Unit 4: Problem Solving/Number and Operations

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

Unit Overview

Each unit is comprised of standards that are considered major content along with supporting content. This unit encourages students to use mathematical knowledge as a problem-solving tool by asking open-ended questions and asking for more information. Prekindergarten children should have experiences in representing number operations in a variety of ways. The focus should be on 6 objects or less.

Enduring Understandings

• Students will explain their shape and decompose the shape by using problem solving skills.

• Students will verbalize their shape and then try to construct it.

• Students will name (cubes, spheres,cylinder, etc..)

Essential Questions

• Using pattern blocks create a shape using three different shapes?

• What shapes can you make using straws?

• Can you name five three-dimensional shapes?

Learning Objectives

• Use one to one correspondence to solve problems

• Represent simple word problems with pictures and drawings

• Use pattern blocks to compose/decompose shapes

• Find two and three dimensional shapes in the classroom

• Use two dimensional shapes to make designs, patterns and pictures

Standards: Content

4.1.4.a	Accurately count quantities of objects up to 10, using one-to one-correspondence, and accurately count as many as 5 objects in a scattered configuration.
4.1.4.b	Arrange and count different kinds of objects to demonstrate understanding of the consistency of quantities (i.e., “5” is constant, whether it is a group of 5 people, 5 blocks or 5 pencils).
4.1.4.c	Instantly recognize, without counting, small quantities of up to 3 or 4 objects (i.e., subitize).
4.1.5	Use one to one correspondence to solve problems by matching sets (e.g., getting just enough straws to distribute for each juice container on the table) and comparing amounts (e.g., collecting the number of cubes needed to fill the spaces in a muffin tin with one cube each).
4.1.6	Compare groups of up to 5 objects (e.g., beginning to use terms such as “more,” “less,” “same”).
4.2	Children demonstrate an initial understanding of numerical operations.
4.2.1	Represent addition and subtraction by manipulating up to 5 objects:
4.2.1.a	putting together and adding to (e.g., “3 blue pegs, 2 yellow pegs, 5 pegs altogether.”); and
4.2.1.b	taking apart and taking from (“I have four carrot sticks. I’m eating one. Now I have 3.”).
4.2.2	Begin to represent simple word problem data in pictures and drawings.

Standards: Interdisciplinary

9.1	Children demonstrate initiative, engagement, and persistence.
0.1.1	Express individuality by making independent decisions about which materials to use.
9.1.1	Make plans and decisions to actively engage in learning (e.g., two children greet each other as they arrive to school and decide that they will finish counting all the bottle caps they collected during choice time.)
0.1.2	Express ideas for activities and initiate discussions.
9.1.2	Show curiosity and initiative by choosing to explore a variety of activities and experiences with a willingness to try new challenges (e.g., choosing harder and harder puzzles).
9.1.3	Focus attention on tasks and experiences, despite interruptions or distractions (e.g., working hard on a drawing even when children nearby are playing a game).
9.1.4	Show persistence when faced with challenging tasks and uncertainty, seeking and accepting help when appropriate (e.g., saying to a friend, ‘This is hard. Can you help me figure it out?).
9.2.3	Use multiple means of communication to creatively express thoughts, ideas, and feelings (e.g., sing a song and act out the story of the life cycle of a butterfly).
9.3.1	Recognize a problem and describe or demonstrate ways to solve it alone or with others (e.g., “I know! Jamar and I can work together to clean off the table so that we can have a place to eat lunch.”)
9.3.2	Use varied strategies to seek or recall information and to find answers (e.g., questioning,

	trial and error, testing, building on ideas, finding resources, drawing, or thinking aloud).
0.4.1	Engage appropriately with peers and teachers in classroom activities.
0.4.2	Demonstrate socially acceptable behavior for teachers and peers (e.g., give hugs, get a tissue, sit next to a friend/teacher, hold hands).
0.4.4	Respect the rights of others (e.g., “This painting belongs to Carlos.”).
0.4.5	Express needs verbally or nonverbally to teacher and peers without being aggressive (e.g., “I don’t like it when you call me dummy. Stop!”).
W.PK.1	Use a combination of drawings, dictation, scribble writing, letter-strings, or invented spelling to share a preference or opinion during play or other activities.
W.PK.2	Use a combination of drawings, dictation, scribble writing, letter-strings, or invented spelling to share information during play or other activities.
SL.PK.5	Use drawings or visual displays to add to descriptions to provide additional detail.
L.PK.1.f	Begin to speak in complete sentences.
L.PK.1.g	Understands and can follow simple multi-step directions.

Assessment Evidence

Formative	• Teacher observations • Questioning • Discussions • Visual Representations • Student Conferences • Portfolio Check • Debriefing • Grade book
Summative	• Teacher creates opportunities for children to determine “how many more” are needed (e.g.” Each child gets 5 crackers, but I only gave you three. How many more do I need to give you to make 5?”) • Teacher will document student’s ability to combine unit blocks to make new shapes. • Teacher will record student’s participation in creating class graphs such as “favorite animals, foods, etc.” • Teacher will observe student’s participation in acting out stories or rhymes that require Totowa Preschool Curriculum Project Aligned to the NJDOE Model Curriculum ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS Created for New Jersey school districts through a project of the New Jersey Department of Education, Office of Academic Standards, in partnership with the N.J Association for Supervision and Curriculum Development and the N.J. Principals and Supervisors Association. addition/subtraction (5 Little Monkeys, One Little Pumpkin Sitting on a Gate, etc.).
Alternative & Benchmark	
Assessment Evidence Resource	

Instructional Resources

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		Social Awareness
X	Self-Management		

21st Century Skills & Themes

	Global and Cultural Awareness		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		