

Fractions / Mixed Numbers Sample Activity

- **Measurement to nearest $\frac{1}{4}$ inch**

A. Give every student a 12-inch ruler with quarter-inch markings—no eighths or sixteenths. Copy Master is in the inside pocket of the back cover.

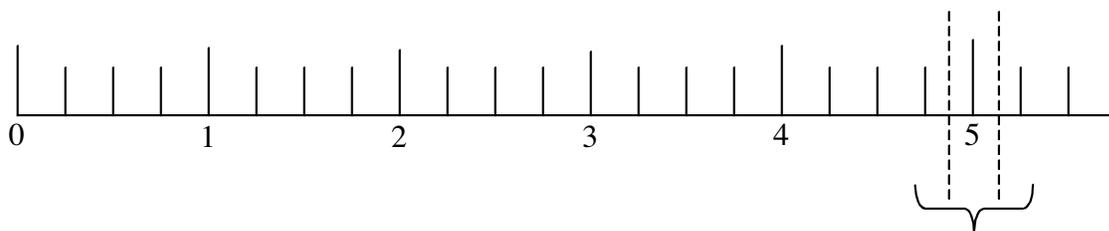
Review measurements to the nearest fourth-inch. Emphasize that we don't count all the individual quarter-inches; we count the whole inches first, then add on the extra fourth-inches. This natural measuring process is the motivation for mixed numbers—the number itself describes our actual procedure in making the measurement. If a piece of string is $7\frac{3}{4}$ inches long, it is also 31 fourth-inches long ($\frac{31}{4}$ inches); but we don't think of it that way!

B. Provide 3 or 4 identical sets of familiar objects, ranging in length from about 3 inches to about 10 inches. (For example: toothbrush; piece of wire; pen or pencil; a drinking straw; paint brush; etc.) Be sure that most of the objects are not precisely a whole number of inches.

Direct students to measure each object to the nearest fourth-inch, and record results.

C. Tabulate results for the whole class and discuss reasonableness of answers. Help students whose answers indicate inability to use a ruler properly or misunderstanding of mixed numbers. Contrast answers in whole inches and answers in quarter-inches. Distinguish between precision (size of the unit) and “right or wrong” answers. For example, a screwdriver may be correctly labeled as 7 inches, to the nearest inch, or $7\frac{1}{4}$ inches, to the nearest fourth-inch. The second measurement is “better” (more precise), but the first measurement isn't “wrong”.

D. Note that if several things have been measured to the nearest fourth-inch, and one of the lengths is given as 5 inches, it means that the length was judged to be closer to 5 inches than to $4\frac{3}{4}$ inches or to $5\frac{1}{4}$ inches; it doesn't mean that only whole inches were considered in the measurement.



Length from 0 to anywhere within this interval, would be given as 5 inches when measured to the nearest fourth-inch.