Measurement and Data

Students in third grade learn a variety of concepts pertaining to measurement and data. They measure physical objects with standard measuring tools, such as rulers, and "measure" time by telling and writing time to the nearest minute and by solving problems pertaining to elapsed time.

Students gain foundational understanding of measurement concepts, such as *partitioning* (units can be subdivided), *iteration* (a unit can be repeated to make a measurement), and *compensation* (the size of a unit affects the number of units needed). They explore the concept of using "unit squares" to measure area. They also develop understanding of perimeter as the distance around a two-dimensional shape.

Third graders also measure mass and volume and use standard rulers with half and quarter marks to determine linear measurement. They connect their understanding of fractions to measure to the closest one-half and one-quarter inch. They show data by making line plots with a horizontal scale marked off in whole numbers, halves, and quarters.

Students read and solve problems using scaled graphs, such as picture and bar graphs. They solve one- and two-step "how many more" and "how many less" problems using information presented in the graphs. While exploring data, students pose questions and collect, analyze, and interpret data relevant to their lives.

The Grade 3 Common Core State Standards for Measurement and Data specify that students should–

- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Represent and interpret data.
- Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

The following hands-on activities will provide students with experiences to help them understand concepts in measurement and data. Mathematically proficient third graders reason abstractly and quantitatively. They connect quantities to written symbols and create logical representations of the problems at hand, considering appropriate units and the meaning of the quantities.