Measurement and Data

Students have learned that **measurement** is the process of comparing a quantity to a standard unit. In fifth grade, students convert units within a given measurement system and use these conversions in solving multi-step problems. They also make connections between the base ten number system and metric units while making conversions.

Students in fifth grade represent and interpret **data**. They make line plots to display data sets of measurements in fractions of a unit. They also use the operations of addition and subtraction with fractions to solve problems involving length, mass, and volume presented in line plots.

Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of unit cubes required to fill a space without gaps or overlaps and they recognize that volumes are therefore expressed using cubic units. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume and measure necessary attributes of shapes in order to solve real-world and mathematical problems.

The Grade 5 Common Core State Standards for Measurement and Data specify that students should–

- Convert like measurement units within a given measurement system.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

The following hands-on activities enable students to develop their understanding of measurement and data concepts in a meaningful way. In particular, students will benefit from working with concrete representations of volume. A good concrete understanding of volume will help students engage in the abstract reasoning required to work flexibly with volume in a variety of contexts.