Unit 6 Exploring Measurement, Geometry, and Data
Math 3

Last Update: August 1, 2025

Archdiocesan Curriculum > Grade 3> Math > Length of unit 29 to 32 days

Stage 1: Desired Results

General Information

This unit focuses on developing measurement, geometry, and data analysis skills. Students measure using customary and metric systems, explore attributes of plane figures, and use a variety of graphs to represent and interpret data.

Mathematical Practices

- MP2 – Reason abstractly and quantitatively.
- MP4 – Model with mathematics.
- MP5 – Use appropriate tools strategically.
- MP6 – Attend to precision.
- MP7 – Look for and make use of structure.

Essential Question(s)

- How can I measure and compare length, volume, mass, and temperature?
- What are the defining attributes of plane shapes and quadrilaterals?
- How can I classify geometric figures based on angles, lines, and sides?
- What types of graphs best represent specific kinds of data?
- How can I interpret data to make real-world decisions?

Enduring Understanding/Knowledge

Students will:

- Measure to the nearest half and fourth inch.
- Understand how cups, pints, quarts, and gallons are related.
- Measure liquid volume in metric units.
- Estimate and measure weight with ounces and pounds.
- Estimate and measure mass in metric units.
- Estimate and measure temperature in degrees Fahrenheit and degrees Celsius.
- Use models to solve measurement problems.

Review/Assess

- Identify and describe attributes of plane shapes.
- Describe angles in two-dimensional shapes.
- Determine if lines or line segments are intersecting, perpendicular, or parallel.
- Describe, classify, and compare quadrilaterals based on their sides and angles.
- Draw quadrilaterals.

Review/Assess

- Organize data in a table to solve problems.
- Read and use data in a picture graph to solve problems.
- Draw a scaled picture graph to represent data in a table and solve problems about the data.
- Read and interpret data in a bar graph.
- Draw a bar graph to represent data from a table or picture graph.
- Read and interpret data in a line plot and use data to make a line plot.
- Read and interpret data in a circle graph.
- Use data displayed in graphs to solve problems.

Review/Assess

Vocabulary

New	Review
• line plot • capacity • cup (c) • gallon (gal) • pint (pt) • quart (qt) • liquid volume • liter (L) • milliliter (mL) • ounce (oz) • pound (lb) • weight • gram (g) • kilogram (kg) • mass • Celsius (°C) • Fahrenheit (°F) • endpoints • line • line segment • plane shape • point • ray • right angle • angle • vertex • intersecting lines • parallel lines • perpendicular lines • parallelogram • quadrilateral • rectangle • rhombus	• inch • measure • estimate • temperature • degrees • two-dimensional shape • classify • compare • sides • angles • table • data • graph • interpret • organize • scaled • vertical • horizontal • line plot

	• square • trapezoid • categorical data • frequency table • key • horizontal bar graph • scale • vertical bar graph • circle graph	

Connections to Catholic Identity / Other Subjects

Religion/Catholic Identity:

- Non-standard measurement was commonly used in Biblical times, such as a palm (handbreadth).
- Cubit was the common unit of linear measurement in Biblical times
- The cross with perpendicular lines.
- The circle is used in halos and saints.
- A church will have a dome, such as the Basilica.
- The trinity can be represented using an equilateral triangle.

Other Subject Here:

- **Science:** Apply conversions from metric systems in scientific experiments.
- **ELA:** Students will write a story to accompany the geometric animal they made using tangrams.

Differentiation

Enrichment

- **Design Measurement Word Problems** – Encourage students to write and solve their own problems involving both metric and customary units.
- **Extend Graphing with Technology** – Allow students to use spreadsheet software to create dynamic graphs and analyze trends.
- **Classify Polygons Beyond Quadrilaterals** – Introduce pentagons, hexagons, and beyond, encouraging classification by properties.
- **Explore Perimeter and Area Relationships** – Investigate how changing one dimension affects the area or perimeter.

Support

- **Use Hands-on Measurement Tools** – Provide rulers, scales, and containers to physically explore measurement.
- **Pre-teach Vocabulary with Visuals** – Introduce key terms with matching images or real objects.
- **Use Shape Manipulatives** – Have students build, trace, and compare different quadrilaterals.
- **Color Code Graph Components** – Use color coding to distinguish between bars, axes, and labels.
- **Simplify Graph Data Sets** – Begin with simple data sets before moving to more complex representations.

Standards & Benchmarks

Measurement:

3.MD.2
Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), milliliters (ml), and liters (l). (Excludes compound units such as cubic centimeters [cc or cm3] and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses of objects or volumes of liquids that are given in the same units, for example, by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems.)

3.NF.3
Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

3.MD.4
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate units-whole numbers, halves, or quarters.

3.NF.3.d
Compare two fractions with the same numerator or the same denominator by reasoning about their size. **Recognize** that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, for example, by using a visual fraction model.

3.MD.B.4
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch to the nearest quarter-inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

3.NF.A.3
Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3.NF.A.3d
Compare two fractions with the same numerator or the same denominator by reasoning about their size. **Understand** that comparisons are valid only when the two fractions refer to the same whole. Record results of comparisons with the symbols >, =, or <, and justify conclusions.

Define Two-Dimensional Shapes:

3.G.1
Understand that shapes in different categories (for example, rhombuses, rectangles, and others) may share attributes (for example, having four sides), and that the shared attributes can define a larger category (for example, quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.A.1
Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples quadrilaterals that do not belong to any of these subcategories.

Represent and Interpret Data:

3.MD.3
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent five pets.
3.MD.B.3
Create a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Teaching Ideas/Resources

Websites/Resources:

A graphic organizer where the students use words from a word box to describe quadrilaterals. It also shows the classification of each quadrilateral as well.

- **Classifying Quadrilaterals**
- **Measurement Conversions-Customary Units**