# Measurement and Data

Children explore their world by "measuring" objects around them. They compare which is more or less, longest or shortest, a little bit more or just under, and so on to make determinations about how objects relate. **Measurement** is finding the length, height, and weight of an object using units such as inches, feet, and pounds. It is also finding elapsed time or finding time between events using units of seconds, minutes, and hours.

*Iterating* is the mental activity of building up the length of an object with equal-sized units. An example of iteration is lining up paper clips by placing them end to end to find the length of a pencil. *Indirect measurement* of length generally involves comparing two objects that are not lined up next to each other by using a third object. Putting three objects in order by length is largely an exercise in *direct* comparison, but it can also involve an element of indirect comparison.

By working through the following measurement activities, children will gain experience using nonstandard (e.g., paper clips, blocks, pencils, hands) and standard (e.g., inches, feet, centimeters, meters) units of measure. They will become more sophisticated in their measuring as they learn that particular units and tools work better than others for particular tasks.

As children understand the meaning and processes of measurement, they develop an ability to organize, represent, and interpret **data**. Understanding measurement is foundational to representing and interpreting data. Tally marks, tables, graphs, and charts can be used to communicate information about life.

**The Grade 1 Common Core State Standards for Measurement and Data specify that children should–**

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

The following hands-on activities enable teachers to help children learn the concepts of measurement and data in a rich and meaningful way. Teachers will want to help children develop the necessary grade-appropriate vocabulary that enables them to express and justify their predictions, solutions, and other mathematical thoughts. Children should be able to make a case for whether or not a given line of mathematical reasoning is viable.