UNIT 3 – COMPARE NUMBERS AND SHAPES

Established Goals:
Standards

Counting & Cardinality

K.CC.1 Count to 30 by ones and tens.

K.CC.3 Count and represent with a written numeral a number of objects to 20.
Write numerals from zero to 20.

K.CC.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. (groups of up to 10 objects).

K.CC.7 Compare numbers (up to 10) written as numerals.

Measurement & Data

K.MD.1 Describe measurable attributes of objects, e.g., length and weight.

K.MD.2 Directly compare and describe two objects with a measurable attribute in common using "more of"/"less of" the attribute. For example, directly compare the heights of two children and describe one child as taller/shorter.

Geometry

K.G.4 Analyze and compare two- and three-dimensional shapes in different sizes and orientations by counting sides or vertices ("corners") or comparing attributes such as side lengths.

Mathematical Practice Standards

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Transfer

Students will be able to:

Different strategies can be used to compare and count groups of objects.

Identify and sort two and three dimensional objects by their attributes.

Shapes help us describe, represent, and make sense of our environment.

Meaning

ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
• Sets of objects can be grouped and counted so that they can compare them in terms of greater than, less than or equal to. • We can describe and sort all objects by their attributes • Measuring identifies how long things are, how much they weigh and how much they can hold. • Shapes are everywhere in our environment and some objects are made up of many simple shapes	• How can we compare numbers? • How can we organize a set of objects so they are easy to count and combine? • What are some ways we can measure objects? • How can we observe, describe and compare shapes?

Acquisition

KNOWLEDGE	SKILLS
Students will know how to… • How to count to 50 by ones and tens. • Identify and write numerals 0-20. • When measuring you start at the beginning of the object and finish measuring at the end of the object. • When comparing two lengths, one end of each length must match.	*Students will be skilled at…* • Identify objects in one group that would be greater than, less than or equal to another group. • Measure length using non-standard units of measurement. • Define and give examples of heavy and light, taller and shorter

Attend to precision. Look for and make use of structure. Look for and express regularity in repeated reasoning.	• The size of the object does not indicate its weight. • Shapes can be described and compared using their attributes. • Objects can be compared using the same attribute. • By counting and comparing quantities we can determine which is more, less or equal to • Each shape has a name. • You can identify which shape it is by counting the number of sides and looking at the length of the sides (ex. square and rectangle) and counting the corners (triangle, rectangle, square, etc)	• Identify and sort various plane shapes and 3D figures (solids), and describe their attributes. • Recognize, name, and compare plane shapes and 3D figures (solids) in their world.

Vocabulary	Instruction and Pacing (suggested order to teach)	
greater than, less than, equal to, more of, less of, corner, side, triangle, square, rectangle, circle, cone, sphere, cylinder, cube, solid figure, plane shape 2 D shapes, 3 D shapes	**Comparing Numbers and Greater & Less Than**	**2 Weeks**
	Measuring Length and Capacity	**2 Weeks**
	Geometry – Analyze 2 and 3 Dimensional Shapes	**2 Weeks**
	Counting & Cardinality (Count to 30 by ones & tens)	**Entire Unit**
	Benchmark Testing & Reteaching	**2 Weeks**

Common Misconceptions	Proper Conceptions
Students do not match each item to determine which set has fewer	Draw lines to match items in different sets
Children do not recognize the correct number order	Use number lines and ten frames to show order of numbers
Students don't understand that a number tells how many	Counting objects in order tells how many and is a number name
Sorting – students mix up items if they don't recognize shapes or colors	Like shapes and colors have same attibutes

Students have difficulty identifying same and different	Same is alike. Different is not alike
Students have difficulty choosing the object that belongs in the group	Objects in the group must be alike in some way
Students are distracted by the size or orientation of the shape	Shapes are the same shape regardless of size or orientation
Students confuse rectangles and squares	A rectangle can also be a square
Students confuse rectangle and triangle	Count the sides of each shape to determine the name of the shape
Measurement – students have difficulty lining measuring with chain links or cubes	Make sure nonstandard units of measure have no space inbetween them
Measurement – students' measurements are too long	Always measure from end to end or ("edge to edge")
Measurement – children make mistakes with counting non-standard units of meas.	Touch and count each unit of measure when using non-standard units of measure

Resources

Common Core Standards ,New Jersey Model Curriculum

Envisions Math Program Suggested Topics

Topic 12 Measurement

Topic 13 Sorting & Classifying Shapes

MANIPULATIVES & GRAPHIC ORGANIZERS FOR UNIT 5 – Flat Shapes, Pattern Blocks, Solid (3-D Shapes), Everyday Solid Shapes (Cereal Boxes, Cylinders, Tissue Boxes, Small balls, etc.) Templates for Smart Pal Sleeves/Communicators

New Jersey Model Curriculum, Envisions Math Program, http://illuminations.nctm.org, https://www.illustrativemathematics.org
https://gradekcommoncoremath.wikispaces.hcpss.org/Kindergarten+Home

Additional Resources for ELL Learners

http://www.teach-this.com/esl-games/counting-games

http://www.njctl.org/courses/math/kindergarten-math/measurement/

http://www.njctl.org/courses/math/kindergarten-math/geometry-and-patterns/

http://www.state.nj.us/education/modelcurriculum/math/ellscaffolding/ku3.pdf

Differentiation and Accommodations

Provide graphic organizers
Provide additional examples and opportunities for additional problems for repetition
Provide tutoring opportunities
Provide retesting opportunities after remediation (up to teacher and district discretion)
Teach for mastery not test
Teaching concepts in different modalities
Adjust pace and homework assignments

ELL Modifications

- Assess/teach prerequisite skills
- Student illustrated word wall of important math terms
- Allow students to count in their native language.
- Provide students with a variety of materials of various textures to increase tactile learning while counting.
- Children should move objects in a set as they recite the counting sequence.
- Read picture books for shapes and measurement to build vocabulary.
  - http://nzmaths.co.nz/picture-books-measurement-content
- Allow students to act out word problems, moving around room as necessary.
- Use math manipulatives to solve all math problems (two color counters, teddy bear counters, etc.)
- Complete hands on sorting activities before paper and pencil activities.
  - http://www.kindergartenkindergarten.com/sorting-by-attributes/
- Utilize Envision Spanish Version/Interactive Path and Printable Resources

21st Century Skills	Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy
Instructional Strategies	Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: • Communicating with students • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness
Interdisciplinary Connections	ELA, Science, and Technology

Performance Task

You are a builder and your task is to build a tower using connecting cubes for your friend. Your challenge is to compare your tower to your friend's tower to see which one has more cubes.

In pairs, teacher will distribute two different amounts of connecting cubes (using 2 colors).

Each student will build their tower, count, and draw their tower. When finished the student will count and draw their friend's tower on the same paper. The task for the students will be to write the number of cubes under each tower and be able to identify and write which one had more.

Rubric

3- Students will correctly count, draw and compare their towers on their paper.(4 tasks)

2-Students will have three correct completed tasks.

1-Students will have two correct completed tasks.

0-Students did not attempt.

ASSESSMENTS

Suggested Formative Assessment

Problem of the Day

Lesson Quizzes

Exit Ticket

Anecdotal Records (Topic Observation Checklist)

Suggested Summative Assessment - Grade Level developed Unit/Envisions Topic Tests/ Ed Connect Tests/ State Unit Benchmark/Performance Task