objective 5:** Add and subtract whole numbers within 20, demonstrating fluency for addition and subtraction within 10. Use various strategies: counting on, making ten, composing, decomposing, relationship between addition and subtraction, creating equivalent but easier or known sums, etc.

**Modified Student Learning Objectives/Standards:** N/A

<table>
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<tr>
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<tbody>
<tr>
<td>MP 2</td>
<td>N/A</td>
<td>Students need a variety of strategies for solving addition and subtraction problems within 20.</td>
<td>What are efficient methods for finding sums and differences?</td>
<td>IFL Task(s) – Set of Related Lessons named “The Relationship Between Addition and Subtraction”</td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td>Students also need to be fluent with sums or differences within 10.</td>
<td>A quantity in a set can be moved to the other set and the sets can be combined, but the whole amount will remain the same because no additional items are added or taken away. (Compensation: 9+6=10+5)</td>
<td>Additional Tasks: OA Task 4a Grapes</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td>These strategies will provide students with a variety of choices when deciding the best way to solve problems.</td>
<td>Addition and subtraction are inverse operations because two or more quantities can come together and then the whole amount of objects can be taken apart, but the composition of the whole quantity remains the same. (Doing and Undoing, Inverse Operations, 4+5=9, 9-5=4)</td>
<td>OA Task 5A Cookies</td>
</tr>
<tr>
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<td></td>
<td>This standard brings together all of the previous strategies and operations to apply in any given addition or subtraction situation.</td>
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<td>OA Task 6a French Fries</td>
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<td></td>
<td></td>
<td>Fluency within 10 allows sums and differences within 20 to be solved quickly, as students can decompose larger numbers as needed. For example,</td>
<td></td>
<td>OA Task 9d Ribbons</td>
</tr>
</tbody>
</table>
13 - 4 can be thought of as 13 - 3 - 1 = 10 - 1 = 9.

Teachers should guide students through a wide variety of methods for solving addition and subtraction problems: counting on, making ten, composing numbers, decomposing numbers leading to ten, relationship between addition and subtraction, and creating equivalent but easier or known sums.

While the correct answer is important, students need to feel comfortable in solving for the answer in the way that makes the most sense to them while also having knowledge and practice with other strategies.

Students need to be taught how to communicate their reasoning for choosing a specific strategy. For example, students can show how they solve 6 + 7 by first changing it to 6 + 6 + 1 (creating equivalent but easier or known sums) followed by 12 + 1 (fluency of knowing 6 and 6 is 12) and then 12 + 1 = 13, which they relate to counting on by one from twelve to get 13.

Additionally, they should be encouraged to justify their reasoning.

Have students been exposed to a wide range of problem-solving tools that go beyond counting fingers and using a number line?

Can students communicate their reasoning for choosing a specific strategy for problem-solving?

Can students use the strategy of counting on?

Can students use the strategy of making a ten?

Can students use the strategy of decomposing a number to quickly solve an addition or subtraction problem?

Can students use a related addition fact to solve a subtraction problem?

Can students create easier sums within a problem to solve a large problem?
through words, drawings, models and pictures.

**SPED Strategies:**
Use of manipulatives, diagrams, or interactive whiteboards and various strategies will help students develop fluency.

Students need to be taught how to communicate their reasoning for choosing a specific strategy.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: add, subtract, make a ten, plus, minus, difference, equals, altogether

The teacher models (using gestures, drawings or manipulatives) how to add and subtract using the specific strategy.

The student can explain orally and in writing using drawings, base ten blocks and/or sentence frames (First, I ____, Then, I ____. Finally, I ____ ) to find sums or differences within 20 by decomposing a number or using tens.

Students maintain a math journal to demonstrate growth in math writing and reasoning.

<table>
<thead>
<tr>
<th>Strategies for Solving Change and Addend Unknown Problems Lessons 22-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.OA.C.6 $20 Dot Map</td>
</tr>
<tr>
<td>Strategies for Counting On Lessons 14 &amp;15</td>
</tr>
</tbody>
</table>
New Jersey Student Learning Standard(s):
1.OA.A.2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. *(benchmarked)*

**Student Learning Objective 6:** Solve addition word problems with three whole numbers with sums less than or equal to 20.

**Modified Student Learning Objectives/Standards:**
M.EE.1.OA.A.2: Use "putting together" to solve problems with two sets.

<table>
<thead>
<tr>
<th>MPs</th>
<th>Evidence Statement Key/Clarifications</th>
<th>Skills, Strategies &amp; Concepts</th>
<th>Essential Understandings/Questions (Accountable Talk)</th>
<th>Tasks/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 1</td>
<td>Interviews (individual or small group) should target students’ ability to solve word problems with 3 addends.</td>
<td>Students solve multi-step word problems by adding (joining) three numbers whose sum is less than or equal to 20, using a variety of mathematical representations. The symbol (unknown) can be in any position. <strong>Example:</strong> Mrs. Jones has 4 chocolate chip cookies, 5 oatmeal cookies, and 6 gingerbread cookies. How many cookies does Mrs. Jones have? Students should be able to add numbers in any order and identify the most efficient way to solve the problem. Students need practice with a variety of strategies that will allow them to group addends many different ways to make the addition process easier. For instance, students should be guided to look</td>
<td>Can the students group addends in different ways to assist them when adding three addends together? Place value concepts provide a convenient way to compose and decompose numbers to facilitate addition and subtraction computations. How can the use of manipulatives, and other visual or concrete aids, help students with their understanding of adding three addends? Can students employ their knowledge of related addition and subtraction facts when solving for an unknown portion?</td>
<td>Wheel Shop 1.OA.A.2 Polar Bear 3 addend 1.OA.A.2-M2-Topic-A-Lesson-1 1.OA.A.2 Daisies in Vases</td>
</tr>
<tr>
<td>for places where they can &quot;make 10&quot;, “doubles”, “doubles +1” and “doubles -1” before adding.</td>
<td>Can students solve problems with three addends when presented in the context of word problems?</td>
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<tr>
<td>When students are comfortable with adding three addends, begin to introduce an unknown portion in the numeric sentence. From here, students can use their knowledge of related addition and subtraction facts to solve for the unknown portion.</td>
<td>A quantity in a set can be moved to the other set and the sets can be combined, but the whole amount remains the same because no additional items were added or taken away (ex. 9+6=10+5). (Conservation)</td>
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<tr>
<td>The use of manipulatives, pictures, models, and technologies should be incorporated into the learning experience for greater understanding.</td>
<td>Mapping devices (part-part-whole mat) can help you gain a sense of the quantities involved, to notice increases and decreases, and consider the doing and undoing related to addition and subtraction.</td>
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<tr>
<td>Provide students with multiple opportunities to discuss their reasoning for the method they chose for their problem-solving.</td>
<td>Problems can be solved by counting all, counting on from a quantity, counting on from the largest set, or using derived facts when solving for the whole amount or the missing part of the whole.</td>
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</tbody>
</table>

**SPED Strategies:**

Use properties of operations and different strategies to find the sum of three whole numbers such as:

- Counting on and counting on again (e.g., to add 3 + 2 + 4 a student writes 3 + 2 + 4 = ? and thinks, “3, 4, 5, that’s 2 more, 6, 7, 8, 9 that’s 4 more so 3 + 2 + 4 = 9.”)
- Making tens (e.g., \(4 + 8 + 6 = 4 + 6 + 8 = 10 + 8 = 18\))

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: addend, sum, altogether.

Draw the solution to addition word problems involving three numbers using selected technical words.

In a small group, students can use manipulatives to explain orally the solution to addition word problems involving three numbers using key, technical vocabulary in a series of simple sentences using sentence starters/frames as needed.
New Jersey Student Learning Standard(s):  
1. MD.C.4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Student Learning Objective 7: Organize, represent, and interpret data with up to three categories, compare the number of data points among the categories, and find the total number of data points.

Modified Student Learning Objectives/Standards:  
EE.1.MD.C.4: Organize data into categories by sorting.

<table>
<thead>
<tr>
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</table>
| MP 2  | N/A                                   | This standard focuses on the students’ ability to read and interpret sets of data that they have collected and displayed in an organized and categorical manner (i.e., bar graph or a pictograph, table, list of numbers), and that the data being “read” is data collected by the students themselves, and then put into a graphic representation. Such a skill also incorporates a student’s ability to collect data, generalize information, count data sets on a graph, and perform simple computation operations that will yield a greater variety of information about the data. Provide a variety of opportunities for students to categorize objects or other data sets in order to create data representations in the world around them. Such activities might include | What every day experiences or objects can be used to create a data set?  
  Can my students identify the topic of a graph based on the title of a graph?  
  Can my students identify the sets of data that are being represented and communicate its relevance to the title?  
  Have I introduced my students to a variety of ways in which data can be related in a visual way, such as towers, bar graphs, pictographs, etc., so that they have a better understanding of what visual representations can be?  
  Are students able to answer questions relative to the information in the  | Favorite Ice Cream Flavor  
  Weather  
  Animal Cards  
  Farmer McDonald 1.MD.4  
  DOL Favorite Transformers 1.MD.4  
  Games at the Park 1.MD.4  
  Picture Graphs 1.MD.4  
  Playing Ball 1.MD.4  
  Insects in the Garden 1.MD.4 |
| MP 3  |                                       |                                                                                               |                                                                                                                           |                                                      |
| MP 4  |                                       |                                                                                               |                                                                                                                           |                                                      |
| MP 5  |                                       |                                                                                               |                                                                                                                           |                                                      |
| MP 6  |                                       |                                                                                               |                                                                                                                           |                                                      |
| sorting shoes, personal attributes (e.g., hair color, eye color, boys and girls), ways they get to school, favorite color. Once the sets have been determined, guiding students to participate in displaying the information in a list is helpful. For example, "There are 5 students who go to bed after 9 PM, 13 students who go to bed between 8 PM and 9 PM, and 7 students who go to bed before 8 PM". Students should be able to ask and answer questions about the total number of data points, the number of data points in each category, and how many more or less are in one category than in another. Have students sort candy by color, then look at another student's data and decide which color was the most frequent, least frequent, and so on. Have students count how many students have each hair color. Then use this data to determine how many students there are in total, and how many more students have brown hair than blonde hair, etc. graph and compare sets of data for greater understanding? Can students determine how many objects are in each category? Can students determine how many objects there are in total? Can students determine how many more/fewer objects are in one category than another? If data is presented in a table, can students correctly extract information? If data is presented in several categories, can students correctly determine which category contains more data points? If data is presented in categories, can students correctly determine the difference between the number of data points in each? | Data Interpretation-M3-Topic-D-Lessons-10-13
1MD4. – Task
How Long is Your Name – 1.MD.4
What Shape Are You – 1.MD.4 |
Counting objects should be reinforced when collecting, representing, and interpreting data.

Students describe the graphs and tally charts they create. They should also ask and answer questions based on these charts or graphs that reinforce other mathematics concepts such as sorting and comparing.

The data chosen or questions asked give students opportunities to reinforce their understanding of place value, identifying ten more and ten less, relating counting to addition and subtraction and using comparative language and symbols.

**Example:**
Which is your favorite flavor of ice cream? Chocolate, vanilla or strawberry?

Students collect their data by using tally or another way of keeping track. Students organize their data by totaling each category in a chart or table.
Examples of comparisons:
What does the data tell us? Does it answer our question?
- More people like chocolate than the other two flavors.
- Only 5 people liked vanilla.
- Six people liked Strawberry.
- 7 more people liked Chocolate than Vanilla.
- The number of people that liked Vanilla was 1 less than the number of people who liked Strawberry.
- The number of people who liked either Vanilla or Strawberry was 1 less than the number of people who liked chocolate.
- 23 people answered this question.

SPED Strategies:
Provide a variety of opportunities for students to categorize objects or other data sets in order to create data representations in the world around them. Such activities might include sorting shoes, personal attributes (e.g.,...
hair color, eye color, boys and girls), ways they get to school, favorite color.

Once the sets have been determined, guiding students to participate in displaying the information in a list is helpful. For example, "There are 5 students who go to bed after 9 PM, 13 students who go to bed between 8 PM and 9 PM, and 7 students who go to bed before 8 PM".

Have students sort candy by color, then look at another student's data and decide which color was the most frequent, least frequent, and so on.

Have students count how many students have each hair color. Then use this data to determine how many students there are in total, and how many more students have brown hair than blonde hair, etc.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: data, bar graph, pictograph, picture graph, more, fewer, most, fewest, total.

Use single words or drawings to demonstrate comprehension of how to
**New Jersey Student Learning Standard(s):**

1.NBT.B.2: Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

1.NBT.B.2.a. 10 can be thought of as a bundle of ten ones — called a "ten." 
1.NBT.B.2.b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

**Student Learning Objective 8:** Compose and decompose numbers to 20 to identify the value of the number in the tens and ones place.

**Modified Student Learning Objectives/Standards:**

M.EE.1.NBT.B.2: Create sets of 10.

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<th>Tasks/Activities</th>
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<tbody>
<tr>
<td>MP 2</td>
<td>• Tasks should focus on the understanding of two-digit numbers as some number of “tens” and some number of “ones.”</td>
<td>Students are introduced to the idea that a bundle of ten ones is called “a ten”. This is known as unitizing.</td>
<td>There are many ways to represent a number.</td>
<td>Build a Train</td>
</tr>
<tr>
<td>MP 7</td>
<td>• Interviews (individual or small group) should target this understanding.</td>
<td>When students unitize a group of ten ones as a whole unit (“a ten”), they are able to count groups as though they were individual objects. For example, 5 trains of ten cubes each have a value of 10 and would be counted as 50 rather than as 5. This can be challenging for students to</td>
<td>The numbers from 11 to 19 are unique since they don’t follow the pattern of naming tens and then ones.</td>
<td>Teens on a Ten Frame</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td>Grouping (unitizing) is a way to count, measure, and estimate.</td>
<td>Place value is based on groups of ten (10 ones = 10 and 10 tens = 100).</td>
<td>Tens and Ones with the Three Little Pigs</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tens and Ones with Unifix Cubes</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Tens and Ones with Pennies and Dimes</td>
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<tr>
<td>Tasks should focus on the understanding of ten “ones” as a unit of one “ten.”</td>
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<tr>
<td>consider a group of something as “one” when all previous experiences have been counting single objects. This is the groundwork of the place value system and requires time and rich experiences with concrete manipulatives to develop.</td>
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</tbody>
</table>

**SPED Strategies:**
Provide opportunities for students to work with decomposing two-digit numbers in order to see the value of each digit. For instance, 14 is decomposed as one ten (or one bundle of 10 ones) and 4 ones.

Provide students with opportunities to use manipulatives and technologies which allow students to physically make bundles of tens. This helps with moving an abstract concept into more concrete terms.

Provide students with problems/opportunities to think of the number 10 as ten ones and a ten, and of the numbers 11, ..., 19 as whole numbers after 10 (e.g., 11 ones) and as a ten and a certain number of ones (e.g., one ten and 1 one). |

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: ones, tens, hundreds.

<table>
<thead>
<tr>
<th>How does using the base ten system make it easier for me to count?</th>
</tr>
</thead>
<tbody>
<tr>
<td>How does the place value system work?</td>
</tr>
<tr>
<td>How do I find the best way to represent a number (pictorial, symbolic, with objects) for a given situation?</td>
</tr>
<tr>
<td>In what ways can items be grouped to make exchanges for unit(s) of higher value??</td>
</tr>
<tr>
<td>How does the position of a digit in a number affect its value?</td>
</tr>
<tr>
<td>In what ways can numbers be composed and decomposed?</td>
</tr>
<tr>
<td>How are place value patterns repeated in numbers?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NBT.2 Building numbers lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.NBT.2 Place value gallery</td>
</tr>
<tr>
<td>Ten Frames 0-10</td>
</tr>
<tr>
<td>Handful of Cubes</td>
</tr>
<tr>
<td>Decomposition of Teen Numbers-Lessons-26-29</td>
</tr>
<tr>
<td>Varied Problems with Decompositions of Teen Numbers -M2-Topic-D-Lessons-26-29</td>
</tr>
<tr>
<td>1.NBT.B.2 Roll &amp; Build</td>
</tr>
</tbody>
</table>
**place, value, digit, bundle, and column.**

Use illustrations/diagrams/drawings or single words to explain orally and in writing the value of the number in the tens and ones place in numbers to 20 using base-ten blocks or a place value chart.

Use key vocabulary in series of simple sentences using sentence frames to explain orally and in writing the value of the number in the tens and ones place in numbers to 20.

Utilize manipulatives, such as base-ten blocks or a place value chart.

Students maintain a math journal to demonstrate growth in math writing and reasoning.
New Jersey Student Learning Standard(s):
1.NBT.B.3: Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Student Learning Objective 9: Use the meaning of tens and ones digits to record comparisons of 2 two-digit numbers using >, =, and < symbols.

Modified Student Learning Objectives/Standards:
M.EE.1.NBT.3: Compare two groups of 10 or fewer items when the number of items in each group is similar.

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<th>Tasks/Activities</th>
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</thead>
<tbody>
<tr>
<td>MP 2</td>
<td>• Tasks should focus on the understanding that the digit in the “tens” place is more important for determining the size of a two-digit number. ii) Interviews (individual or small group) should target this understanding</td>
<td>First Grade students use their understanding of groups and order of digits to compare two numbers by examining the amount of tens and ones in each number. After numerous experiences verbally comparing two sets of objects using comparison vocabulary (e.g., 42 is more than 31. 23 is less than 32, 61 is the same amount as 61.), first grade students connect the vocabulary to the symbols: greater than (&gt;), less than (&lt;), equal to (=). Once students are able to decompose a two-digit number into bundles of tens and remaining ones, they can use that knowledge to compare two-digit numbers with one another. From here, they are then able to put numbers in order from least to greatest or vice versa.</td>
<td>Can students identify the values of digits in a two-digit number? If two numbers have the same amount of tens, can students move to the ones position and compare 2 two-digit numbers? Are students able to justify their reasoning through verbal language, the use of mathematical symbols, drawings, pictures, and concrete representations? Can students use the mathematical symbols &lt;, =, &gt; to record the result of a comparison? Can students list numbers in the order they would appear on the number line?</td>
<td>Ordering Numbers Where Do I Go Comparing Numbers Greatest 2 Digit Number Sacks of Cookies Roll and Compare Number Bingo 1.NBT.B.3-Lessons-7-10 NBT.1 Hanging Out Number Line</td>
</tr>
</tbody>
</table>
versa, followed with the use of the >, =, and < symbols.

Provide students with a variety of opportunities to compare two-digit numbers, beginning with numbers that have different values in the tens and ones positions. This exploration should include the use of base 10 models, manipulatives, technologies and other visual media that will enhance a student’s understanding that the amount of bundles of tens (i.e., the tens digit) will determine how it can be compared with another two-digit number.

Provide students with problems/opportunities to compare numbers with the same tens digits, but with different ones digits. Once students recognize that two numbers have the same tens digit, then they can explore how those numbers can be compared using the ones position. Manipulatives, pictures, technologies, drawings and concrete models will enrich a student’s understanding of this concept (e.g., base 10 blocks, ten frames, unifix cubes).

Provide students with the opportunity to practice the use of mathematical symbols <, =, >, and to write an

Building upon skills mastered previously, students will now show the comparisons between two numbers using the appropriate mathematical symbols <, > and =. Students are able to justify their answer through a variety of displays including drawings, pictures and concrete models.
inequality or equality to record the result of a comparison.

Use sentence strips such as “is greater than”, “is less than”, or “is equal to” to compare two-digit numbers. Then use cards with <, =, > symbols.

**SPED Strategies:**
Front load vocabulary.

The use of manipulatives, pictures, technologies, drawings and concrete models will enrich a student’s understanding of this concept (e.g., base 10 blocks, ten frames, unifix cubes).

Give students the opportunity to practice the use of mathematical symbols <, =, >, and to write an inequality or equality to record the result of a comparison.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: ones, tens, greater than, less than, equal to, symbol, compare.

Use a symbol-word-picture chart, or any chart that makes a visual connection between mathematical symbols and their meaning in words,
as support to compare orally and in writing two digit numbers.

Use drawings and selected technical vocabulary in phrases to compare orally and in writing the comparative value of two-digit numbers.

Use key vocabulary in simple sentences with provided sentence frames to compare orally and in writing the comparative value of two-digit numbers.

Students maintain a math journal to demonstrate growth in math writing and reasoning.

<table>
<thead>
<tr>
<th>New Jersey Student Learning Standard(s):</th>
<th></th>
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<tbody>
<tr>
<td>1.NBT.A.1: Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral <em>(benchmarked)</em></td>
<td></td>
</tr>
</tbody>
</table>

**Student Learning Objective 10:** Count to 120 orally, read and write numerals, and write numerals to represent the number of objects (up to 120).

**Modified Student Learning Objectives/Standards:**

M.EE.1.NBT.A.1: Count as many as 10 objects and represent the quantity with the corresponding numeral.

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<tbody>
<tr>
<td>MP 2</td>
<td>N/A</td>
<td>Provide students with opportunities to practice reading and writing numerals.</td>
<td>Can students recognize, read, and write numerals to 120?</td>
<td><strong>Exploring the 99 Chart</strong></td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td></td>
<td></td>
<td><strong>Oh No 99 Chart</strong></td>
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<tr>
<td>MP 8</td>
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<tr>
<td>Provide students with opportunities to communicate their reasoning for solutions through verbal and written explanations as well as visuals and drawings.</td>
<td>Can students represent a group of objects with a numeral (up to 120)?</td>
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<tr>
<td>Provide students with the use of manipulatives and virtual technologies which offer more concrete exploration of counting and sequence expansion.</td>
<td>Can students recognize different representations (e.g., number names, base ten model, digits, or picture representation) of numerals through 120?</td>
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<tr>
<td>Provide problems/opportunities for students to match numerals with picture representations, and to represent a number of objects with a numeral.</td>
<td>Can students explain and defend their choices and reasoning?</td>
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<tr>
<td>Students learn to use numerals to represent numbers by relating their place value notation to their models.</td>
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<tr>
<td>Count up to 120 beginning at any number less than 120.</td>
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<tr>
<td>Use 120 chart, number line or videos to practice rote counting.</td>
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</tbody>
</table>

**SPED Strategies:**
Provide students with opportunities to count on by ones, and then to skip-count by more difficult sequences (by 10’s), starting at any number less than 120.

| Counting (up to 120) |
| Can students represent a group of objects with a numeral (up to 120)? |
| Missing Number Grids NBT.1 |
| 1.NBT.1 cookies |
| NBT1-counting to 120 |
| 1.NBT.A.1 Start/Stop Counting 2 |
| Count to 120 Fit |
| Count to 120 |
| Show students problems/opportunities to count to 120 starting at any number less than 120. |
| Provide students with opportunities to practice reading and writing numerals. |
| Give students opportunities to communicate their reasoning for solutions through verbal and written explanations as well as visuals and drawings. |

**ELL Strategies:**

- Introduce and chart academic vocabulary with visuals: number words 0-100, order, sequence words.
- Students utilize a number line as a support in writing and orally counting numbers to 120 from a number other than zero.
- Provide students with a list of math numbers (words in English) for student to reference when counting.
- Students echo count with the teacher or a peer with the use of a hundreds chart for support.
New Jersey Student Learning Standard(s):
1.OA.B.4: Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8 *(benchmarked)

Student Learning Objective 11: Solve subtraction problems, within 10, by representing subtraction as an unknown added problem and finding the unknown addend.

Modified Student Learning Objectives/Standards: N/A

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<td>MP 2</td>
<td>N/A</td>
<td>Discuss subtraction as an unknown-addend problem. Example: – 5 = __ could be expressed as 5 + __ =9 . Students should use cubes and counters, and representations such as the number line and the 100 chart, to model and solve problems involving the inverse relationship between addition and subtraction. When finding the answer to a subtraction problem, 9 - 5, students think, “If I have 5, how many more do I need to make 9?” Encouraging students to record this symbolically, 5 + ? = 9, will develop their understanding of the relationship between addition and subtraction.</td>
<td>Fact families are especially beneficial in helping students to understand the relationship between addition and subtraction. Students should have ample opportunities to use manipulatives and technologies in constructing concrete models of subtraction problems. Visuals, such as drawings, models, and pictures, can be used to further develop understanding the processes involved in using an addition sentence to compute the difference in a subtraction problem. Are students able to use an addition sentence when solving for the difference in a subtraction problem?</td>
<td>IFL Task(s) – Set of Related Lessons named “The Relationship Between Addition and Subtraction” Additional Tasks: OA Task 3d Piggy Bank OA Task 3bb Apples OA Task 3b Flowers 1.OA.4 Subtraction and unknown addends to 20 Subtraction as an Unknown Addend problem-Lessons-25-27</td>
</tr>
<tr>
<td>MP 7</td>
<td>N/A</td>
<td></td>
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<tr>
<td>MP 8</td>
<td>N/A</td>
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</table>
Strategies include counting objects, creating drawings, counting up, using number lines or 10 frames to determine an answer.

Write and discuss related addition and subtraction equations.

**SPED Strategies:**
Fact families are especially beneficial in helping students to understand the relationship between addition and subtraction.

Students should have ample opportunities to use manipulatives and technologies in constructing concrete models of subtraction problems.

Visuals, such as drawings, models, and pictures, can be used to further develop understanding the processes involved in using an addition sentence to compute the difference in a subtraction problem.

**ELL Strategies:**
Introduce and chart academic vocabulary with visuals: addend, difference, unknown.

Teacher models using drawings, ten-frames, and counters and/or key words and phrases to add when

Can students model a subtraction problem using concrete manipulatives and visuals to explain how to use a related addition fact to solve for the difference?

How is subtraction like an unknown-addend problem?

Subtraction problems, where either part is unknown (subtrahend or difference), can be represented and solved as an unknown-addend problem because in each subtraction equation a part of the whole is unknown. \((8 - 2 \text{ or } 8 - __ = 2)\) still equals \(2 + __ = 8\).
finding differences within 10 in order to solve subtraction problems with unknown addends.

Use selected technical vocabulary in phrases and short sentences (sentence frames) with Illustrations/diagrams/drawings to explain orally and in writing how to add in order to solve subtraction problems with unknown addends.

Explain orally and in writing how to add in order to solve subtraction problems with unknown addends using key, technical vocabulary in simple sentences.

Students maintain a math journal to demonstrate growth in math writing and reasoning.
<table>
<thead>
<tr>
<th>Unit 2 Vocabulary</th>
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</thead>
<tbody>
<tr>
<td>• add</td>
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<tr>
<td>• addends</td>
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<tr>
<td>• adding to</td>
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<tr>
<td>• addition</td>
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<tr>
<td>• Associative Property of Addition</td>
</tr>
<tr>
<td>• Backwards</td>
</tr>
<tr>
<td>• category</td>
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<tr>
<td>• Commutative Property of Addition</td>
</tr>
<tr>
<td>• compare</td>
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<tr>
<td>• comparing with unknowns in all positions</td>
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<tr>
<td>• compose</td>
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<tr>
<td>• count back</td>
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<tr>
<td>• count on</td>
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<tr>
<td>• data</td>
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<tr>
<td>• decompose</td>
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<tr>
<td>• difference</td>
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<tr>
<td>• digit</td>
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<tr>
<td>• equal</td>
</tr>
<tr>
<td>• equal sign</td>
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<tr>
<td>• equation (number sentence)</td>
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<tr>
<td>• false</td>
</tr>
<tr>
<td>• fewer</td>
</tr>
<tr>
<td>• forward</td>
</tr>
<tr>
<td>• friendly number</td>
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<tr>
<td>• greater than</td>
</tr>
<tr>
<td>• interpret</td>
</tr>
<tr>
<td>• is the same as</td>
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<tr>
<td>• less than</td>
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<tr>
<td>• make a ten</td>
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<tr>
<td>• minus</td>
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<tr>
<td>• more</td>
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<tr>
<td>• more than</td>
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<tr>
<td>• most</td>
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<tr>
<td>• multiple of ten</td>
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<tr>
<td>• (number) after</td>
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<td>• (number) before</td>
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<tr>
<td>• number line</td>
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<td>• numeral</td>
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<td>• object</td>
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<td>• ones</td>
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<td>• order</td>
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<td>• part-part-whole</td>
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<td>• place value</td>
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<td>• putting together</td>
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<tr>
<td>• reasoning</td>
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<td>• related facts</td>
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<td>• representation</td>
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<td>• solve</td>
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<td>• subtract</td>
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<td>• sum</td>
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<td>• take away</td>
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<td>• taking apart</td>
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<td>• taking from</td>
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<td>• ten frame</td>
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<td>• ten less</td>
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<td>• ten more</td>
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<td>• tens</td>
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<td>• total</td>
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<tr>
<td>• true</td>
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<tr>
<td>• unknown addends</td>
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<tr>
<td>• value</td>
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<tr>
<td>• whole</td>
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</tbody>
</table>
# References & Suggested Instructional Websites

- [https://www.engageny.org/](https://www.engageny.org/)
- [https://www.teachingchannel.org/](https://www.teachingchannel.org/)
- [https://www.illustrativemathematics.org/](https://www.illustrativemathematics.org/)
- [http://www.k-5mathteachingresources.com/](http://www.k-5mathteachingresources.com/)
- [http://betterlesson.com/](http://betterlesson.com/)
- [https://learnzillion.com/](https://learnzillion.com/)
- [http://www.insidemathematics.org/](http://www.insidemathematics.org/)
- [http://greatminds.net/](http://greatminds.net/)
- [https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx](https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx)
- [http://interactivesites.weebly.com/math.html](http://interactivesites.weebly.com/math.html)
- [https://www.mathsisfun.com/definitions/index.html](https://www.mathsisfun.com/definitions/index.html)
Field Trip Ideas

**HEAVEN HILLS** – Heaven Hills is a locally owned and operated garden center and farm market in Vernon, NJ. The only thing better than a getaway to the country is gathering a large group of your classmates, coworkers, friends and family to join you on a visit to Heaven Hill Farm to experience a true working farm for some exclusive educational and seasonal fun.

http://www.heavenhillfarm.com/tours-for-schools/

**HILLVIEW FARMS** - We welcome schools and groups to visit our family farm to gain a positive farm experience. By visiting Hillview Farms, we aim to engage students in the workings of a farm. They will experience different types of farm animals, how they live, what they eat, how they feel and sound. They learn why all the different animals are raised, how the farm produces its own food, and how that food is harvested and stored.

http://hillviewfarmnj.com/

**ALSTEDE FARMS** Chester, NJ - Let us teach you about farming in the most fun way! We open our doors to groups of all ages and sizes because we understand the importance of hands-on education. We personalize each farm tour and field trip, depending on the group’s interests. You will navigate our farm by taking hayrides out to the beautiful fields and orchards, greenhouses, school classroom, our friendly animals and last but not least – having a great outdoor day at our family owned farm. You choose the other activities- climb the giant hay pyramid, have lunch and refreshing lemonade or take a self-guided tour of our animals.

http://alstedefarms.com/group-events-and-tours/group-farm-tours/?gclid=C1ljzn-W4lMYCFQgUHwodK1oAxA

**GREEN MEADOWS FARM** Hazlet, NJ - Green Meadows Petting Farm in Hazlet, New Jersey is a unique hands on learning adventure with hundreds of friendly farm animals. Some of our many petting zoo activities include milking a cow, feeding our animals, tractor drawn hayrides and fall pumpkin picking. Give us a call and we'll bring the fun to you! We’re the ideal farm animal experience for families, birthday parties, groups and school field trips!

http://www.greenmeadowsfarmnj.com/

**PENNINGS ORCHARD** Warwick, NY - We look forward to seeing you next year for all your favorite activities including the u-pick, farm market, pumpkin fields, hayrides, farm animals, kiddie maze and more.

http://www.penningsorchard.com
## Field Trip Ideas

### BERGEN COUNTY ZOO Paramus, NJ
- This great zoo, located in Van Saun County Park, is home to a wide variety of wild and domestic animals, living in recreated habitats natural to each species. **School Programs** for grades Pre-K and up include 'Sense'-Sational Animals (grades Pre-K - 1): a unique introduction to animals through the five senses; *Survival Strategies* (grades 2 and up): an exploration of incredible adaptations for survival; *Dispelling the Myths* (all grades): unravels riddles like Are Snakes Really Slimy? Can Owls Really Turn Their Heads all the way around? and more; and several others, including thematic Guided Tours of the zoo for Pre-K and up. A program takes 30 - 40 minutes per group of 25.  
https://www.co.bergen.nj.us/departments-and-services/parks

### TURTLE BACK ZOO West Orange, NJ
- We have daily, free live animal programs. We also offer programs for groups that can be scheduled for an Education Center Classroom. There is a fee for these programs and they have to be scheduled at least three weeks in advance. Programs can be especially tailored for to meet your needs, including for Boy and Girl Scout groups to help with badge requirements.  
http://turtlebackzoo.com/education/

### BRONX ZOO Bronx, NY
- Visit the largest urban zoo in America and get up close to more than 600 species from around the globe. Meet exotic animals, birds, reptiles, and insects from across Asia, Africa, the Americas and more without ever leaving the Bronx.  
http://bronxzoo.com/field-trips

### LIBERTY SCIENCE CENTER Jersey City, NJ
- An interactive science museum and learning center located in Liberty State Park. The center, which first opened in 1993 as New Jersey's first major state science museum, has science exhibits, the largest IMAX Dome theater in the United States, numerous educational resources, and the original Hoberman sphere.  
http://lsc.org/plan-your-visit/

### MATH CONNECTION FOR ALL FIELD TRIPS:
- count objects
- decompose numbers
- answer how many questions
- create real-life addition and subtraction word problems
- compare numbers
- organize, represent, and interpret data with up to three categories
- identify and name the attributes of two-dimensional and three-dimensional shapes
- measure and order objects by length