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HEALTH & PHYSICAL EDUCATION

RAHWAY PUBLIC SCHOOLS

CURRICULUM & INSTRUCTION

Course: Mathematics

Grade Level: Kindergarten

This curriculum is part of the Educational Program of Studies of the Rahway Public Schools.

ACKNOWLEDGMENTS

Anjanette Highsmith, Program Supervisor of K-6 Math, Science, and Instructional Technology

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Subject/Course Title:
Mathematics
Grade: **K**

Date of Board Adoption:
August 27, 2024

RAHWAY PUBLIC SCHOOLS CURRICULUM

Mathematics: Grade K

PACING GUIDE

Unit	Title	Pacing
1	<u>Math in Our World</u>	4 weeks
2	<u>Numbers 1-10</u>	5 weeks
3	<u>Flat Shapes All Around Us</u>	4 weeks
4	<u>Understanding Addition and Subtraction</u>	4 weeks
5	<u>Composing and Decomposing Numbers to 10</u>	4 weeks
6	<u>Numbers 0-20</u>	4 weeks
7	<u>Solid Shapes All Around Us</u>	4 weeks
8	<u>Putting It All Together</u>	5 weeks

ACCOMMODATIONS

<p>504 Accommodations:</p> <ul style="list-style-type: none"> ● Provide scaffolded vocabulary and vocabulary lists. ● Provide extra visual and verbal cues and prompts. ● Provide adapted/alternate/excerpted versions of the text and/or modified supplementary materials. ● Provide links to audio files and utilize video clips. ● Provide graphic organizers and/or checklists. ● Provide modified rubrics. ● Provide a copy of teaching notes, especially any key terms, in advance. ● Allow additional time to complete assignments and/or assessments. ● Provide shorter writing assignments. ● Provide sentence starters. ● Utilize small group instruction. ● Utilize Think-Pair-Share structure. ● Check for understanding frequently. ● Have student restate information. ● Support auditory presentations with visuals. ● Weekly home-school communication tools (notebook, daily log, phone calls or email messages). ● Provide study sheets and teacher outlines prior to assessments. ● Quiet corner or room to calm down and relax when anxious. ● Reduction of distractions. ● Permit answers to be dictated. ● Hands-on activities. ● Use of manipulatives. ● Assign preferential seating. ● No penalty for spelling errors or sloppy handwriting. ● Follow a routine/schedule. ● Provide student with rest breaks. ● Use verbal and visual cues regarding directions and staying on task. ● Assist in maintaining agenda book. 	<p>IEP Accommodations:</p> <ul style="list-style-type: none"> ● Provide scaffolded vocabulary and vocabulary lists. ● Differentiate reading levels of texts (e.g., Newsela). ● Provide adapted/alternate/excerpted versions of the text and/or modified supplementary materials. ● Provide extra visual and verbal cues and prompts. ● Provide links to audio files and utilize video clips. ● Provide graphic organizers and/or checklists. ● Provide modified rubrics. ● Provide a copy of teaching notes, especially any key terms, in advance. ● Provide students with additional information to supplement notes. ● Modify questioning techniques and provide a reduced number of questions or items on tests. ● Allow additional time to complete assignments and/or assessments. ● Provide shorter writing assignments. ● Provide sentence starters. ● Utilize small group instruction. ● Utilize Think-Pair-Share structure. ● Check for understanding frequently. ● Have student restate information. ● Support auditory presentations with visuals. ● Provide study sheets and teacher outlines prior to assessments. ● Use of manipulatives. ● Have students work with partners or in groups for reading, presentations, assignments, and analyses. ● Assign appropriate roles in collaborative work. ● Assign preferential seating. ● Follow a routine/schedule.
<p>Gifted and Talented Accommodations:</p> <ul style="list-style-type: none"> ● Differentiate reading levels of texts (e.g., Newsela). ● Offer students additional texts with higher lexile levels. ● Provide more challenging and/or more supplemental readings and/or activities to deepen understanding. ● Allow for independent reading, research, and projects. ● Accelerate or compact the curriculum. ● Offer higher-level thinking questions for deeper analysis. ● Offer more rigorous materials/tasks/prompts. ● Increase number and complexity of sources. ● Assign group research and presentations to teach the class. ● Assign/allow for leadership roles during collaborative work and in other learning activities. 	<p>ELL Accommodations:</p> <ul style="list-style-type: none"> ● Provide extended time. ● Assign preferential seating. ● Assign peer buddy who the student can work with. ● Check for understanding frequently. ● Provide language feedback often (such as grammar errors, tenses, subject-verb agreements, etc...). ● Have student repeat directions. ● Make vocabulary words available during classwork and exams. ● Use study guides/checklists to organize information. ● Repeat directions. ● Increase one-on-one conferencing. ● Allow student to listen to an audio version of the text. ● Give directions in small, distinct steps. ● Allow copying from paper/book. ● Give student a copy of the class notes.

- Provide written and oral instructions.
- Differentiate reading levels of texts (e.g., Newsela).
- Shorten assignments.
- Read directions aloud to student.
- Give oral clues or prompts.
- Record or type assignments.
- Adapt worksheets/packets.
- Create alternate assignments.
- Have student enter written assignments in criterion, where they can use the planning maps to help get them started and receive feedback after it is submitted.
- Allow student to resubmit assignments.
- Use small group instruction.
- Simplify language.
- Provide scaffolded vocabulary and vocabulary lists.
- Demonstrate concepts possibly through the use of visuals.
- Use manipulatives.
- Emphasize critical information by highlighting it for the student.
- Use graphic organizers.
- Pre-teach or pre-view vocabulary.
- Provide student with a list of prompts or sentence starters that they can use when completing a written assignment.
- Provide audio versions of the textbooks.
- Highlight textbooks/study guides.
- Use supplementary materials.
- Give assistance in note taking
- Use adapted/modified textbooks.
- Allow use of computer/word processor.
- Allow student to answer orally, give extended time (time-and-a-half).
- Allow tests to be given in a separate location (with the ESL teacher).
- Allow additional time to complete assignments and/or assessments.
- Read question to student to clarify.
- Provide a definition or synonym for words on a test that do not impact the validity of the exam.
- Modify the format of assessments.
- Shorten test length or require only selected test items.
- Create alternative assessments.
- On an exam other than a spelling test, don't take points off for spelling errors.

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Math in Our World

Target Course/Grade Level: K

Unit Summary: In this unit, students explore mathematical tools and notice numbers and quantities around them. Students also have opportunities to work with math tools and topics related to geometry, measurement, and data through a variety of centers. In the last section, students count collections of objects and groups of people, answering “how many of ____ are there?” questions. These questions reinforce the idea that counting is a way to tell how many objects there are. Students are expected to count up to 10 objects by the time they begin the next unit, which will focus more deeply on numbers 1–10. The unit is also designed to give students time to learn the structures and routines for centers, to create norms for classroom learning, and to begin to build a mathematical community.

Students are introduced to several routines that will be used throughout the year over the course of this unit: Notice and Wonder, Act It Out, How Many Do You See?, and Questions About Us. Students practice the verbal count sequence to 10 to prepare them for the counting work in Section D. While students practice the verbal count sequence to 10, a visual display of numbers 1-10 should be posted in the room. Students are introduced to the structure of centers through centers that support the work of this unit.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

K.CC.A.1. Count to 100 by ones and by tens.

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

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

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and Using Models

Constructing Explanations and Designing Solutions

Using Mathematics and Computational Thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students recognize numbers and quantities in their world

Unit Essential Questions:

- What is counting and how can it be used?
- How does counting help us in our everyday lives?
- Where do you see numbers in our everyday lives?
- Can you count to 10 by 1's?
- Can you touch count to 10?
- Can you answer "how many" without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.

Students will be able to...

- Explore and use math tools.
- Share mathematical ideas with a partner.
- Recognize and name groups of up to 4 objects and images without counting.
- Answer "are there enough" questions.
- Count groups of up to 10 objects.

<i>EVIDENCE OF LEARNING</i>

Assessment:

What evidence will be collected and deemed acceptable to show that students truly "understand"?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 1 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.1 Lessons 1-17

K.CC.A.1. Count to 100 by ones and by tens.

Activity 1: Number Hunt

- Hide numeral cards around the classroom or outdoor area. Provide students with a checklist or recording sheet and have them search for the numerals. Once found, students should count the objects corresponding to the numeral and record the total.

Activity 2: Counting Towers

- Provide students with a set of building blocks or cubes. Ask them to build towers with a specific number of blocks. For beginners, provide visual representations of the numbers to help them match the quantity. For advanced students, increase the difficulty by asking them to build towers with missing blocks, which they must determine based on the given number.

Activity 3: Counting Walk

- Take students on a walk around the school or neighborhood. Encourage them to count different objects they see along the way (e.g., trees, cars, windows). For more advanced students, challenge them to count objects in patterns (e.g., counting every other tree)

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

Activity 1: Grouping Activity

- Provide students with various objects (e.g., counters, blocks) and ask them to group them into sets. Have pairs of students compare their sets and determine which has more or fewer objects.

Activity 2: Read-Aloud

- Read a picture book that involves comparing quantities, such as "The Doorbell Rang" by Pat Hutchins. Pause throughout the story to ask students to predict what will happen next based on the quantities of cookies being shared.

Activity 3: Balance Scale Activity

- Demonstrate how to use a balance scale to compare two sets of objects. Encourage students to experiment with adding objects to each side of the scale until they balance, indicating equal quantities.

Activity 4: Outdoor Exploration

- Take students on a nature walk and ask them to collect objects such as leaves, rocks, and sticks. Back in the classroom, have students compare their collections with a partner and discuss which collection has more or fewer items.

RESOURCES

Teacher Resources:

- USNS-Fall
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 1
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Numbers 1-10

Target Course/Grade Level: K

Unit Summary: In this unit, students continue to develop counting concepts and skills, including comparing, while learning to write numbers. Students rely on familiar activity structures to build their counting skills and concepts. First, they count and compare the number of objects, and then do the same with groups of images. The images are given in different arrangements—in lines, arrays, number cube patterns, on 5-frames—to help students connect different representations to the same number. Use of fingers and 5-frames to represent numbers are emphasized and encouraged because they can help students see the structure of numbers 6–10 as $5+n$. (Ten-frames will be introduced in a later unit.) Fingers are also helpful for counting and are always available. In these materials, quantities represented with fingers are shown, from students' perspective, to start with the left pinky. Numbers 6–10 continue with the thumb on the right hand.

To compare the number of objects or images, students start by using terms such as “fewer” and “more.” Later, when comparing written numbers, the term “less” is introduced. In general, “less” is used to compare numerals, and “fewer” is used to compare groups of objects. Students may use these terms interchangeably at first, but will develop proficiency with the distinction over time. Throughout the unit, students are introduced to the Choral Count routine in this unit. They also continue to develop the routines already introduced. During centers, students trace and write numbers. Number writing practice can also happen during other parts of the day, such as during writing or handwriting activities. Crayons, colored pencils, markers, glue sticks, and paint brushes with water can be used to trace and write numbers to increase student engagement. Reversals are common when students begin writing numbers, so the emphasis is on writing a number that is recognizable to others with practice. Students are introduced to new centers that support the work of this unit.

Approximate Length of Unit: 5 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

K.CC.A.1 Count to 100 by ones and by tens.

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

K.CC.B.4 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.

- a. 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.

- b. 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.
- c. 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.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems
Developing and using models
Constructing explanations and designing solutions
Using mathematics and computational thinking
Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students answer “how many” questions, count out, and compare groups within 10. Students write a number to represent how many.

Unit Essential Questions:

- Can you count to 10 by 1’s?
- Can you touch count to 10?
- Can you answer “how many” without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?
- How can you represent numbers up to 10?
- Can you compare groups of objects?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.

Students will be able to...

- Connect quantities with spoken number words.
- Count and compare up to 10 objects and know the number remains the same regardless of the arrangement of the objects.
- Connect quantities with spoken number words.
- Count and compare up to 10 images in organized arrangements and know the number remains the same regardless of the order in which the images are counted.

- Connect quantities with spoken number words and written numbers.
- Understand the relationship between number and quantity.
- Compare written numbers 1–10.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 2 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.2 Lessons 1-22

K.CC.A.1. Count to 100 by ones and by tens.

Activity: Counting Circle

- Form a circle with the students. Begin counting by ones, with each student saying the next number in sequence. Once you reach 100, start over and count by tens. This activity helps students practice both counting by ones and by tens in a group setting.

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).

Activity: Number Puzzles

- Create simple number puzzles where students match the written numerals to the correct quantity of objects. For example, a puzzle piece with "7" must be matched with a puzzle piece showing seven dots.

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

Activity: Counting with Dice

- Use dice with dots or numerals. Students roll the dice, count the dots or read the numeral, and then represent that quantity with objects (e.g., placing counters on a ten frame).

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.

Activity: Counting Collections

- Provide students with a collection of objects and a target number. Students count out the specified number of objects from the collection, reinforcing counting out a specific quantity.

K.CC.C.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

Activity: Story Problems

- Present students with simple story problems involving comparing quantities. For example, "Sara has 4 apples, and Max has 6 apples. Who has more apples?"

K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.

Activity: Number Line Walk

- Create a large number line on the floor or along a wall in the classroom. Call out two numerals between 1 and 10, and students walk along the number line to find the positions of the two numbers. They discuss which numeral comes before or after the other.

RESOURCES

Teacher Resources:

- USNS-Fall
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 2
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Flat Shapes All Around Us

Target Course/Grade Level: K

Unit Summary: This unit introduces students to the foundational concepts of geometry, with a focus on familiar flat (two-dimensional) shapes. Students may initially associate names of shapes with everyday objects. For example, a rectangle is a shape that looks like a door. Students need to see and interact with many examples of a shape to accurately relate what’s in their environment to the geometric term. For instance, students may say that only one of these two shapes is a triangle—the isosceles triangle sitting on its base—because they have seen examples like it being referred to as triangles. They may not consider a scalene triangle sitting on a vertex as a part of the same shape category because, in their experience, a shape like it hasn’t been associated with the term “triangle.”

Students explore differences in shapes and use informal language to describe, compare, and sort them. Circle, triangle, rectangle, and square are four shapes that students study and name here. (They will not describe what makes each shape so until grade 1.) Students also learn a key idea, that congruent shapes are still “the same” even if they are in different orientations. Later in the unit, students use pattern blocks to make larger shapes. They reinforce their counting and comparison skills as they count and compare the pattern blocks used to create larger shapes. Students use positional words (above, below, next to, beside) to describe the shapes they compose. A new routine, Which One Doesn’t Belong, is introduced in this unit. In this routine, students compare 4 different images and analyze the characteristics or attributes of the images in order to decide which image doesn’t belong and why. This routine is introduced slowly, starting with only 3 images of recognizable objects. By the end of the unit, students compare 4 images of shapes. It is important to emphasize to students that there is more than one way to answer. The more important part of the routine is explaining why the image doesn’t belong. Students are introduced to new centers that support the work of this unit. Centers to revisit from previous units are also suggested in each section.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

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

K.CC.B.4 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.

- a. 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.

- b. 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.
- c. 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.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

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*, *behind*, and *next to*.

K.G.A.2 Correctly name shapes regardless of their orientations or overall size.

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?”.

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:**K-2-ETS1-2 Engineering and Design**

Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Unit Understandings:

- Students identify, describe, analyze, compare and compose two-dimensional shapes

Unit Essential Questions:

- Can you count to 10 by 1's?
- Can you touch count to 10?
- Can you answer "how many" without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?
- How can you represent numbers up to 10?
- Can you compare groups of objects?
- How are two shapes alike and different?
- How can we sort shapes by color? How can we sort by shape? How can we sort the shapes into categories according to size?

- How do we sort objects? What are attributes?
- How do we describe several measurable attributes of a single object?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.
- How to identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres).
- How to analyze, compare, create, and compose shapes.

Students will be able to...

- Recognize and describe shapes in the environment.
- Use informal language to describe and compare shapes and their attributes.
- Explore shapes by putting shapes together to form larger shapes.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 3 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?]

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.3 Lessons 1-15

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

Activity: Number Songs and Rhymes

- Use songs and rhymes that involve counting and writing numbers. Encourage students to write the numerals as they sing along.

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

Activity: Counting and Stamping

- Give students stampers and ink pads. Provide them with a worksheet with scattered dots representing different quantities. Students count the dots and then stamp the corresponding numeral next to each set of dots.

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.

Activity: Counting Collection:

- Provide students with a collection of objects and a target number. Students count out the specified number of objects from the collection, reinforcing counting out a specific quantity.

K.CC.C.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

Activity: Comparing Sets with Visuals

- Provide students with picture cards showing different sets of objects. They compare the sets by visually examining the pictures and determine which set has more, which has fewer, and if any sets are equal in quantity.

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*, *behind*, and *next to*.

Activity: Shape Building

- Provide students with various building materials (e.g., blocks, LEGO bricks, or playdough) and shape templates. Students use the materials to build objects with different shapes, and then describe the relative positions of the objects they create using positional terms.

K.G.A.2. Correctly name shapes regardless of their orientations or overall size.

Activity: Outdoor Shape Walk

- Take students on a shape walk around the school grounds or neighborhood. They identify shapes in natural and man-made objects, regardless of their orientations or sizes.

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?”

Activity: Shape Mosaic Pictures

- Provide students with small square tiles or paper squares in different colors. Students arrange the squares to create larger mosaic pictures of shapes, such as a rectangle made from smaller squares.

RESOURCES

Teacher Resources:

- USNS-Fall
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 3
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Understanding Addition and Subtraction

Target Course/Grade Level: K

Unit Summary: In this unit, students develop their understanding of addition and subtraction as they represent and solve story problems. Here, they relate counting to the result of two actions: putting objects together or taking objects away. Students enact addition by counting the total number of objects in two groups, and subtraction by counting what remains after some objects are taken away. (The word “total” is used here instead of “sum” to reduce potential confusion with the word “some” or part of a whole.) Students then make sense of stories without questions and later solve story problems of two types—Add To, Result Unknown and Take From, Result Unknown. Students represent the problems in different ways, by acting them out, drawing, using numbers, or using objects. Initially, the teacher records the process of adding and subtracting using words such as “5 and 3” or “4 take away 1.” Later, students see that “5 and 3” and “4 take away 1” can be expressed by $5+3$ $5+3$ and $4-1$ $4-1$, respectively. They learn that these expressions are read “5 plus 3” and “4 minus 1.”

Because students have had extended experience with the warm-up routines, this is the first unit where students do a different warm-up each day. Students relate subitizing to addition and subtraction in the How Many Do You See routine and begin to count on from a given number in the Choral Count routine. This is also the first unit where students complete a written cool-down at the end of the lesson.

In these lessons, teachers may choose to have students complete the cool-down before participating in centers.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

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.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.CC.A.1 Count to 100 by ones and by tens.

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

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

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

- a. 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.

- b. 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.
- c. 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.

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*, *behind*, and *next to*.

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students relate counting to addition and solve addition story problems within 10.

Unit Essential Questions:

- Can you count to 10 by 1's?
- Can you touch count to 10?
- Can you answer how many without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?
- How can you represent numbers up to 10?
- Can you compare groups of objects?
- How are two shapes alike and different?
- How can we sort shapes by color? How can we sort by shape? How can we sort the shapes into categories according to size?
- How do we sort objects? What are attributes?
- How do we describe several measurable attributes of a single object?
- How can shapes be broken into simpler parts?
- Why are attributes important for naming shapes?
- Where are the shapes in your environment?
- How can our environment be described using positional words and shapes?
- What are the attributes of two-dimensional and three-dimensional shapes?
- How can you use smaller shapes to form a larger shape?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.
- How to understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Students will be able to...

- Understand addition as putting together and subtraction as taking from.
- Represent and solve Add To, Result Unknown and Take From, Result Unknown story problems within 10.
- Find the value of addition and subtraction expressions within 10. Relate addition and subtraction expressions to story problems.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 4 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.4 Lessons 1-18

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.

Activity: Finger Counting

- Encourage students to use their fingers to represent addition and subtraction. For example, the can show $2 + 3$ by holding up two fingers on one hand and three fingers on the other hand, then counting all the fingers to find the total.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Activity: Math Story Books

- Provide students with storybooks that contain simple addition and subtraction word problems. After reading each story, students use objects or drawings to represent the situations and solve the problems.

K.CC.A.1. Count to 100 by ones and by tens.

Activity: Number Grid Puzzles

- Provide students with a partially filled 100s chart or number grid. They can fill in the missing numbers by counting by ones or by tens, depending on the activity sheet.

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

Activity: Skip Counting

- Practice skip counting by starting from a number other than 1. For example, count forward by twos starting from 2, count forward by fives starting from 5, or count forward by tens starting from 10.

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).

Activity: Number Hunt

- Hide numeral cards around the classroom or outdoor play area. Have students find the cards and match them to corresponding objects (e.g., if they find the card with "5", they must find and count five objects).

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

Activity: Counting Objects in Picture:

- Provide students with pictures containing various objects (e.g., animals, fruits, or vehicles). Students count the objects in each picture and write the corresponding numeral.

K.CC.B.5. Count to answer “how many?” questions about as many as 20 things arranged in a line, 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.

Activity: Counting Circles

- Arrange objects in a circular pattern on a table or on the floor. Students count the objects in the circle and answer questions about the total number of objects. This activity reinforces counting in a circular arrangement.

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*, *behind*, and *next to*.

Activity: Shape Collage

- Give students magazines or newspapers and have them cut out pictures of objects with different shapes. They create a collage by gluing the pictures onto a large sheet of paper. Afterward, students use positional terms to describe the relative positions of the objects in their collage.

K.G.B.5. Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

Activity: Modeling with Toothpicks and Playdough

- Give students toothpicks and playdough. Instruct them to use the toothpicks as edges and the playdough as vertices to construct 3D shapes such as cubes, rectangular prisms, and pyramids. Encourage them to explore different combinations.

RESOURCES

Teacher Resources:

- USNS-Midyear
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 4
- IM Student Work
- Online District Approved Digital Resources
- IM Blackline Masters

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Composing and Decomposing Numbers to 10.

Target Course/Grade Level: K

Unit Summary: In this unit, students explore different ways to compose and decompose numbers within 10 and to represent the compositions and decompositions. Special attention is given to composing and decomposing 10, as it is the basis of place value in our number system. To support their reasoning, students use their fingers and a 10-frame—created by putting together two 5-frames. They use these tools to think about pairs of numbers that make 10. Symbolic notation develops slowly across the units. Students first complete expressions that represent numbers being composed and decomposed. In doing so, they also practice writing numbers without handwriting lines. Later, students encounter equations of the form $5=3+2$ and teachers read this equation as “5 is 3 plus 2.”

Much of the addition and subtraction work in future grades also hinges on the idea of composing and decomposing numbers, 10 in particular. Students describe and compare different ways to decompose numbers with math tools, expressions, and equations in Notice and Wonder and Which One Doesn’t Belong routines throughout the unit. Students extend the verbal count sequence to 70 and continue to practice counting on from a given number in the Choral Count routine. Since students have more experience with expressions, they participate in the Number Talk routine for the first time. This routine encourages students to use mental strategies and look for patterns in addition and subtraction expressions within 5. Students are introduced to new centers that support the work of this unit.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

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.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

K.CC.A.1 Count to 100 by ones and by tens.

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

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.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.

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students compose and decompose numbers within 10.

Unit Essential Questions:

- Can you count to 10 by 1's?
- Can you touch count to 10?
- Can you answer how many without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?
- How can you represent numbers up to 10?
- How can we use written numerals to represent quantities of objects from zero to twenty?
- How do we know how many there are when we count objects?
- How can we use counting to accurately determine the quantity of objects, whether they are arranged in a line, a rectangular array, a circle, or scattered?
- How can you represent addition?
- How can we use addition and subtraction to solve real-world problems, and why is it important to be able to represent these problems with objects or drawings?
- How can we use the concept of making 10 to solve addition problems?
- How can we develop accuracy and efficiency in adding and subtracting within 5?

Knowledge and Skills:

Students will know...

- How to compose and decompose numbers up to 9 in more than 1 way.
- How to write expressions to represent decompositions.
- How to solve Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown story problems.
- For any number from 1 to 9, find the number that makes 10 when added to the given number.

Students will be able to...

- Compose and decompose numbers up to 9 in more than 1 way.
- Write expressions to represent decompositions.
- Solve Put Together, Total Unknown, Put Together/Take Apart, Both Addends Unknown, Add To, Result Unknown, and Take From, Result Unknown story problems.
- For any number from 1 to 9, find the number that makes 10 when added to the given number.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 5 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.5 Lessons 1-15

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.

Activity: Finger Counting

- Encourage students to use their fingers to represent addition and subtraction. For example, they can show $2 + 3$ by holding up two fingers on one hand and three fingers on the other hand, then counting all the fingers to find the total.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Activity: Math Story Books

- Provide students with storybooks that contain simple addition and subtraction word problems. After reading each story, students use objects or drawings to represent the situations and solve the problems.

K.CC.A.1. Count to 100 by ones and by tens.

Activity: Number Grid Puzzles

- Provide students with a partially filled 100s chart or number grid. They can fill in the missing numbers by counting by ones or by tens, depending on the activity sheet.

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

Activity: Skip Counting

- Practice skip counting by starting from a number other than 1. For example, count forward by twos starting from 2, count forward by fives starting from 5, or count forward by tens starting from 10.

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).

Activity: Number Hunt

- Hide numeral cards around the classroom or outdoor play area. Have students find the cards and match them to corresponding objects (e.g., if they find the card with "5", they must find and count five objects).

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

Activity: Counting Objects in Picture

- Provide students with pictures containing various objects (e.g., animals, fruits, or vehicles). Students count the objects in each picture and write the corresponding numeral.

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.

Activity: Counting Circle

- Arrange objects in a circular pattern on a table or on the floor. Students count the objects in the circle and answer questions about the total number of objects. This activity reinforces counting in a circular arrangement.

RESOURCES

Teacher Resources:

- USNS-Midyear
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 5
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Numbers 0-20

Target Course/Grade Level: K

Unit Summary: In this unit, students count and represent collections of objects and images within 20. They apply previously developed counting concepts, such as one-to-one correspondence, keeping track of what has been counted, and conservation of numbers, to larger numbers. Students will use the 10-frame to organize groups of 11-19 objects and images. This tool encourages students to see teen numbers as 10 and some more, emphasizing the $10 + n$ structure of the numbers 11-19. Students use this structure as they represent teen numbers with their fingers, objects, drawings, expressions, and equations. Students see equations with the addends written first, such as $10+6=16$. (Students are not expected to think of 10 ones as a unit called “a ten” or refer to single units as “ones” until Grade 1.

Throughout the unit, students practice tracing and writing numbers 11-20. It is common for students at this stage to write the numbers backward, so the emphasis is on writing a number that is recognizable to others. Reversing the order of the digits of teen numbers is also expected, due to how teen numbers are said in English. Repeatedly seeing the number 1 written first to represent teen numbers helps students recognize the structure of these numbers.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

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.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

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.

Understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

K.CC.A.1 Count to 100 by ones and by tens.

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

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 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.

- a. 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.
- b. 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.
- c. 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.

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*, *behind*, and *next to*.

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students answer “how many” questions and count out groups within 20. They understand that numbers 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. They write numbers within 20.

Unit Essential Questions:

- How can we use objects and pictures to show how many things there are in a group?
- How can we use stories and pictures to solve problems by adding and taking away?
- How can we use what we know about numbers to find the missing part that makes a whole?
- How can we break apart a number in different ways to show how it's made up of smaller parts?
- How can we take apart numbers between 11 and 19 to see them as groups of 10 and some leftover ones?
- How can we use our voices and different tools to show how many things there are?
- Can you count forward starting at any number?
- How can we use numbers and numerals to represent and communicate quantities in our everyday life?
- How do numbers help us understand and describe the quantities of objects?
- How can counting help us determine the number of objects in different arrangements?
- How do the shapes and positions of objects help us understand and describe the world around us?
- How can we use different parts to create and recognize shapes in our environment?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.
- Addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- How to work with numbers 11–19 to gain foundations for place value.

Students will be able to...

- Count groups of up to 20 objects.
- Understand numbers 11-19 as 10 ones and some more ones.
- Count groups of up to 20 images.

<i>EVIDENCE OF LEARNING</i>

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 6 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.6 Lessons 1-13

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.

Activity: Finger Counting

- Encourage students to use their fingers to represent addition and subtraction. For example, the can show $2 + 3$ by holding up two fingers on one hand and three fingers on the other hand, then counting all the fingers to find the total.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Activity: Math Story Books

- Provide students with storybooks that contain simple addition and subtraction word problems. After reading each story, students use objects or drawings to represent the situations and solve the problems.

K.CC.A.1. Count to 100 by ones and by tens.

Activity: Number Grid Puzzles

- Provide students with a partially filled 100s chart or number grid. They can fill in the missing numbers by counting by ones or by tens, depending on the activity sheet.

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

Activity: Skip Counting

- Practice skip counting by starting from a number other than 1. For example, count forward by twos starting from 2, count forward by fives starting from 5, or count forward by tens starting from 10.

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).

Activity: Number Hunt

- Hide numeral cards around the classroom or outdoor play area. Have students find the cards and match them to corresponding objects (e.g., if they find the card with "5", they must find and count five objects).

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

Activity: Counting Objects in Pictures

- Provide students with pictures containing various objects (e.g., animals, fruits, or vehicles). Students count the objects in each picture and write the corresponding numeral.

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.

Activity: Counting Circles

- Arrange objects in a circular pattern on a table or on the floor. Students count the objects in the circle and answer questions about the total number of objects. This activity reinforces counting in a circular arrangement.

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*, *behind*, and *next to*.

Activity: Shape Collage

- Give students magazines or newspapers and have them cut out pictures of objects with different shapes. They create a collage by gluing the pictures onto a large sheet of paper. Afterward, students use positional terms to describe the relative positions of the objects in their collage.

K.G.B.5. Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

Activity: Modeling with Toothpicks and Playdough

- Give students toothpicks and playdough. Instruct them to use the toothpicks as edges and the playdough as vertices to construct 3D shapes such as cubes, rectangular prisms, and pyramids. Encourage them to explore different combinations.

RESOURCES

Teacher Resources:

- USNS-Midyear
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 6
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Solid Shapes All Around Us

Target Course/Grade Level: K

Unit Summary: In this unit, students explore solid shapes while reinforcing their knowledge of counting, number writing and comparison, and flat shapes. They compose figures with pattern blocks and continue to count up to 20 objects, write and compare numbers, and solve story problems. Here, students distinguish between flat and solid shapes before focusing on solid shapes. They consider the weight and capacity of solid objects and identify solid shapes around them. Geoblocks, connecting cubes, and everyday objects are used throughout the unit. Standard geoblock sets do not include cylinders, spheres, and cones. Students use their own language to describe attributes of solid shapes as they identify, sort, compare, and build them, while also learning the names for cubes, cones, spheres, and cylinders.

Approximate Length of Unit: 4 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

K.CC.A.1 Count to 100 by ones and by tens.

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.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.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.

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.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (eg. $5=2+3$ and $5=4+1$).

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

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.

K.M.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.M.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

K.DL.A.1 Classify objects into given categories; count the number of objects in each category and sort the categories by count.

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*, *behind*, and *next to*.

K.G.A.2 Correctly name shapes regardless of their orientations or overall size.

K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).

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).

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

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?”

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students identify, describe, analyze, compare, and compose two- and three- dimensional shapes. Counting, addition, and subtraction are revisited in the geometric contexts.

Unit Essential Questions:

- Can you count by ones and tens to 100?
- Can you represent numbers 0-20 with objects?
- How can we compare the number of objects in different groups to determine which has more, less, or the same amount?
- How can we break down numbers into different pairs to help us understand their parts and how they add up?
- Can you accurately add within 5?
- How can we describe and compare the different sizes and weights of objects?
- How can we compare objects to find out which is bigger, smaller, heavier, or lighter?
- How can you describe shapes regardless of size?
- What is the difference between 2D and 3D shapes?
- Can you describe the different attributes of 2D and 3D shapes?
- How can you build bigger shapes from smaller shapes?

Knowledge and Skills:

Students will know...

- How to identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres).
- How to analyze, compare, create, and compose shapes.
- How to describe and compare measurable attributes.
- How to work with money.
- How to classify objects and count the number of objects in categories.

Students will be able to...

- Compose shapes from smaller shapes.
- Count and compare numbers, and solve story problems involving shapes.
- Compare weight and capacity of objects.
- Compose shapes from smaller shapes.
- Describe and compare three-dimensional shapes.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 7 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.7 Lessons 1-16

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

Activity Teddy Bear Picnic:

- Scatter a variety of teddy bears (or other small objects) on the table. Divide the class into two teams. Each team collects a specific number of teddy bears (e.g., Team A collects 3, Team B collects 5). Have them compare the number of bears and determine which team has more.

K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.

Activity Number Line:

- Draw a simple number line (1-10) below the clothesline. As students clip the cards, have them point to the corresponding number on the number line to reinforce their understanding of numerical order.

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.

Activity Movement Activity:

- Students can pretend to be the objects being added. For example, for 2 jumps + 3 claps, students would jump twice and then clap 3 times.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Activity Real-world Connections:

- Connect addition and subtraction to real-life situations. For example, "We have 3 apples and we get 2 more from the store. How many apples do we have in total?"

K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (eg, $5=2+3$ and $5=4+1$).

Activity Decompose Numbers with a Partner

- Give students a number to decompose (e.g., 8). Have them independently find all the different pairs that make up this number using objects, drawings, and equations. Encourage students to check their work with a partner to ensure they have found all possible pairs.

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

Activity Roll and Add

- Create a simple board game where students roll a die, add that number to a starting number (less than 10), and find the missing part to make 10.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

Activity Subitizing Cards

- Show students flashcards with small dot arrangements (subitizing dots) for 1-5. Have them quickly identify the number without counting.

K.M.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Activity Non Standard Measurement Games

- Introduce students to the concept of non-standard measurement using objects like cubes, straws, or their own handspans. Challenge them to measure the length or height of other objects using these non-standard units.

K.M.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

Activity Which Doesn't Belong?

- Show a set of 3-4 objects where one object has a different measurable attribute compared to the others. Students can identify the odd object and explain why it doesn't belong based on the shared attribute.

K.DL.A.1 Classify objects into given categories; count the number of objects in each category and sort the categories by count.

Activity Sorting Activity

- Present students with a mixed set of objects. Challenge them to come up with their own sorting rules and categorize the objects based on those rules. This encourages creative thinking and problem-solving.

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, behind, and next to.*

Activity I Spy

- Play a modified "I Spy" game where students describe the shape and position of a hidden object. Clues might include "I spy something square that is above the table" or "I spy something triangular that is next to the window."

K.G.A.2 Correctly name shapes regardless of their orientations or overall size.

Activity Charades Game

- Introduce the concept of symmetry. Provide students with mirrors and different shapes. Encourage them to explore how shapes can be symmetrical even when rotated or flipped (e.g., a square remains symmetrical regardless of orientation).

K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).

Activity Play Doh

- Provide playdough or modeling clay. Challenge students to start with a flat shape (squish the clay into a circle). Then, ask them to transform it into a 3D shape by molding it into a sphere. This activity encourages them to understand the transition from 2D to 3D.

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).

Activity Matching Game

- Create a matching game with cards. One card shows a 2D shape, another a 3D shape. Include pictures or descriptions of attributes on the cards (e.g., "4 sides" for a square, "round and no corners" for a ball). Students can match shapes based on shared attributes despite being 2D or 3D.

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Activity Shape Collage

- Provide students with construction paper in various shapes (squares, circles, triangles) and magazines or old newspapers. Encourage them to cut out pictures of real-world objects from the magazines (car, ball, flower) and glue them onto their construction paper. Then, have them use markers to draw additional shapes to complete the object (wheels on the car, stem on the flower).

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?”

Activity Shape Drawings

- Provide students with paper and drawing materials. Challenge them to draw a sequence of pictures showing how a simple shape (square) can be decomposed into smaller shapes (triangles) by cutting or dividing it. Encourage them to use arrows and labels to explain the process.

RESOURCES

Teacher Resources:

- USNS-Spring
- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 7
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Putting It All Together

Target Course/Grade Level: K

Unit Summary: In this unit, students revisit major work and accurate and efficient goals of the grade, applying their learning from the year. Section A focuses on concepts of counting and comparing. Section B highlights the presence of math in students' school community. Section C enables students to practice composing and decomposing numbers within 5, as well as adding and subtracting within 5. Section D focuses on composing and decomposing 10. The sections in this unit are standalone sections, not required to be completed in order. The goal is to offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade.

Approximate Length of Unit: 5 weeks

LEARNING TARGETS

NJ Student Learning Standards:

Mathematics:

K.CC.A.1 Count to 100 by ones and by tens.

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

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.

- a. 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.
- b. 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.
- c. 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.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number

of objects in another group, e.g., by using matching and counting strategies. (Clarification: Include groups with up to ten objects.)

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.

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (eg. $5=2+3$ and $5=4+1$).

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

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.

K.M.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.M.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter

K.DL.A.1 Classify objects into given categories; count the number of objects in each category and sort the categories by count.

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*, *behind*, and *next to*.

K.G.A.2 Correctly name shapes regardless of their orientations or overall size.

K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).

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).

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

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?”

Interdisciplinary Connections and Standards:

English Language Arts:

L.WF.K.2 Demonstrate command of the conventions of encoding and spelling common, regular, single-syllable words by:

- Writing frequently used words accurately.
- Attempting phonetic spellings of unknown words

VI.K.3. With guidance and support from adults, explore word relationships and nuances in word meanings.

- Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
- Identify real-life connections between words and their use (e.g., note places at school that are colorful).

W.WP.K.4. With prompts and support from adults, recognize that writing carries a message and should make sense to others.

W.RW.K.7. With prompting and support, engage in brief but regular writing and drawing tasks.

SL.PE.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts

with peers and adults in small and larger groups.

- Follow agreed-upon norms for discussions (e.g., listening to others with care and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.

SL.ES.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.UM.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.AS.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

Social Studies Standards:

6.1.2.CivicsCM.1: Describe why it is important that individuals assume personal and civic responsibilities in a democratic society.

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

Science & Engineering Practices:

Asking questions and defining problems

Developing and using models

Constructing explanations and designing solutions

Using mathematics and computational thinking

Obtaining, evaluating, and communicating information

Career Readiness, Life Literacies, and Key Skills:

9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).

9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Technology:

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats

8.1.2.DA.3: Identify and describe patterns in data visualizations.

8.1.2.DA.4: Make predictions based on data using charts or graphs.

8.1.2.AP.4: Break down a task into a sequence of steps.

Unit Understandings:

- Students consolidate and solidify their understanding of various concepts and skills on major work of the grade. They also continue to work toward accurate and efficient goals of the grade.

Unit Essential Questions:

- What are the names of numbers 0-20?
- What number is greater? What number is less?
- Can you count 20 objects?
- Can you count in sequence?
- How can you put objects together to add?

- How can you take objects away to subtract?
- How can you represent addition?
- How can we use addition and subtraction to solve real-world problems, and why is it important to be able to represent these problems with objects or drawings?
- How can we use the concept of making 10 to solve addition problems?
- How can we develop accuracy and efficiency in adding and subtracting within 5?
- Can you count to 10 by 1's?
- Can you touch count to 10?
- Can you answer how many without counting the objects again?
- Can you name groups of 1, 2, or 3 objects or images without counting?
- Can you name groups of 4 objects or images without counting?
- Can you identify groups with the same number of objects (for groups of up to 4 objects)?
- How can you represent numbers up to 10?
- How can we use written numerals to represent quantities of objects from zero to twenty?
- How do we know how many there are when we count objects?
- How can we use counting to accurately determine the quantity of objects, whether they are arranged in a line, a rectangular array, a circle, or scattered?
- Can you identify the value of U.S. coins and the one dollar bill?

Knowledge and Skills:

Students will know...

- Number names and the count sequence.
- How to count to tell the number of objects.
- How to compare numbers.
- How to understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- How to work with numbers 11–19 to gain foundations for place value.
- How to describe and compare measurable attributes.
- How to work with money.

Students will be able to...

- Count and compare groups of objects and images.
- Represent and write numbers up to 20.
- Represent and write quantities and numbers up to 20.
- Fluently add and subtract within 5.
- Use understanding of 10 to work with numbers to 20.

EVIDENCE OF LEARNING

Assessment:

What evidence will be collected and deemed acceptable to show that students truly “understand”?

- Cool-downs
- Section Checkpoints
- Common Assessment: Illustrative Math End-of-Unit 8 Assessment
- Daily Exit Slips

Learning Activities:

What differentiated learning experiences and instruction will enable all students to achieve the desired results?

- Online math games/activities
- Centers
- Math Dialogue
- Illustrative Mathematics (IM) K.8 Lessons 1-21

K.CC.A.1 Count to 100 by ones and by tens.

Activity Counting in Your Environment:

- Take students on a counting scavenger hunt around the classroom or school. For beginners, provide specific items to count (e.g., chairs, books). For more advanced students, challenge them to find and count different sets of objects (e.g., red objects, objects with wheels).

K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Activity : Math Story Books

- Provide students with storybooks that contain simple addition and subtraction word problems. After reading each story, students use objects or drawings to represent the situations and solve the problems.

K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (eg. $5=2+3$ and $5=4+1$).

Activity Part, Part Whole Matching Game

- Prepare index cards.
 - On some cards, write whole numbers (1-10).
 - On separate cards, write corresponding decomposition pairs (e.g., for the whole number 5, create cards with 2 and 3, 1 and 4).
 - Spread the cards face down on the table.
 - Students take turns flipping two cards.
 - If they flip a whole number card and its matching decomposition pair (e.g., 5 and 2+3), they win a point and keep the cards.
 - The student with the most matching pairs at the end wins the game.

K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

Activity Ten Frame Cards

- Provide students with number cards and ten-frames. They draw a card, place the counters on the ten-frame, and find the number that makes 10. Students can record their answers on a worksheet.

K.OA.A.5 Demonstrate accuracy and efficiency for addition and subtraction within 5.

Activity Number Stories

- Students can create multi-step stories involving both addition and subtraction within 5.

K.M.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Activity Comparing Lengths

- Have students find two objects and compare their lengths, describing which is longer or shorter.

K.M.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

Activity Hands On Comparison

- Provide a set of balance scales and pairs of objects. Guide students to compare the weight of two items by placing one on each side of the balance and identifying which is heavier or lighter.

K.DL.A.1 Classify objects into given categories; count the number of objects in each category and sort the categories by count

Activity Sorting Activity

- Present students with a mixed set of objects. Challenge them to come up with their own sorting rules and categorize the objects based on those rules. This encourages creative thinking and problem-solving.

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*, *behind*, and *next to*.

Activity Simon Says

- Play a "Simon Says" game using shapes. "Simon says touch the triangle on the wall," or "Simon says stand next to the rectangle."

K.G.A.2 Correctly name shapes regardless of their orientations or overall size.

Activity Charades Game

- Introduce the concept of symmetry. Provide students with mirrors and different shapes. Encourage them to explore how shapes can be symmetrical even when rotated or flipped (e.g., a square remains symmetrical regardless of orientation).

K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).

Activity Comparative Analysis:

- Ask students to compare and contrast 2D and 3D shapes, discussing their properties and how they are used in real life.

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).

Activity Matching Game

- Create a matching game with cards. One card shows a 2D shape, another a 3D shape.

Include pictures or descriptions of attributes on the cards (e.g., "4 sides" for a square, "round and no corners" for a ball). Students can match shapes based on shared attributes despite being 2D or 3D.

K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Activity Shape Scavenger Hunt:

- Take the activity outdoors to the schoolyard. Challenge students to find and identify shapes in the natural environment (like the circular sun or the triangular roof of a building).

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?”

Activity Building Time!:

- Explain that today they'll be "Shape Builders"! Challenge them to use the smaller shapes they have -to create entirely new, bigger shapes. Encourage them to experiment and be creative!

RESOURCES

Teacher Resources:

- iReady Teacher Toolbox
- Illustrative Math (IM) Unit 8
- IM Student Work
- IM Blackline Masters
- Online District Approved Digital Resources

Equipment Needed:

- Manipulatives
- IM Student Workbook
- Student White Boards
- Chart Paper
- Dry Erase Markers
- Chromebooks