Unit 1 - Operations and Algebraic Thinking

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

Unit Overview

Enduring Understandings

What does it mean to do math?

Understand that all students have strengths in math.
Understand what a problem is.
Understand how to use tools to solve a problem.
Explain their thinking.
Understand the importance of listening to the thinking of classmates.
Understand how to use patterns to solve a problem.
Understand the behaviors for a productive learning environment.
Understand patterns when counting to 100.
Understand patterns when counting by 1s to 120.
Understand how to find patterns on a number line when counting to 120.
Able to read and write numbers to 120.
Understand how to represent a number of objects with a written numeral.
Understand how to represent teen numbers with tens and ones.

Understand how to group ones and tens and ones to make it easier to count and name the number.
Understand how to decompose 2-digit numbers in different ways.
Understand how to compare 2-digit numbers then represent comparisons using the symbols >,<, and =.
Understand how to analyze the characteristics of a number line. Then compare two numbers on a number line.
Understand how to count on, doubles, near doubles and making a 10 to help them add within 20.
Understand how to solve additions equations when either one of the addends or the sum is missing.
Understand that the = sign is a symbol that means the value on one side of the sign is the same as the value on the other side.

Essential Questions

What does it mean to do math?
How can I use patterns to count, read, and write numbers?
How can I use place value to represent and compare numbers?
What strategies can I use to add?

Learning Objectives

Students identify their own and others' strengths in math.
Students explain what a problem is and ways to solve it. They relate quantities in a problem.
Students explore ways to use mathematics to show real world situations.
Students explore ways to explain their thinking. They respond to the ideas of their classmates.
Students explore strategies for describing and extending patterns.
Students describe the behaviors and mindsets that contribute to a productive learning environment.
Students identify patterns when counting to 100.
Students describe patterns on a number chart.
Students identify patterns on a number line when counting to 120.

Students can use patterns to read and write numbers to 120.
Students can count a number of objects. Students can show how many with a written numeral.
Students understand that teen numbers are composed of a ten and some ones.
Students understand that ten ones can be grouped as one ten.
Students represent 2-digit numbers with some tens and some ones.
Students use place value to show 2-digit numbers.
Students can represent 2-digit numbers in different ways.
Students can compare 2-digit numbers.
Students can use number lines to compare 2-digit numbers.
Students compare numbers using the >, <, and = symbols.
Students understand (explain) that addition is a more efficient way of finding a total.
Students select one addend to start with and count on by the value of the second addend.
Students use doubles to add numbers within 20.
Students use doubles facts they know to solve near -doubles problems.
Students use make a ten strategy to solve addition equations within 20.
Students choose an efficient strategy to solve an equation.
Students add numbers in any order.
Students explain strategies for adding 3 numbers.
Students use different strategies to determine an unknown value in an addition equation.
Students explain the meaning of the equal sign.
Students determine whether an addition equation is true or false.

Standards: Content

MATH.1.OA	Operations and Algebraic Thinking
MATH.1.OA.A	Represent and solve problems involving addition and subtraction
MATH.1.OA.A.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
MATH.1.OA.B.3	Apply properties of operations as strategies to add and subtract.
MATH.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
MATH.1.OA.C.6	Add and subtract within 20, demonstrating accuracy and efficiency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 +

	7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
MATH.1.OA.D	Work with addition and subtraction equations
MATH.1.OA.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
MATH.1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
MATH.1.NBT	Number and Operation in Base Ten
MATH.1.NBT.A	Extend the counting sequence
MATH.1.NBT.A.1	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
MATH.1.NBT.B	Understand place value
MATH.1.NBT.B.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
MATH.1.NBT.B.2.a	10 can be thought of as a bundle of ten ones — called a “ten.”
MATH.1.NBT.B.2.b	The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
MATH.1.NBT.B.2.c	The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
MATH.1.NBT.B.3	Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Standards: Interdisciplinary

Determine various ways to save and places in the local community that help people save and accumulate money over time. (Unit 1, Unit 2, Unit 3)

Explain why an individual would choose to save money. (Unit 4)

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.2	Model the way programs store and manipulate data by using numbers or other symbols to represent information.
CS.K-2.8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
CS.K-2.8.1.2.DA.4	Make predictions based on data using charts or graphs.
CS.K-2.8.1.2.NI.2	Describe how the Internet enables individuals to connect with others worldwide.
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.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).
TECH.9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).
TECH.9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).

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.

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)
	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

X	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
	Civic Financial Responsibility		Financial Psychology		