MATHEMATICS

Grade K: Unit 1
Connecting Counting to Cardinality
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 mathematics instructional model will be used as the basis for all mathematics instruction.

Kindergarten Mathematics consists of the following domains: Counting and Cardinality (CC), Operations and Algebraic Thinking (OA), Number and Operations in Base Ten (NBT), Measurement and Data (MD), and Geometry (G). In Kindergarten, instructional time should focus on two critical areas: (1) Representing and comparing whole numbers, initially with sets of objects (2) Describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.
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 Standard (NJSLS). 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>
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<tbody>
<tr>
<td>1</td>
<td>Count by ones and tens up to 30.</td>
<td>K.CC.A.1</td>
</tr>
<tr>
<td>2</td>
<td>Count forward beginning from any given number up to 30 – instead of having to begin at one.</td>
<td>K.CC.A.2</td>
</tr>
<tr>
<td>3</td>
<td>Represent the number of objects by the correct numeral up to 10 (using zero to represent no objects).</td>
<td>K.CC.A.3</td>
</tr>
<tr>
<td>4</td>
<td>Assign an ascending number name for each object in a group.</td>
<td>K.CC.B.4a</td>
</tr>
<tr>
<td>5</td>
<td>State the last number named as the number of counted objects in the set.</td>
<td>K.CC.B.4b</td>
</tr>
<tr>
<td>6</td>
<td>Know the next number name in counting is always one greater than the previous number.</td>
<td>K.CC.B.4c</td>
</tr>
<tr>
<td>7</td>
<td>Answer how many? Questions about groups of up to 10 objects when arranged in a line, rectangular array or circle.</td>
<td>K.CC.B.5</td>
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<tr>
<td>8</td>
<td>Answer how many? Questions about groups of up to 5 when arranged in a scattered configuration.</td>
<td>K.CC.B.5</td>
</tr>
<tr>
<td>9</td>
<td>Create addition events with objects, fingers, drawings, sounds (e.g., claps), acting out situations and verbal explanations for sums up to 10.</td>
<td>K.OA.A.1</td>
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<tr>
<td>10</td>
<td>Classify objects into given categories and count the objects in each category (up to 10 objects).</td>
<td>K.MD.B.3</td>
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<tr>
<td>11</td>
<td>Introduce the names of shapes, describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind and next to.</td>
<td>K.G.A.1</td>
</tr>
</tbody>
</table>

Instruction: 8 weeks  
Assessment: 1 week
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 stagnate 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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<tr>
<th>Collaborative Problem Solving</th>
<th>Analyze Student Work</th>
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<tbody>
<tr>
<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>
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<tr>
<td>Explain the Rationale of your Math Work</td>
<td>Collect Different Student Approaches</td>
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<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>
<td>Revoicing</td>
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<td>Charting</td>
<td>Marking</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>
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</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, Xtramath, Learnzillion, or Khanacademy.

- Research and Information Fluency
  - Use digital tools and online resources to explore a problem or issue.
  
  **Example:** Students will use online tools such as number frames, number lines, or number racks.
  [https://www.mathlearningcenter.org/resources/apps](https://www.mathlearningcenter.org/resources/apps)

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

- Design
  - Brainstorm ideas on how to solve a problem or build a product.
  
  **Example:** Students will work together to describe strategies for creating addition events.

- 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 how they solved a problem using a ten frame or part-part-whole mat. Students will explain the steps for classifying objects into given categories.

Link: [http://www.state.nj.us/education/cccs/2014/tech/](http://www.state.nj.us/education/cccs/2014/tech/)
Career Ready Practices

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 and use tools to explore and deepen understanding of counting and addition.

- **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. They will ask probing questions to clarify or improve arguments.

- **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. Students will monitor and evaluate progress and change course as necessary.

- **CRP12. Work productively in teams while using cultural global competence.**
Career Ready Practices

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.
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>Description</th>
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</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 of 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? When? Where? How? 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.

**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.

**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.

**EQUITABLE PEDAGOGY**
Teachers modify techniques and methods to facilitate the academic achievement of students from diverse backgrounds.

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.

**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.

* Windows and mirrors are terms derived from the work of Henry Giroux. They refer to curriculum materials that provide both a window into the experiences of others and a mirror for students to reflect on their own experiences.
Culturally Relevant Pedagogy Examples

- **Run Problem-Based Learning Scenarios:** Present relatable real-world problems for your students to solve, explicitly referencing culture and communities when applicable.
  
  **Example:** Students may bring items from home when classifying objects into categories. Students may take a walk around the playground or neighborhood, describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind and next to.

- **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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<th>Time/General</th>
<th>Processing</th>
<th>Comprehension</th>
<th>Recall</th>
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<tr>
<td>• Extra time for assigned tasks</td>
<td>• Extra Response time</td>
<td>• Precise processes for balanced math instructional model</td>
<td>• Teacher-made checklist</td>
</tr>
<tr>
<td>• Adjust length of assignment</td>
<td>• Have students verbalize steps</td>
<td>• Short manageable tasks</td>
<td>• Use visual graphic organizers</td>
</tr>
<tr>
<td>• Timeline with due dates for reports and projects</td>
<td>• Repeat, clarify or reword directions</td>
<td>• Brief and concrete directions</td>
<td>• Reference resources to promote independence</td>
</tr>
<tr>
<td>• Communication system between home and school</td>
<td>• Mini-breaks between tasks</td>
<td>• Provide immediate feedback</td>
<td>• Visual and verbal reminders</td>
</tr>
<tr>
<td>• Provide lecture notes/outline</td>
<td>• Provide a warning for transitions</td>
<td>• Small group instruction</td>
<td>• Graphic organizers</td>
</tr>
<tr>
<td></td>
<td>• Partnering</td>
<td>• Emphasize multi-sensory learning</td>
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</tr>
</tbody>
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<thead>
<tr>
<th>Assistive Technology</th>
<th>Tests/Quizzes/Grading</th>
<th>Behavior/Attention</th>
<th>Organization</th>
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</thead>
<tbody>
<tr>
<td>• Computer/whiteboard</td>
<td>• Extended time</td>
<td>• Consistent daily structured routine</td>
<td>• Individual daily planner</td>
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<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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<td></td>
<td>• Read directions aloud</td>
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<td>• Color code materials</td>
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</tbody>
</table>


Differentiated Instruction

Accommodate Based on Content Specific Needs:

- Use a variety of manipulatives for counting (counters, chips, coins, cubes, links, or shapes).
- Use a hundred chart or number line to start counting from various numbers to keep track of the number of items.
- Sing songs/chants to count to 30.
- Use numeral cards rather than writing the numerals.
- Use counting mats with counters.
- Use subitizing cards of ten frames, dice, etc.
- Use part-part-whole mats, ten frames, number lines, number bonds, calendar, and hundred chart to count and create addition events.
- Use graphic organizers to classify objects into categories, then count and write the number of objects.
- Incorporate positional words and phrases in a visual word wall: above, below, beside, in front, behind and next to.
Interdisciplinary Connections

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

**Social Studies Connection:**

*Fill the Chutes, The Cardinal Cup, More or Less*  
Social Studies 6.1.4.A.1, 6.3.4.A.1
- Through the use of games, students will explain the need for rules and fairness for all.
- Through the use of games, students will identify examples of responsible citizenship in the school setting.

*Facing Up*  
Social Studies 6.1.4.B.1
- Students use mapping skills and positional words to describe the location of body parts on the face.

**Science Connection:**

*Problem at the Picnic:*  
Science K-LSI-1
- Discuss living and nonliving things that students may see at a picnic.

**Health Connection:**

*Sorting Foods:*  
Health 2.1.2.B.2

**ELA Connection:**

*Focus on Two; Three in a Set; One, Two Three...Go; Zero Our Hero:*  
Fine and Performing Arts 1.3.2.B.1
- Nursery Rhymes and Number Songs

*Sorting Foods:*  
ELA Standard RL.K.1, RL.K.10
- Includes a list of related Read Alouds
Interdisciplinary Connections

Read Alouds:  ELA Standard RL.K.1, RL.K.10
- Ask and answer questions about key details.
- Actively engage in group reading activities with purpose and understanding.

Stories for Counting

- *Apples up on Top*, by Dr. Seuss [http://www.youtube.com/watch?v=OB-5s02AsUU](http://www.youtube.com/watch?v=OB-5s02AsUU)
- *Every Buddy Counts*, by Stuart J. Murphy (Counting)
- *Jack the Builder*, by Stuart J. Murphy (Counting on) [https://www.youtube.com/watch?v=v8MPg_mtYaA](https://www.youtube.com/watch?v=v8MPg_mtYaA)
- *One, Two, Three, Sassafras* by Stuart J. Murphy (Number Order)
- *Ten Black Dots* by Donald Crews [https://www.youtube.com/watch?v=h3ePDTSThq0](https://www.youtube.com/watch?v=h3ePDTSThq0)
- *One More Bunny* by Rick Walton (Adding from One to Ten)
- *So Many Bunnies* by Rick Walton (Counting to 26) [https://www.youtube.com/watch?v=4wO-v53RnkU](https://www.youtube.com/watch?v=4wO-v53RnkU)
- *Five Little Monkeys Jumping on the Bed* by Eileen Christelow (Counting Back from 5) [https://www.youtube.com/watch?v=VAL4w6JvDHe](https://www.youtube.com/watch?v=VAL4w6JvDHe)
- *One Gorilla* by Atsuko Morozumi
- *The M&Ms Counting Book* by Barbara Barbieri McGrath
- *3 Little Firefighters* by Stuart J. Murphy (Sorting)
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
- Running Records
Running Records (Kindergarten Only)

The Kindergarten Mathematics Running Record (KMRR) Interview is an oral interview that is individually administered to:

- students who do not have Pre-Kindergarten portfolios
- new students entering after the school year has begun, to assess their understanding
- students who require additional monitoring to show progress or lack of progress based on teacher observation and assessment results

There are two interviews focused on the numeracy domains of:

- **Counting and Cardinality KMRR-CC**
  - 3 cycles
  - The suggested interview windows are October, January, and April/May, but may be given to individual students as needed.

- **Operations and Algebraic Thinking KMRR-OA**
  - 2 cycles
  - The suggested interview windows are January/February, and April/May, but may be given to individual students as needed.

Please note that the two interviews do not need to be given to the same students. A student who has completed the Counting and Cardinality interview would then move to Operations in Algebraic Thinking. A student may begin mid-year with Operations and Algebraic Thinking if it is believed he/she has mastery of Counting and Cardinality.

**The Design Structure of the KMRR Interview**

The interview items are organized into cycles. Each cycle is intentionally designed to provide students a variety of opportunities to demonstrate their understanding of concepts within a particular domain. Since the cycles are developmental in nature, successive cycles build on the previous cycle and provide multiple chances for the students to answer similar interview items. These cycles are directly associated with an increase in size of number and quantity with which students work.

**How to use the KMRR Interview**

Begin the interview with the Counting and Cardinality interview. Ask the first interview item in the first cycle of this section of the interview, then continue asking the interview items in the order they are provided. After each item, record the student response on the Student Documentation Sheet. Continue asking interview items and recording student responses until the student incorrectly answers three consecutive items. This may go beyond one cycle. (Depending on the student, the teacher may choose to ask an additional item or two beyond the three consecutive errors.) The teacher should note student placement on the Domain Summary.
New Jersey Student Learning Standards

K.CC.A.1
Count to 100 by ones and by tens. *(benchmarked)*

K.CC.A.2
Count forward beginning from a given number within the known sequence (instead of having to begin at 1). *(benchmarked)*

K.CC.A.3
Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

K.CC.B.4
Understand the relationship between numbers and quantities; connect counting to cardinality.

- **K.CC.B.4a** When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

- **K.CC.B.4b** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

- **K.CC.B.4c** Understand that each successive number name refers to a quantity that is one larger.

K.CC.B.5
Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. *(benchmarked)*

K.OA.A.1
Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *(benchmarked)*

K.MD.B.3
Classify objects into given categories; count the numbers of objects in each category and sort the categories by count *(benchmarked)*
New Jersey Student Learning Standards

K.G.A.1
Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, and next to.
# Mathematical Practices

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.
Grade: Kindergarten  
Unit: 1 (One)  
Topic: Connecting Counting to Cardinality

### NJSLS:


### Unit Focus:
- Know number names and the count sequence to 10
- Count to tell the number of objects
- Understand addition as putting together and adding to and understand subtraction as taking apart and taking from
- Identify and describe shapes

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

K.CC.A.1: Count to 100 by ones and by tens. *(benchmarked)*

#### Student Learning Objective 1: Count by ones and tens up to 30.

#### Modified Student Learning Objectives/Standards:

M.EE.K.CC.A.1- Count by ones up to 30.

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<tr>
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<th>Tasks/Activities</th>
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</thead>
<tbody>
<tr>
<td>MP 7</td>
<td>N/A</td>
<td>Students know the number names. Students rote count by starting at 1 and counting to 30. This objective does not require recognition of numerals. The focus is on the number sequence.</td>
<td>How do we use counting in our everyday lives? How do we count? There are patterns in the way numbers are formed. For example, each decade has a</td>
<td>IFL Set of Related Lessons: Counting and Cardinality: A Focus on Knowing Number Names and the Counting Sequence</td>
</tr>
<tr>
<td>MP 8</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Counting tells how many things are in a set.

Use concrete objects and oral counting.

Use a variety of manipulatives for counting (counters, chips, coins, cubes, links, or shapes.)

**SPED Strategies:**
Recite orally the numbers 1-30 and/or use gestures and point to numbers during the song or chant. (i.e songs such as One, two buckle my shoe and Ten Little Monkeys).

Provide visual representations.

Use 100 chart.

Write numbers up to 30 on floor and have students count as they jump on a number.

Provide flash cards (digital and Tactile).

Use the calendar to count days aloud.

Try the following activities as they count:
- jump
- bounce a ball
- clap
- march in place
- blink eyes

symbolic pattern reflective of the 0-9 sequence. (20, 21,22…29)

Sets of 10 (and 10s and 10s) can be perceived as single entities or units.

**Additional Tasks:**
**Counting by Ones to 100** (Continue throughout the year)

**Counting Circles**

**Choral Counting**

10 in a Bed
http://www.youtube.com/watch?v=VS2F9q6FVwY

Count to 20
http://www.youtube.com/watch?v=azIG0kL1lgS

Count to 30
http://www.youtube.com/watch?v=UgM2cTIPsdS

http://www.youtube.com/watch?v=MApaegDL6a0

Visual Counter
http://www.commoncoresheets.com/SortedByGrade.php?Sorted=kcc1
- jump rope
- bend from side to side
- hop
- swing a jump rope like a pendulum

**ELL Strategies:**
Introduce and chart academic vocabulary: Count, number words, by tens, by ones.

Use choral counting.

Have students recite by repeatedly stating numbers. Allow for some mispronunciations.

Use a 100 chart and have student point to the number as they count.

Sing songs/chants to count to 30.
(English) [https://www.youtube.com/watch?v=0TgLtF3PMOe](https://www.youtube.com/watch?v=0TgLtF3PMOe)
(Spanish) [https://www.youtube.com/watch?v=B4KJITp14HI](https://www.youtube.com/watch?v=B4KJITp14HI)
New Jersey Student Learning Standard(s):
K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1). *(benchmarked)  

Student Learning Objective 2: Count forward beginning from any given number up to 30 – instead of having to begin at one.

Modified Student Learning Objectives/Standards: N/A

<table>
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</table>
| MP 7 | N/A | Students begin a rote counting sequence from a number other than 1. This objective does not require recognition of numerals.  
Present a partial list of numbers and ask students what would come next.  
1, 2, __, __, 5, 6, __, 8, 9.  
Use a hundred chart or number line to start counting from various numbers to keep track of the number of items.  
Use counting on strategies. Students take turns counting from an assigned number to a higher one in sequential order. | Why do we need to be able to count forward and backward?  
Can students start at any point and count forward?  
What is the pattern in counting?  
There is a pattern of sequential counting.  
Counting tells how many things are in a set.  
When counting a set of objects, the last word in the counting sequence names the quantity. | IFL Set of Related Lessons:  
Counting and Cardinality: A Focus on Knowing Number Names and the Counting Sequence  
Additional Tasks:  
Pick a Number, Counting  
Visual Counter from any given number http://www.commoncoresheets.com/SortedByGrade.php?Sorted=kcc2 |
| MP 8 | | | | |
Use verbal recitation of the counting sequence beginning with numbers other than one.

Roll two dice and start counting from that number.

**ELL Strategies:**
Introduce and chart the academic vocabulary: forward, number words, count on, after, next.

Use gestures and repeated speech to provide support in counting forward.

Count from a given number by echo counting, repeating after the teacher.

Name the number after a given number and count forward.

---

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

K.CC.A.3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

*(benchmarked)*

**Student Learning Objective 3:** Represent the number of objects by the correct numeral up to 10 (using zero to represent no objects).

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

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</thead>
<tbody>
<tr>
<td>MP 2</td>
<td>N/A</td>
<td>Students write the numerals 0-10 and use the written numerals to represent the</td>
<td>What is a numeral?</td>
<td>Tasks can be found in Illustrative Math</td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Students may also create a set based on a numeral presented.

Match sets of objects with written numbers.

Numeral cards can be used in addition to students writing the numerals.

Teacher can call out a number or show a set of up to 10 objects and students write the number.

**SPED Strategies:**
Match and identify the number of objects to the correct numeral for numbers 0-10 using drawings, numeral cards, gestures, songs/chants and manipulatives.

Create models, demonstrations and simulations.

Use counters or objects and have students write the numeral as they count.

Use foam numbers, magnetic numbers or flash cards.

**ELL Strategies:**
Introduce and chart the academic vocabulary: number, number words, match, objects (corresponding manipulative).

<table>
<thead>
<tr>
<th>Why are numbers important?</th>
<th><a href="http://illuminations.nctm.org/Search.aspx?view=search&amp;cc=1779&amp;order=al&amp;page=2">http://illuminations.nctm.org/Search.aspx?view=search&amp;cc=1779&amp;order=al&amp;page=2</a></th>
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<tbody>
<tr>
<td>How can numbers be represented?</td>
<td>Focus on Two <a href="http://illuminations.nctm.org/Lesson.aspx?id=471">http://illuminations.nctm.org/Lesson.aspx?id=471</a></td>
</tr>
<tr>
<td>How do we use numbers every day?</td>
<td>Three in a Set <a href="http://illuminations.nctm.org/Lesson.aspx?id=480">http://illuminations.nctm.org/Lesson.aspx?id=480</a></td>
</tr>
<tr>
<td>How can we record what we count?</td>
<td>One, Two, Three…Go <a href="http://illuminations.nctm.org/Lesson.aspx?id=483">http://illuminations.nctm.org/Lesson.aspx?id=483</a></td>
</tr>
<tr>
<td>What is the meaning of zero?</td>
<td>Zero our Hero <a href="http://illuminations.nctm.org/Lesson.aspx?id=498">http://illuminations.nctm.org/Lesson.aspx?id=498</a></td>
</tr>
</tbody>
</table>

| http://illuminations.nctm.org/Lesson.aspx?id=1616 |
| Writing Numerals to Five http://illuminations.nctm.org/Lesson.aspx?id=1616 |
| Use gestures and drawings to match and identify the numbers 0-10 to the correct numeral.  
Teacher states a number 0-10 and student point to the correct numeral.  
Use counters, tiles or cubes to represent the given number 0-10. |
|---|
| Spiders Have 8 Legs  
http://illuminations.nctm.org/Lesson.aspx?id=498  
Numerals, Pictures, Words 0-10  
Number Tic Tac Toe  
Fill in the Line 0 to 9 |
| m.org/lesson.aspx?id=1620 |
New Jersey Student Learning Standard(s):
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
  K.CC.B.4a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
  K.CC.B.4b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
  K.CC.B.4c. Understand that each successive number name refers to a quantity that is one larger.

Student Learning Objective 4: Assign an ascending number name for each object in a group.
Student Learning Objective 5: State the last number named as the number of counted objects in the set.
Student Learning Objective 6: Identify the next number name in counting as one greater than the previous number.

Modified Student Learning Objectives/Standards:
M.EE.K.CC.4 - Demonstrate one-to-one correspondence, pairing each object with one and only one number and each number with only one object.

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<tbody>
<tr>
<td>MP 2</td>
<td>N/A</td>
<td>Students demonstrate correct counting procedures by pointing to one object at a time (one-to-one correspondence) and using one counting word for every object (synchrony) while keeping track of objects that have and have not been counted. Use a variety of manipulatives for counting such as counters, chips, coins, cubes, links, or shapes. Students answer the question “How many are there?” by counting objects in a set and understanding that the last number named when counting represents the total amount. (…4,5,6) “There are 6 beans.”</td>
<td>Why do we need to be able to count objects? Counting includes one-to-one correspondence, regardless of the kind of objects in the set and the order in which they are counted. Counting tells how many things are in a set. When counting a set of objects, the last word in the counting sequence names the quantity.</td>
<td>IFL Set of Related Lessons: Counting and Cardinality: A Focus on Knowing Number Names and the Counting Sequence Additional Tasks: Handfuls of Counting (covers SLO 1, 4, 5, 6, 7) Fill the Chutes (covers 2, 4, 5, 6)</td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
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<tr>
<td>MP 8</td>
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</tbody>
</table>
Develop an understanding of cardinality – the last number when counting names the quantity in a set.

Arrange a set of objects in a variety of ways and discover that the arrangement of those objects does not change its quantity. Five counters can be moved from a pile, into a line, and on a ten frame to show different arrangements.

Students draw their own examples of sets and determine the size of each set.

Develop an understanding of inclusion based on understanding that numbers build on by exactly one each time and are nested inside of each other and that the number grows by one each count. For example, 6 is inside of 7 or 7 is 6 and one more. If you remove an object it goes back to 6.

**SPED Strategies:**
Create visual, verbal or tactile cues or reminders.

Use counting mats with counters.

Count using chants, number cards, manipulatives and prompting.
Use foam numbers, magnetic numbers or flash cards.

The number-word sequence, combined with the order inherent in the natural numbers, can be used as a foundation for counting.

Understand that each successive number name refers to a quantity that is one larger.

How can we record what we count?

Students understand that the number in a set will remain constant as long as no items are added to the set, or taken from the set.

When counting a set of objects, the last word in the counting sequence names the quantity.

Numbers are related to each other.

**Subitizing**
(covers SLO 4, 5, 6, 7)

**What the Heck is Rekenrek?**
(covers SLO 4, 5, 6)

**The Cardinal Cup Part I**
(covers SLO 4, 5, 6)

**K.CC.B.4 Counting Mat**

**Got Dots**
In order to understand that each successive number name refers to a quantity that is one larger, students should have experience counting objects, placing one more object in the group at a time. For example, using cubes, the student should count the existing group, and then place another cube in the set. Some students may need to re-count from one, but the goal is that they would count on from the existing number of cubes. S/he should continue placing one more cube at a time and identify the total number in order to see that the counting sequence results in a quantity that is one larger each time one more cube is placed in the group.

**ELL Strategies:**
Introduce and chart the academic vocabulary: number words, count, set, how many, greater, more.

Use gestures or illustrations to identify the number of objects counted in a set.

Have the student point and count aloud as they state the number of objects in a set.

Use key words in short phrases or simple sentences to explain orally that the next number in counting is one greater.
New Jersey Student Learning Standard(s):

K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. *(benchmarked)*

**Student Learning Objective 7:** Answer *how many?* questions about groups of up to 10 objects when arranged in a line, rectangular array or circle.

**Student Learning Objective 8:** Answer *how many?* questions about groups of up to 5 when arranged in a scattered configuration.

**Modified Student Learning Objectives/Standards:**

M.EE.K.CC.5: Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.

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</tr>
</thead>
</table>
| MP 2 | **K.CC.B.5**  
| MP 7 |  
| MP 8 |  
| | • Tasks may have a context.  
| | • Tasks should include a range of counting exercises to answer “how many” objects in different arrangements progressing to the more difficult action of counting out a given number of objects.  
| | • Interviews (individual or small group) should target students’ abilities to | Students need to keep track of objects when counting so that each item is counted only once.  
| | | Count pictures and objects to answer “how many” questions.  
| | | Scatter up to 5 objects and have students count.  
| | | Place up to 10 objects in a line, array, or circle and have students count.  
| | | Use subitizing cards of ten frames, dice, etc. up to 10.  
| | | Organize objects into a line or pattern such as a ten frame. | How does putting things in order keep us organized?  
| | | Equal values can be arranged in different ways (rectangle, circle, scattered). | Mental Representations for Images of 5  
| | | **Handfuls of Counting** (covers SLO 1, 4, 5, 6, 7)  
| | | **Subitizing** (covers SLO 4, 5, 6, 7)  
| | | **Finding Equal Groups** |
| meet this evidence statement. | **SPED Strategies:** Use manipulatives, songs, number cards, and prompting. Use a ten-frame to develop visual images of quantities up to 10. Organize the counting process to avoid re-counting or skipping objects. **Examples:** • If items are placed in a circle, the student may mark or identify the starting object. • If items are in a scattered configuration, the student may move the objects into an organized pattern. Some students may choose to use grouping strategies such as placing objects in twos or fives. **ELL Strategies:** Introduce and chart the academic vocabulary: number words, count, set. Use gestures, number cards, or prompting to answer how many? questions about groups of objects that are in a set (10). Use gestures, number cards, or prompting to answer how many? questions about groups of objects that are scattered (5). |
New Jersey Student Learning Standard(s):  
K.OA.A.1: Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *(benchmarked)*

**Student Learning Objective 9:** Create addition events with objects, fingers, drawings, sounds (e.g., claps), acting out situations and verbal explanations for sums up to 10.

**Modified Student Learning Objectives/Standards:**  
M.EE.K.OA.A.1- Represent addition as “putting together” or subtraction as “taking from” in everyday activities.

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<tbody>
<tr>
<td>MP 1</td>
<td>N/A</td>
<td>Understand addition as putting together and adding to.</td>
<td>Students may state, “Three and two make five” or “Three and two are the same as five.”</td>
<td>Ant Math Stories</td>
</tr>
<tr>
<td>MP 2</td>
<td></td>
<td>Students can explain the strategy used such as counting by one, or counting on.</td>
<td>How can a story be shown with objects?</td>
<td>Problem at the Picnic</td>
</tr>
<tr>
<td>MP 4</td>
<td></td>
<td>Create addition events with objects (up to 10).</td>
<td>What happens when we combine groups?</td>
<td></td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td>Create addition events with drawings and sounds (up to 10).</td>
<td>Addition representations show the part-part-whole relationship because they show how the two parts relate to the whole.</td>
<td>Ten Frame Addition</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td>Create addition events by acting out situations and with verbal explanations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use a variety of manipulatives or drawings for counting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use part-part-whole mats, ten frames, number lines, number bonds, calendar, and hundred chart to count.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This objective is focused on understanding the concept of addition rather than reading and solving equations.

Model how two groups can be joined together to find a new sum.

**SPED Strategies:**
Follow oral directions with prompting to create an addition event using manipulatives or drawings.

Use a ten-frame to develop visual images of quantities up to 10.

**ELL Strategies:**
Introduce and chart the academic vocabulary: sum, add, number words, event, part, whole, total

Use gestures, drawings, and key technical words in short phrases to follow one-step oral directions to represent a sum.

Using key, technical vocabulary in a simple sentence follow one-step oral directions to represent a sum.
**New Jersey Student Learning Standard(s):**
K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count *(benchmarked)*

**Student Learning Objective 10:** Classify objects into given categories and count the objects in each category (up to 10 objects)

**Modified Student Learning Objectives/Standards:**
M.EE.K.MD.B.1 - Classify objects according to attributes (big/small, heavy/light).

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<tbody>
<tr>
<td>MP 2 MP 7</td>
<td>N/A</td>
<td>Limit category counts up to 10. Identify similarities and differences between objects and use the identified attributes to sort a collection of objects. Then the students count the amount in each set. For example, when exploring a collection of buttons: First, the student separates the buttons into different piles based on color (all the blue buttons are in one pile, all the red buttons are in a different pile, etc.). Then the student counts the number of buttons in each pile: blue (5), green (4), red (3), purple (4). Use grids to have students line up each object. <strong>SPED Strategies:</strong> Use a ten-frame to develop visual images of quantities up to 10.</td>
<td>Objects can be sorted based on their properties. Students use color words, shapes, and descriptive words. Attributes such as color, shape, or size can be used to sort the same set of objects in different ways. How can you sort the objects? How can you classify objects into categories? Note similarities and differences between objects.</td>
<td>Sorting Attribute Blocks Collection of Items Sorting Foods Sort and Count 1</td>
</tr>
</tbody>
</table>
Sort items such as buttons, shells, shapes, beans, etc. After sorting and counting, it is important for students to:
- explain how they sorted the objects
- label each set with a category;
- answer a variety of counting questions that ask, “How many?”

**ELL Strategies:**
Introduce and chart the academic vocabulary: category, group, sort, classify, counts, sizes, colors.

Discuss adjectives of color, size and quantity.

Teacher models with visuals to classify objects into categories, then count and write the number of objects.

Teacher provides simple oral directions of single words or gestures, then student counts and writes the number of objects.

Use a ten-frame to develop visual images of quantities up to 10.

Student works with partner to classify and sort objects into categories and count the objects.
New Jersey Student Learning Standard(s):  
K.G.A.1: Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, and next to.

**Student Learning Objective 11:** Introduce the names of shapes, describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above, below, beside, in front of, behind, and next to*.

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

<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>
</table>
| MP 7 | N/A | Name shapes in order to describe objects in the environment.  
Use terms such as *above, below, beside, in front of, behind, and next to* in order to describe relative positions of objects.  
Students need numerous experiences identifying the location and position of actual two- and three-dimensional objects in their classroom prior to describing location and position of two- and three-dimensional representations on paper.  
Using objects in the classroom, show position, such as the round clock is above the rectangular board.  
**SPED Strategies:**  
Pre-teach academic vocabulary.  
Provide concrete and visual models.  
Use multimedia to enhance comprehension. | All objects have a shape and a specific name.  
The position of objects can be determined in relation to surrounding objects and described using words.  
What are different shapes in our world?  
How can you describe where something is using the words above, below, beside, in front of, behind, and next to? | Lesson A5  
Maggie’s Towel  
Pattern Block Barrier Game  
Facing Up |
| Use think-pair-share and provide small group instruction when necessary. Provide modeling and explanations. **ELL Strategies:** Provide modeling and explanations. Introduce and chart the academic vocabulary: positional words, shapes, color words. Incorporate positional words and phrases in a visual word wall: above, below, beside, in front, behind and next to. Use illustrations, pictures and keys, single words or phrases to describe objects in the environment. Use pictures and selected vocabulary in phrases and short sentences to describe using the names of shapes and their relative positions. |
### Unit 1 Vocabulary

<table>
<thead>
<tr>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>above</td>
<td>número de</td>
</tr>
<tr>
<td>adding to</td>
<td>suma de</td>
</tr>
<tr>
<td>addition / add</td>
<td>suma de</td>
</tr>
<tr>
<td>addition sign</td>
<td>signo de suma</td>
</tr>
<tr>
<td>after (prepares for Grade 1)</td>
<td>después (prepara para el grado 1)</td>
</tr>
<tr>
<td>before (prepares for Grade 1)</td>
<td>antes (prepara para el grado 1)</td>
</tr>
<tr>
<td>behind</td>
<td>detrás</td>
</tr>
<tr>
<td>below</td>
<td>debajo</td>
</tr>
<tr>
<td>beside</td>
<td>junto</td>
</tr>
<tr>
<td>between (prepares for Grade 1)</td>
<td>entre (prepara para el grado 1)</td>
</tr>
<tr>
<td>cardinality</td>
<td>cardinalidad</td>
</tr>
<tr>
<td>circle</td>
<td>círculo</td>
</tr>
<tr>
<td>counting back</td>
<td>contar hacia atrás</td>
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<tr>
<td>counting by one</td>
<td>contar por uno</td>
</tr>
<tr>
<td>counting on</td>
<td>contar hacia adelante</td>
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<tr>
<td>cube</td>
<td>cubo</td>
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<tr>
<td>cylinder</td>
<td>cilindro</td>
</tr>
<tr>
<td>decade</td>
<td>década</td>
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<tr>
<td>digits</td>
<td>dígitos</td>
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<tr>
<td>equal</td>
<td>igual</td>
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<tr>
<td>equal sign</td>
<td>signo de igualidad</td>
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<tr>
<td>equation</td>
<td>ecuación</td>
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<td>fact triangles</td>
<td>triángulos de hechos</td>
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<tr>
<td>hundred chart</td>
<td>caja de cien</td>
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<td>in front of</td>
<td>en frente de</td>
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<tr>
<td>inclusion</td>
<td>inclusión</td>
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<tr>
<td>join</td>
<td>unir</td>
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<tr>
<td>more</td>
<td>más</td>
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<tr>
<td>next to</td>
<td>junto</td>
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<tr>
<td>number bonds</td>
<td>pares</td>
</tr>
<tr>
<td>number line</td>
<td>línea de números</td>
</tr>
<tr>
<td>number words (zero to 100)</td>
<td>palabras de número (cero a cien)</td>
</tr>
<tr>
<td>numerals</td>
<td>números</td>
</tr>
<tr>
<td>one-to-one correspondence</td>
<td>correspondencia de uno-a-uno</td>
</tr>
<tr>
<td>part-part-whole</td>
<td>parte-parte-entero</td>
</tr>
<tr>
<td>Put Together / Addend Unknown</td>
<td>unir para nada</td>
</tr>
<tr>
<td>putting together</td>
<td>uniendo juntos</td>
</tr>
<tr>
<td>rectangle</td>
<td>rectángulo</td>
</tr>
<tr>
<td>Result Unknown / Add To</td>
<td>resultado desconocido / suma</td>
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<tr>
<td>same amount</td>
<td>mismo número</td>
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<tr>
<td>sequence</td>
<td>secuencia</td>
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<td>sphere</td>
<td>esfera</td>
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<td>square</td>
<td>cuadrado</td>
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<td>subitize</td>
<td>subitizar</td>
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<tr>
<td>sum</td>
<td>suma</td>
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<td>symbols</td>
<td>símbolos</td>
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<tr>
<td>synchrony/ one-to-one tagging</td>
<td>sincronía/ un a uno etiqueta</td>
</tr>
<tr>
<td>ten frames</td>
<td>cuadros de diez</td>
</tr>
<tr>
<td>total</td>
<td>total</td>
</tr>
<tr>
<td>Total Unknown / Put Together</td>
<td>total desconocido / unir para nada</td>
</tr>
<tr>
<td>triangle</td>
<td>triángulo</td>
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<tr>
<td>unitize</td>
<td>unitizar</td>
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# References & Suggested Instructional Websites

<table>
<thead>
<tr>
<th>Online Tools</th>
<th><a href="https://www.mathlearningcenter.org/resources/apps">https://www.mathlearningcenter.org/resources/apps</a></th>
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<tbody>
<tr>
<td>Using the Rekenrek</td>
<td><a href="http://bridges1.mathlearningcenter.org/media/Rekenrek_0308.pdf">http://bridges1.mathlearningcenter.org/media/Rekenrek_0308.pdf</a></td>
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<td>Five Frames</td>
<td><a href="http://illuminations.nctm.org/Activity.aspx?id=3564">http://illuminations.nctm.org/Activity.aspx?id=3564</a></td>
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<td>Ten Frames</td>
<td><a href="http://illuminations.nctm.org/Activity.aspx?id=3565">http://illuminations.nctm.org/Activity.aspx?id=3565</a></td>
</tr>
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<td>Interactive Visuals for Counting K.CC.1</td>
<td><a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=kcc1">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=kcc1</a></td>
</tr>
<tr>
<td>Interactive Fact Fluency</td>
<td><a href="http://www.k-5mathteachingresources.com/computational-fluency.html">http://www.k-5mathteachingresources.com/computational-fluency.html</a></td>
</tr>
</tbody>
</table>
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=CJjzn-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 for all your favorite activities including the u-pick, farm market, pumpkin fields, hayrides, farm animals, kiddie maze and more.
http://www.penningsorchard.com

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.
http://www.co.bergen.nj.us/index.aspx?NID=437

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/
Field Trip Ideas

**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

**LEGOLAND DISCOVERY CENTER (Yonkers, NY)** – Spinning Tops (Engineering Design, Mathematics) In this exciting workshop students build LEGO® spinning tops, collect data on whose design spins the longest, while also learning about the forces that affect their tops performance. **Requires approval from Unit Superintendent**
https://westchester.legolanddiscoverycenter.com/groups-schools/school-field-trips/#pre-schools

**NEW JERSEY STATE MUSEUM (Trenton, NJ)** – “Stars and Shapes Forever” First stop is the animated Planetarium show, The Little Star That Could, followed by an interactive workshop. Children enjoy modeling our solar system, orbiting the sun with colorful inflatable planets, and compare the sizes of objects in the Universe. Each child gets to decorate their own star to take home. It’s a great way to introduce young children to the Planetarium and our galaxy! $3 per student (Includes Planetarium show)
**Requires approval from Unit Superintendent**
https://www.state.nj.us/state/museum/dos_museum_school.html

**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
- classify objects into given categories
- answer how many questions/ create addition and subtraction events
- describe objects in the environment and describe the relative positions of these objects
- compare numbers
- identify shapes
- compose shapes
- describe measurable attributes of multiple objects / directly compare two objects with a measurable attribute in common