Grade K: Unit 4
Place Value & Geometric Shapes
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.
# Pacing Chart – Unit 4

<table>
<thead>
<tr>
<th>#</th>
<th>Student Learning Objective</th>
<th>NJSLS</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Count to 100 by ones and by tens.</td>
<td>K.CC.A.1*</td>
</tr>
<tr>
<td>2</td>
<td>Fluently add and subtract within 5.</td>
<td>K.OA.A.5*</td>
</tr>
<tr>
<td>3</td>
<td>Use informal language to describe similarities, differences, parts number of sides, number of corners, and other attributes (having sides of equal length) when comparing two- and three- dimensional shapes, in different sizes and orientations.</td>
<td>K.G.B.4</td>
</tr>
<tr>
<td>4</td>
<td>Model shapes in the world by building and drawing shapes.</td>
<td>K.G.B.5</td>
</tr>
<tr>
<td>5</td>
<td>Compose simple shapes to form larger shapes.</td>
<td>K.G.B.6</td>
</tr>
<tr>
<td>6</td>
<td>Compose and decompose numbers from 11 to 19 into a group of ten and one(s) with or without manipulatives. Record each composition or decomposition through a drawing or equation.</td>
<td>K.NBT.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)
<table>
<thead>
<tr>
<th>Effective Pedagogical Routines/Instructional Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative Problem Solving</td>
</tr>
<tr>
<td>Connect Previous Knowledge to New Learning</td>
</tr>
<tr>
<td>Making Thinking Visible</td>
</tr>
<tr>
<td>Develop and Demonstrate Mathematical Practices</td>
</tr>
<tr>
<td>Inquiry-Oriented and Exploratory Approach</td>
</tr>
<tr>
<td>Multiple Solution Paths and Strategies</td>
</tr>
<tr>
<td>Use of Multiple Representations</td>
</tr>
<tr>
<td>Explain the Rationale of your Math Work</td>
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<td>Quick Writes</td>
</tr>
<tr>
<td>Pair/Trio Sharing</td>
</tr>
<tr>
<td>Turn and Talk</td>
</tr>
<tr>
<td>Charting</td>
</tr>
<tr>
<td>Gallery Walks</td>
</tr>
<tr>
<td>Small Group and Whole Class Discussions</td>
</tr>
<tr>
<td>Student Modeling</td>
</tr>
<tr>
<td>Analyze Student Work</td>
</tr>
<tr>
<td>Identify Student’s Mathematical Understanding</td>
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<tr>
<td>Identify Student’s Mathematical Misunderstandings</td>
</tr>
<tr>
<td>Interviews</td>
</tr>
<tr>
<td>Role Playing</td>
</tr>
<tr>
<td>Anticipate Likely and Possible Student Responses</td>
</tr>
<tr>
<td>Collect Different Student Approaches</td>
</tr>
<tr>
<td>Multiple Response Strategies</td>
</tr>
<tr>
<td>Asking Assessing and Advancing Questions</td>
</tr>
<tr>
<td>Revoicing</td>
</tr>
<tr>
<td>Marking</td>
</tr>
<tr>
<td>Recapping</td>
</tr>
<tr>
<td>Challenging</td>
</tr>
<tr>
<td>Pressing for Accuracy and Reasoning</td>
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<tr>
<td>Maintain the Cognitive Demand</td>
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# 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 |

- **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, Learnzillion, or Khan Academy.

- **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, number racks, number pieces (base ten), or pattern shapes. [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 number lines, base ten blocks, ten frames, part-part-whole mats, place value chart, or number bonds are useful. Students will describe how using a ruler or balance scale is useful.

  - Identify a system and the components that work together to accomplish its purpose.

  **Example:** Students will explain how base ten blocks, ten frames, part-part-whole mats, place value charts, or number bonds represent the parts of a problem.

- **Design**
  - Brainstorm ideas on how to solve a problem or build a product.

  **Example:** Students will model shapes in the world by building and drawing shapes. Students will use digital tools such as [https://www.mathlearningcenter.org/web-apps/pattern-shapes/](https://www.mathlearningcenter.org/web-apps/pattern-shapes/) to build shapes. Students will work together to describe strategies for decomposing teen numbers into a group of ten and ones.

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 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>
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<th>Level</th>
<th>Description</th>
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| **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? 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 helps 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 helps students question and unpack biases & stereotypes.

This unit / lesson helps 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 students 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: a metaphor for how curriculum can provide both perspectives for students to engage with and reflections for them to consider 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:** Provide visuals of buildings around the world as examples for students. Use the visuals to model shapes in the world by building and drawing shapes.

- **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.
SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS
The ability to accurately recognize one’s own emotions, thoughts, and values and how they influence behavior. The ability to accurately assess one’s strengths and limitations, with a well-grounded sense of confidence, optimism, and a “growth mindset.”

- Identifying Emotions
- Accurate self-perception
- Recognizing strengths
- Self-confidence
- Self-efficacy

SOCIAL AWARENESS
The ability to take the perspective of and empathize with others, including those from diverse backgrounds and cultures. The ability to understand social and ethical norms for behavior and to recognize family, school, and community resources and supports.

- Perspective-taking
- Empathy
- Appreciating diversity
- Respect for others

RESPONSIBLE DECISION-MAKING
The ability to make constructive choices about personal behavior and social interactions based on ethical standards, safety concerns, and social norms. The realistic evaluation of consequences of various actions, and a consideration of the well-being of oneself and others.

- Identifying problems
- Analyzing situations
- Solving problems
- Evaluating
- Reflecting
- Ethical responsibility

SELF-MANAGEMENT
The ability to successfully regulate one’s emotions, thoughts, and behaviors in different situations — effectively managing stress, controlling impulses, and motivating oneself. The ability to set and work toward personal and academic goals.

- Impulse control
- Stress management
- Self-discipline
- Self-motivation
- Goal setting
- Organizational skills

RELATIONSHIP SKILLS
The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. The ability to communicate clearly, listen well, cooperate with others, resist inappropriate social pressure, negotiate conflict constructively, and seek and offer help when needed.

- Communication
- Social engagement
- Relationship building
- Teamwork
<table>
<thead>
<tr>
<th>SEL Competency</th>
<th>Examples</th>
<th>Content Specific Activity &amp; Approach to SEL</th>
</tr>
</thead>
</table>
| ✓ Self-Awareness | Example practices that address Self-Awareness:  
  - Clearly state classroom rules  
  - Provide students with specific feedback regarding academics and behavior  
  - Offer different ways to demonstrate understanding  
  - Create opportunities for students to self-advocate  
  - Check for student understanding / feelings about performance  
  - Check for emotional wellbeing  
  - Facilitate understanding of student strengths and challenges | Use students’ ideas and interests to inspire activities and to engage students in discussions when composing simple shapes to form larger ones.  
Routinely provide authentic feedback and ask dialoguing questions that help students reflect on their own strengths and interests. (e.g., “I can tell you’re really enjoying this activity. Can you tell me what about this activity makes you feel so excited/happy?” “I can tell you’re really proud of how you did on this project. Can you tell me what about this you’re most proud of?”)  
Use stories about mathematicians or stories that include puzzling scenarios to have students identify with a time they may have had the same feelings as a character and ask them to discuss in small groups (or draw a picture or write simple sentences in their journals) to describe how they handled those situations.  
Have students draw what being a mathematician “looks and feels like” to them. Students would be encouraged to write or say, “As a mathematician, I feel… [satisfied that I solved this problem, curious or confused about that solution, etc.].” |
<table>
<thead>
<tr>
<th>Self-Awareness</th>
<th>Example practices that address Self-Management:</th>
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<tbody>
<tr>
<td>✓ Self-Management</td>
<td>• Encourage students to take pride/ownership in work and behavior</td>
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<tr>
<td>Social-Awareness</td>
<td>• Encourage students to reflect and adapt to classroom situations</td>
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<tr>
<td>Relationship Skills</td>
<td>• Assist students with being ready in the classroom</td>
</tr>
<tr>
<td>Responsible Decision-Making</td>
<td>• Assist students with managing their own emotional states</td>
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Students continue to self-assess progress toward their learning goals by monitoring academic growth as part of an instructional routine in math class and/or intervention (e.g. Imagine Math Facts).

Give students authentic feedback for self-management (e.g., regulating their emotions by taking a breath, or taking a break to think about a decision). For example, “I saw the way you used those math tools appropriately” “I saw you cross your arms so you would keep your hands to yourself—you should be proud of yourself.”)

Routinely notice and discuss with students when they persevere. Give authentic feedback when students persevere (e.g., “I noticed that you rearranged the shapes until you found the solution,” “I noticed you respectfully asked a peer for help and tried that suggestion,” “I noticed that you looked at the chart to decide which strategy you could try next.”).

<table>
<thead>
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<th>Self-Awareness</th>
<th>Example practices that address Social-Awareness:</th>
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<tbody>
<tr>
<td>✓ Social-Awareness</td>
<td>• Encourage students to reflect on the perspective of others</td>
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<tr>
<td>Relationship Skills</td>
<td>• Assign appropriate groups</td>
</tr>
<tr>
<td>Responsible Decision-Making</td>
<td>• Help students to think about social strengths</td>
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<td></td>
<td>• Provide specific feedback on social skills</td>
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<td>• Model positive social awareness through metacognition activities</td>
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Use cooperative learning strategically during math (reflecting thoughtfully and intentionally on the composition of groups) to build diverse working groups.

Ask students to draw a picture (or ask them to respond with short answers on a worksheet) to show how they try to be helpful in their families or with their peers, especially in learning or math contexts (e.g.,
teaching a younger sibling how to count, teaching a friend how to solve a math problem).

Routinely ask students to talk about the kinds of problems and puzzles they like to solve and why, so that students can begin to see the ways in which other students have similar or different preferences and learn from each other about why other concepts and problem-solving approaches are interesting. Utilize games that require math skills and promote working together to solve them.

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<thead>
<tr>
<th>Self-Awareness</th>
<th>Example practices that address Relationship Skills:</th>
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</thead>
<tbody>
<tr>
<td>Self-Management</td>
<td>• Engage families and community members</td>
</tr>
<tr>
<td>Social-Awareness</td>
<td>• Model effective questioning and responding to</td>
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<tr>
<td>✓ Relationship Skills</td>
<td>• Plan for project-based learning</td>
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<tr>
<td>Responsible Decision-Making</td>
<td>• Assist students with discovering individual</td>
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<td>strengths</td>
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<td></td>
<td>• Model and promote respecting differences</td>
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<td></td>
<td>• Model and promote active listening</td>
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<td>• Help students develop communication skills</td>
</tr>
<tr>
<td></td>
<td>• Demonstrate value for a diversity of opinions</td>
</tr>
</tbody>
</table>

Continue to model, encourage and expect Accountable Talk to promote positive relationships and collaboration in the math classroom.

Provide students with sentence stems and question stems that prompt them on how to engage with others using Accountable Talk.

Give students opportunities to practice social skills by creating project-based and center activities where students are able to work in small groups.
<table>
<thead>
<tr>
<th>Self-Awareness</th>
<th><strong>Example practices that address Responsible Decision-Making:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Management</td>
<td>• Support collaborative decision making for academics and behavior</td>
</tr>
<tr>
<td>Social-Awareness</td>
<td>• Foster student-centered discipline</td>
</tr>
<tr>
<td>Relationship Skills</td>
<td>• Assist students in step-by-step conflict resolution process</td>
</tr>
<tr>
<td>✓ Responsible Decision-Making</td>
<td>• Foster student independence</td>
</tr>
<tr>
<td></td>
<td>• Model fair and appropriate decision making</td>
</tr>
<tr>
<td></td>
<td>• Teach good citizenship</td>
</tr>
</tbody>
</table>

Routinely walk students through the decision-making formula anytime there is a discipline issue—to think about the decision they faced, how their choice resulted in a problem, and how they might choose differently if they had it to do over again.

Use rich math problems that demand group effort. Before proceeding, have students discuss norms for mathematical collaboration. Have them answer questions about what they like to do and say while working in groups or how they think others can act to make the group work well.

Encourage students to reflect on how they approached mathematics “today,” including in journals or pair shares. Ask them to include how their choices could be repeated if successful or improved in order to be more successful.
## Differentiated Instruction

### Accommodate Based on Students Individual Needs: Strategies

<table>
<thead>
<tr>
<th>Time/General</th>
<th>Processing</th>
<th>Comprehension</th>
<th>Recall</th>
</tr>
</thead>
<tbody>
<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>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assistive Technology</th>
<th>Tests/Quizzes/Grading</th>
<th>Behavior/Attention</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer/whiteboard</td>
<td>Extended time</td>
<td>Consistent daily structured routine</td>
<td>Individual daily planner</td>
</tr>
<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>
</tr>
<tr>
<td></td>
<td>Read directions aloud</td>
<td></td>
<td>Color code materials</td>
</tr>
</tbody>
</table>

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## Assistive Technology

- Computer/whiteboard
- Tape recorder
- Video Tape

## Tests/Quizzes/Grading

- Extended time
- Study guides
- Shortened tests
- Read directions aloud

## Behavior/Attention

- Consistent daily structured routine
- Simple and clear classroom rules
- Frequent feedback

## Organization

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

Accommodate Based on Content Specific Needs:

- Use a variety of manipulatives for counting (counters, chips, coins, cubes, links, or shapes).
- Use a hundreds chart or number line to start counting from various numbers to keep track of the number of items.
- Sing songs/chants to count to 100.
- Chunk the numbers by tens to recite orally the numbers to 100 by tens.
- Use numeral cards rather than writing the numerals.
- Use part-part-whole mats, ten frames, number lines, number bonds, calendar, and hundred chart to count and decompose numbers.
- Label when discussing attributes or identifying shapes.
- Expose students to a variety of shapes in different orientations in order to eliminate the misconceptions that upside down shapes are different.
- Use flat and solid shapes and real world objects when comparing two-dimensional and three-dimensional shapes.
- Use materials such as playdoh, sand, clay, toothpicks, marshmallows, gumdrops, straws, etc., for tactile learners to create shapes.
- Pattern blocks, attribute shapes, and tangrams may be used to form larger shapes.
- Have students trace different shapes to get the feel of how the shapes should look.
- Use interactive tools for decomposing numbers.
- Use five frames, part-part-whole mats, fact families, fact triangles, and number bonds to build fluency of addition and subtraction within five.
Interdisciplinary Connections

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

**Social Studies Connection:**

*Dance to Five, Facts of Five, Shake Five and Spill, Sums of Five*  
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.

**Lesson 3  Social Studies 6.1.4.B.6**

- Show shapes of various buildings throughout the world.

**Making a Set of 10 and Some More*  Social Studies 6.1.4.B.6**

- Students can be introduced to counting 10 and some as they do in Korean.

**ELA Connection:**

*Mouse Shapes:*  ELA Standard W.K.3, RL.K.1, RL.K.10  Visual Arts 1.3.2.D.1

- Read Aloud *Mouse Shapes* by Ellen Stoll Walsh  [https://www.youtube.com/watch?v=7KKYNwmxdbc](https://www.youtube.com/watch?v=7KKYNwmxdbc). Students can write about the creature they created and how it would scare away the cat. This activity is also related to Art.

**Tangram Challenge:**  ELA Standard RL.K.1, RL.K.10

- Read Aloud *Grandfather Tang's Story* by Ann Tompert and Robert Andrew Parker  [https://www.youtube.com/watch?v=x74I1ZM-zP0](https://www.youtube.com/watch?v=x74I1ZM-zP0)
Interdisciplinary Connections

Possible 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.

Shapes:
- *The Shape of Things* by Dayle Ann Dobbs
- *The Greedy Triangle* by Marilyn Burns [http://www.youtube.com/watch?v=kPuI4XyyZUE](http://www.youtube.com/watch?v=kPuI4XyyZUE)
- *Eight Hands Round* by Ann Whitford Paul
- *Shape* by Henry Arthur Pluckrose
- *Mouse Shapes* by Ellen Stoll Walsh [https://www.youtube.com/watch?v=7KKYNwmxdbc](https://www.youtube.com/watch?v=7KKYNwmxdbc)
- *Grandfather Tang’s Story* by Ann Tompert and Robert Andrew Parker [https://www.youtube.com/watch?v=x74l1ZM-zP0](https://www.youtube.com/watch?v=x74l1ZM-zP0)
- *Three Pigs, One Wolf and Seven Magic Shapes* by Maccarone and Neuhaus
- *The Tangram Magician* by Lisa Campbell Ernst
- *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)
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
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 Kindergarten

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>K.CC.A.1</strong></td>
<td>Count to 100 by ones and by tens. <em>(benchmarked)</em></td>
</tr>
<tr>
<td><strong>K.OA.A.5</strong></td>
<td>Demonstrate fluency for addition and subtraction within 5 (by the end of Kindergarten). <em>(benchmarked)</em></td>
</tr>
<tr>
<td><strong>K.G.B.4</strong></td>
<td>Analyze and compare two- and three- dimensional shapes, in different sizes, and orientations, using informal language to describe their similarities, differences, parts (e.g. <em>number of sides and vertices “corners”</em>) and other attributes (e.g. <em>having sides of equal length</em>).</td>
</tr>
<tr>
<td><strong>K.G.B.5</strong></td>
<td>Model shapes in the world by building shapes from components (e.g., <em>sticks and clay balls</em>) and drawing shapes.</td>
</tr>
</tbody>
</table>
| **K.G.B.6** | Compose simple shapes to form larger shapes.  
*For example:* “Can you join these two triangles with full sides touching to make a rectangle?” |
| **K.NBT.A.1** | Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g. *by using objects or drawings*, and record each composition or decomposition by a drawing or equation (e.g. *18 = 10 + 8*); Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. *(benchmarked)* |
## 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.
# New Jersey Student Learning Standard(s):

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

**Student Learning Objective 1:** Count to 100 by ones and by tens.

## Modified Student Learning Objectives/Standards:

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

<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 7</td>
<td>N/A</td>
<td>Students know the number names. Students rote count by starting at 1 and counting to 100. This objective does not require recognition of numerals.</td>
<td>How do we use counting in our everyday lives?</td>
<td>Counting by Ones to 100 (Continue throughout the year)</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td>The focus is on the number sequence. Counting tells how many things are in a set.</td>
<td>How do we count?</td>
<td>Assessing Counting Sequences Part 1</td>
</tr>
</tbody>
</table>
Use concrete objects and oral counting. Use a variety of manipulatives for counting (counters, chips, coins, cubes, links, or shapes, etc.)

**SPED Strategies:**
Recite orally the numbers to 100 and/or use gestures and point to numbers during the song or chant.
Provide visual representations.
Use 100 chart.
Use cubes, counters or links for students to count.
Provide flash cards (digital and tactile).

Try the following activities as they count:
- jump
- bounce a ball
- clap
- march in place
- jump rope
- bend from side to side
- hop
- swing a jump rope like a pendulum

There are patterns in the way numbers are formed. For example, each decade has a symbolic pattern reflective of the 0-9 sequence. (20, 21, 22…29)

Counting by Ones Song [http://www.youtube.com/watch?v=gDTyHfjEsk](http://www.youtube.com/watch?v=gDTyHfjEsk)

Count to 100 [https://www.youtube.com/watch?v=0TgLtF3PMOc](https://www.youtube.com/watch?v=0TgLtF3PMOc)

Count by Ones Fit [https://www.youtube.com/watch?v=QbHobZOKY5w](https://www.youtube.com/watch?v=QbHobZOKY5w)

Counting by Tens to 100 Song [https://www.youtube.com/watch?v=uYRTtwZGwj8](https://www.youtube.com/watch?v=uYRTtwZGwj8)
or [https://www.youtube.com/watch?v=-gmEe0-ex8](https://www.youtube.com/watch?v=-gmEe0-ex8)

Count by Tens Fit [https://www.youtube.com/watch?v=Rd5DBkP9avw](https://www.youtube.com/watch?v=Rd5DBkP9avw)
**New Jersey Student Learning Standard(s):**

K.OA.A.5: Demonstrate fluency for addition and subtraction within 5 (by the end of Kindergarten). *(benchmarked)*

**Student Learning Objective 2:** Fluently add and subtract within 5.

**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>
<tbody>
<tr>
<td>MP 7 MP 8</td>
<td>K.OA.A.5</td>
<td>Transition from concrete models to representational drawings to symbols alone. Students demonstrate fluency when they show accuracy (correct answer), efficiency (a reasonable amount of steps in about 3-5 seconds without resorting to counting), and flexibility (using</td>
<td>How did you get the answer quickly? What strategy did you use to find the sum quickly and accurately?</td>
<td>OA Task 7b OA Task 8b OA Task 8c Continue from Unit 2: Sums of Five Facts of Five</td>
</tr>
</tbody>
</table>

**ELL Strategies:**

Introduce and chart the academic vocabulary: count, number words, by tens, by ones, skip count.

Repeat numbers and use gestures to recite orally the numbers to 100 by ones and tens.

Chunk the numbers by tens to recite orally the numbers to 100 by tens.

**Visual Counter**

http://www.commoncoresheets.com/SortedByGrade.php?Sorted=kcc1
and to apply different solution methods.

- Interviews (individual or small group) should target students’ abilities to meet this evidence statement.

strategies such as the distributive property).

Model with many different types of concrete materials such as counters, cubes, chips) so students realize there are only particular subgroups for each number. For example, if 3 and 1 make 4 then 3 and 1 cannot make 5.

Use the counting on strategy.
(3,4,5 so 3+2=5).

Use the counting back strategy.
(5,4,3 so 5-2=3).

Count on to subtract.
(5-3=? Count 3, 4, 5 so it is 2 more).

Use doubles facts. (2+2=4, so 2+3=5 because it has one more).

Use five frames, part-part-whole mats, fact families, fact triangles, and number bonds.

Use repetition of the combinations to 5 allowing sufficient time to practice all the combinations of a given number.

• Shake Five and Spill

Continue from Unit 3: Race to 5

**SPED Strategies:**
Strategies students may use to attain fluency include:
- Counting on (e.g., for 3+2, students will state, “3,” and then count on two more, “4, 5,” and state the solution is “5”)
- Using doubles (e.g., for 2+3, students may say, “I know that 2+2 is 4, and 1 more is 5”)
- Using commutative property (e.g., students may say, “I know that 2+1=3, so 1+2=3”)

**ELL Strategies:**
Introduce and chart the academic vocabulary: number words, plus, minus.

Teacher models using mental math strategies.

Large number cards or manipulatives may be used to model as needed.
New Jersey Student Learning Standard(s):
K.G.B.4: Analyze and compare two- and three- dimensional shapes, in different sizes, and orientations, using informal language to describe their similarities, differences, parts (e.g. number of sides and vertices “corners”) and other attributes (e.g. having sides of equal length).

Student Learning Objective 3: Use informal language to describe similarities, differences, parts, number of sides, number of corners), and other attributes (having sides of equal length) when comparing two- and three- dimensional shapes, in different sizes and orientations.

Modified Student Learning Objectives/Standard: N/A

<table>
<thead>
<tr>
<th>MPs</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MP 7</td>
<td>N/A</td>
<td>Students identify and describe shapes (squares, circles, triangles, rectangles, and hexagons) by the number of sides and vertices (corners). Students identify and describe cubes, cones, cylinders, and spheres. Students use the terms two-dimensional or three-dimensional as they discuss properties of various shapes.</td>
<td>All objects have a shape and a specific name. Shapes in the plane can be the same size and shape. Two-dimensional shapes may be described by number of sides and vertices. Three-dimensional or solid figures can be compared by their flat surfaces (faces) and vertices (corners). Flat surfaces of many solid figures have specific shapes.</td>
<td>Lesson A7 Connecting Plane and Solid Figures What’s in the Bag Touch It, Count It, Chart It Grouping Shapes Shape Songs <a href="https://www.youtube.com/watch?v=pQ5mZIlnE6s">https://www.youtube.com/watch?v=pQ5mZIlnE6s</a> <a href="https://www.youtube.com/watch?v=2cg-UC556-Q">https://www.youtube.com/watch?v=2cg-UC556-Q</a></td>
</tr>
</tbody>
</table>

SPED Strategies:
Students first begin to describe these shapes using everyday language and then refine their vocabulary to include sides and vertices/corners.

Students sort objects based on appearance. For instance, they will recognize that a square is a special type of rectangle.
Students analyze and compare two- and three-dimensional shapes by observations. Their visual thinking enables them to determine if things are alike or different based on the appearance of the shape.

Students should be exposed to triangles, rectangles, and hexagons whose sides are not all congruent.

Provide pictorial representations, concrete objects, and the use of technology to help with descriptive vocabulary for both two- and three-dimensional shapes.

**ELL Strategies:**
Introduce and chart the academic vocabulary: two-dimensional, three-dimensional, sides, vertices, length, faces.

Discuss vocabulary for informal language: similar, difference, corners, top, bottom.

Follow simple oral phrasal directions of single words or gestures to classify shapes into categories comparing attributes.

Use realia (real-life objects) or pictures to compare.

| How do you know when shapes are exactly the same? | | |
After student is given the opportunity to sort shapes, teacher models using informal language to describe similarities and differences.

**New Jersey Student Learning Standard(s):**
K.G.B.5: Model shapes in the world by building shapes from components (*e.g.*, *sticks and clay balls*) and drawing shapes.

**Student Learning Objective 4:** Model shapes in the world by building and drawing shapes.

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

<table>
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</thead>
<tbody>
<tr>
<td>MP 1</td>
<td>N/A</td>
<td>Students apply their understanding of geometric attributes of shapes in order to create given shapes. For example, students may roll a clump of play-doh into a sphere or use their finger to draw a triangle in the sand table, recalling various attributes in order to create that particular shape.</td>
<td>Why is it important to use models to show shapes? What three-dimensional shapes can you make using solid figures?</td>
<td>Lesson B1</td>
</tr>
<tr>
<td>MP 4</td>
<td></td>
<td></td>
<td></td>
<td>Lesson B2</td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td></td>
<td></td>
<td>Lesson B3</td>
</tr>
</tbody>
</table>

**SPED Strategies:**
Two-dimensional shapes are flat and three-dimensional shapes are solid, students should draw two-dimensional shapes and build three-dimensional shapes. Shapes may be built using materials such as clay, toothpicks, marshmallows, gumdrops, straws, etc.
**ELL Strategies:**
Introduce and chart the academic vocabulary: materials, shapes.

Use gestures and selected technical vocabulary to create 2- and 3-dimensional shapes in the world after listening to oral directions.

After teacher modeling, use key, technical vocabulary in phrases and simple sentences to create 2- and 3-dimensional shapes in the world after listening to oral directions.

**New Jersey Student Learning Standard(s):**
K.G.B.6: Compose simple shapes to form larger shapes. *For example: “Can you join these two triangles with full sides touching to make a rectangle?”*

**Student Learning Objective 5:** Compose simple shapes to form larger shapes.

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

<table>
<thead>
<tr>
<th>MPs</th>
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<th>Tasks/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP 1</td>
<td>N/A</td>
<td>Students manipulate two or more shapes to create a new shape. This concept begins to develop as students move, rotate, flip, and arrange puzzle pieces to complete a puzzle. Kindergarteners use their experiences with puzzles to use simple shapes to create different shapes.</td>
<td>Solid figures can be combined to make other solid figures. Can we join two shapes to make another shape?</td>
<td>Lesson B5</td>
</tr>
<tr>
<td>MP 4</td>
<td></td>
<td></td>
<td></td>
<td>Lesson B6</td>
</tr>
<tr>
<td>MP 7</td>
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<td></td>
<td>Lesson B7</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>Making Bigger Shapes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tangram Challenge</td>
</tr>
</tbody>
</table>
| | Students combine shapes to make pictures.  
Pattern blocks, attribute shapes, and tangrams may be used to form larger shapes.  
**SPED Strategies:**  
Students should use pattern blocks, tiles, or paper shapes and technology to make new two- and three-dimensional shapes.  
Have students trace different shapes to get the feel of how the shapes should look.  
**ELL Strategies:**  
Introduce and chart the academic vocabulary: join, sides, shapes.  
Use pictures, gestures and selected vocabulary to demonstrate comprehension of how to compose simple shapes to form larger shapes.  
Use key, technical language, phrases and simple sentences to demonstrate comprehension of how to compose larger shapes using simple shapes following oral directions. | Build a Hexagon Mouse Shapes |
New Jersey Student Learning Standard(s):  
K.NBT.A.1: Compose and decompose numbers from 11 to 19 into ten ones and some further ones, *e.g. by using objects or drawings*, and record each composition or decomposition by a drawing or equation (*e.g. 18 = 10 + 8*); Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. *(benchmarked)*

**Student Learning Objective 6:** Compose and decompose numbers from 11 to 19 into a group of ten and one(s) with or without manipulatives. Record each composition or decomposition through a drawing or equation.

**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>
<tbody>
<tr>
<td>MP 1</td>
<td>K.NBT.A.1</td>
<td>Kindergarteners use 10 objects to represent 10 rather than creating a unit called a ten (unitizing) as done in first grade.</td>
<td>Ten can be thought of as a bundle of ten ones – called a “ten”. Why do we break numbers apart into tens and ones?</td>
<td>Building Teen Numbers</td>
</tr>
<tr>
<td>MP 2</td>
<td></td>
<td>Use a ten frame to show “14 is 10 on and 4 off”</td>
<td></td>
<td>Label the Ten Frame</td>
</tr>
<tr>
<td>MP 4</td>
<td></td>
<td>After using manipulatives, write an equation.</td>
<td></td>
<td>Mystery Number</td>
</tr>
<tr>
<td>MP 7</td>
<td></td>
<td>14 = 10 + 4</td>
<td></td>
<td>On and Off the Ten Frame</td>
</tr>
<tr>
<td>MP 8</td>
<td></td>
<td></td>
<td></td>
<td>Ring Around the Tens</td>
</tr>
</tbody>
</table>

Kindergarteners use 10 objects to represent 10 rather than creating a unit called a ten (unitizing) as done in first grade.

Ten can be thought of as a bundle of ten ones – called a “ten”.

Why do we break numbers apart into tens and ones?

After using manipulatives, write an equation.

14 = 10 + 4

Building Teen Numbers

Label the Ten Frame

Mystery Number

On and Off the Ten Frame

Ring Around the Tens

Making a Set of 10 and Some More

Counting and Representing Sets 11-20

Tens and Some Ones
numbers into ten “ones” and some additional number of “ones.”

Use a chart.

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>10</td>
<td>4</td>
<td></td>
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</tbody>
</table>

Count on from 10 (10, 11, 12, 13, 14).

**SPED Strategies:**
Use base ten blocks, cubes, or counters to show ten and then the ones left over.

Use graph paper to have students draw ten and then the ones.

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

Teacher models how to use selected vocabulary with picture prompts to compose and decompose numbers from 11-19 by writing or drawing the response.

---

**Bug Hunt**
Crazy for Carrots
“Teen” Frame Talk About
Kaleigh’s Leaves
What Makes a Teen Number
<table>
<thead>
<tr>
<th>Use key, technical vocabulary in phrases to compose and decompose numbers from 11-19 by writing or drawing the response in a math journal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use manipulatives, such as bundles of 10s and 1s (popsicle sticks) to model composing and decomposing, recording each composition or decomposition in a math journal.</td>
</tr>
<tr>
<td>Unit 4 Vocabulary</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>- adding to</td>
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<tr>
<td>- addition / add</td>
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<tr>
<td>- addition sign</td>
</tr>
<tr>
<td>- and</td>
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<tr>
<td>- angles</td>
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<tr>
<td>- associative property</td>
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<td>- attributes</td>
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<td>- cardinality</td>
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<td>- circle</td>
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<td>- commutative property</td>
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<td>- cone</td>
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<tr>
<td>- conservation</td>
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<tr>
<td>- corners / vertices</td>
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<tr>
<td>- counting back</td>
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<td>- counting by one</td>
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<tr>
<td>- counting on</td>
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<tr>
<td>- counting strategy</td>
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<tr>
<td>- cube</td>
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<tr>
<td>- cylinder</td>
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<tr>
<td>- decade</td>
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<td>- minus sign</td>
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<td>- more</td>
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<td>- number line</td>
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<td>- number words (zero to 100)</td>
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<td>- numerals</td>
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<tr>
<td>- one-to-one correspondence</td>
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<td>- part-part-whole</td>
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<td>- put together / take apart addend unknown</td>
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<td>- rectangle</td>
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<tr>
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<td>- result unknown / take from</td>
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<td>- same amount</td>
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<td>- synchrony/ one-to-one tagging</td>
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<td>- taking apart</td>
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<td>- taking from</td>
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<td>- ten frames</td>
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<td>- three-dimensional</td>
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<td>- total</td>
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<tr>
<td>- total unknown / put together – take apart</td>
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<tr>
<td>- triangle</td>
</tr>
<tr>
<td>- two-dimensional</td>
</tr>
<tr>
<td>- unitize</td>
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</tbody>
</table>
# References & Suggested Instructional Websites

- [https://www.imaginelearning.com/login](https://www.imaginelearning.com/login)
- [https://www.georgiastandards.org/common-core/pages/math-k-5.aspx](https://www.georgiastandards.org/common-core/pages/math-k-5.aspx)
- [https://www.engageny.org/resource/kindergarten-mathematics](https://www.engageny.org/resource/kindergarten-mathematics)
- [http://www.illustrativemathematics.org/K](http://www.illustrativemathematics.org/K)
- [http://www.k-5mathteachingresources.com/kindergarten-math-activities.html](http://www.k-5mathteachingresources.com/kindergarten-math-activities.html)

**Online Tools**
- [https://www.mathlearningcenter.org/resources/apps](https://www.mathlearningcenter.org/resources/apps)

**Using the Rekenrek**
- [http://bridges1.mathlearningcenter.org/media/Rekenrek_0308.pdf](http://bridges1.mathlearningcenter.org/media/Rekenrek_0308.pdf)

**Five Frames**
- [http://illuminations.nctm.org/Activity.aspx?id=3564](http://illuminations.nctm.org/Activity.aspx?id=3564)

**Ten Frames**
- [http://illuminations.nctm.org/Activity.aspx?id=3565](http://illuminations.nctm.org/Activity.aspx?id=3565)

**Interactive Visuals for Counting K.CC.1**

**Interactive**
- [www.commoncoresheets.com](http://www.commoncoresheets.com)

**Fact Fluency**
- [http://www.k-5mathteachingresources.com/computational-fluency.html](http://www.k-5mathteachingresources.com/computational-fluency.html)
# Field Trip Ideas

## 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=CIjzn-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.

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/
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