Algebraic Thinking & Geometry (Unit 2)

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

Chapter 4,5,6,7,8.

Enduring Understandings

Counting is a mechanism used to land on a number to coordinate the number words with objects in a one-to-one correspondence.

Numbers can be represented using numerals.

Count words or number words can be connected to a quantity of objects.

Zero is the number when all items have been taken away.
Objects should be counted with one to one correspondence.

The total number does not change because the arrangement order has changed.

When given a number between 0-10, the next number is one larger than he given number.
Addition is putting together and adding to (with objects, fingers, drawings, sounds, acting out situations, or verbal explanations).
Subtraction is taking apart and taking from (with objects, fingers, drawings, sounds, acting out situations, or verbal explanations).
There are different shapes and that size and orientation do not change the same of the shape.

Spatial sense is an intuition about shapes and the relationships among shapes.
An attribute is a trait or feature of an object.
Addition and subtraction are used to solve word problems.
Numbers can be broken into parts in a variety of ways.
They can use objects and drawings to find addends that make 10.

Essential Questions

What is counting and how can it be used?

How does counting help us identify the quantity.

How do you compare quantities?
What are numbers?

What is addition? Subtraction?

How can you classify objects?

What is a shape?

How can you describe a shape?

How are teen numbers composed and decomposed?
How can numbers be represented using drawing and equations?

Learning Objectives

Count aloud to 100 by ones and tens using accurate number sequencing.
Begin counting from any given number within 1–100 to continue the sequence.
Write numerals from 0 to 20 and match written numerals to a count of objects (including 0).
Connect counting with the understanding of quantity and cardinality.
Accurately pair one number name with one object in a set when counting.
Determine the total number of objects in a group based on the last number spoken.
Recognize that object arrangement or counting order does not affect quantity.
Understand that each subsequent number in counting represents one more than the previous.
Count up to 20 objects in various configurations and count out a specific number from 1–20.
Use counting and matching strategies to identify which group has more, fewer, or equal objects.
Compare written numerals between 1 and 10 to determine relative size.
Use objects, drawings, and actions to model addition and subtraction within 10.
Solve real-world problems using addition and subtraction with tangible representations.
Break apart numbers less than or equal to 10 in multiple ways and record those using drawings or equations.
Determine the missing part of 10 when given any number from 1 to 9 and model it visually.
Show accuracy and fluency when adding and subtracting numbers within 5.
Sort objects into designated categories based on observable attributes.
Count the number of items in each category and organize categories by quantity.
Identify common two- and three-dimensional shapes such as squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres.
Describe objects in the environment using shape names and spatial position words (e.g., beside, behind, above).
Recognize and name shapes accurately regardless of orientation or size.

Climate Change - K.DL.A.1: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Clarification: Limit category counts to be less than or equal to 10)
Climate Change Example: With prompting and support, students may ask and answer questions about objects that may be reused, objects that may be recycled, and objects that must be placed in the trash. Students may classify used objects into those categories with no more than 10 objects in each category. Students may count the number of objects in each category and sort the categories by count.

Standards: Content

MATH.K.CC	Counting and Cardinality
MATH.K.CC.A	Know number names and the count sequence
MATH.K.CC.A.1	Count to 100 by ones and by tens.
MATH.K.CC.A.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
MATH.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).
MATH.K.CC.B	Count to tell the number of objects
MATH.K.CC.B.4	Understand the relationship between numbers and quantities; connect counting to cardinality.
MATH.K.CC.B.4.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.
MATH.K.CC.B.4.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.
MATH.K.CC.B.4.c	Understand that each successive number name refers to a quantity that is one larger.
MATH.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.
MATH.K.CC.C	Compare numbers
MATH.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.
MATH.K.CC.C.7	Compare two numbers between 1 and 10 presented as written numerals.
MATH.K.OA	Operations and Algebraic Thinking
MATH.K.OA.A	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
MATH.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.
MATH.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.
MATH.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 (e.g., 5 = 2 + 3 and 5 = 4 + 1).
MATH.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.
MATH.K.OA.A.5	Demonstrate accuracy and efficiency for addition and subtraction within 5.
MATH.K.DL	Data Literacy
MATH.K.DL.A	Classify objects and count the number of objects in each category
MATH.K.DL.A.1	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
MATH.K.G	Geometry
MATH.K.G.A	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes,

	cones, cylinders, and spheres)
MATH.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.
MATH.K.G.A.2	Correctly name shapes regardless of their orientations or overall size.

Standards: Interdisciplinary

PFL.9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
PFL.9.1.2.PB.2	Explain why an individual would choose to save money.
CS.K-2.8.1.2.AP.1	Model daily processes by creating and following algorithms to complete tasks.
CS.K-2.8.1.2.AP.4	Break down a task into a sequence of steps.
CS.K-2.8.1.2.DA.3	Identify and describe patterns in data visualizations.
CS.K-2.8.2.2.EC.1	Identify and compare technology used in different schools, communities, regions, and parts of the world.
CS.K-2.8.2.2.ITH.2	Explain the purpose of a product and its value.
CS.K-2.8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.
WRK.9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
TECH.9.4.2.DC.2	Explain the importance of respecting digital content of others.
TECH.9.4.2.IML.1	Identify a simple search term to find information in a search engine or digital resource.
TECH.9.4.2.IML.2	Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).

Assessment Evidence

Formative	Collaborative Activities, Homework, Daily Classwork, Discussion, Independent Class Assignment, Informal Observations of Students, Games, Exit Slips, Questioning, Teacher Made Pages, Learning Centers, Problem of the Day, Reveal Workbooks, Fluency Checks, Curious, Activity Based Exploration, Guided Exploration, On My Own.
Summative	Tests, Mid-Chapter Checkpoint assessments, teacher generated assessments
Alternative & Benchmark	Alternative – Reteaching, One on One Conferencing, Learning Centers, student portfolio of assignments, Homework, Higher Order Thinking Problems, Additional leveled practice, orally administered assessments. Benchmark - LinkIt Benchmark Assessments, Totowa TPA
Assessment Evidence Resource	

Instructional Resources

Smartboard, Computers, websites and digital interactives/models, Multi-media presentations, video streaming, Brain Pop, Microsoft 365, Primary and Secondary Source Documents, Reveal Resources, manipulatives, post-it notes, markers, number lines, chart & graph paper, construction paper, glue, scissors, paperclips, crayons, envelopes, dot ink & cards, geo blocks, number cubes/dice.
The Best Bug Parade, Stuart Murphy (literature)
Seven Little Monsters, Maurice Senduck (literature)
Missing Mittens, Stuart Murphy (literature)
The Quilt, Ann Jonas (literature)
Five Little Monkeys Jumping on the Bed, Eileen Christelow (literature)

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)
X	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

	Self-Awareness	X	Relationship Skills
X	Responsible Decision-Making	X	Social Awareness
X	Self-Management		

21st Century Skills & Themes

	Global and Cultural Awareness	X	Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance

	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
X	Critical Thinking and Problem Solving		Credit Profile		Career Awareness and Planning
X	Civic Financial Responsibility		Financial Psychology		