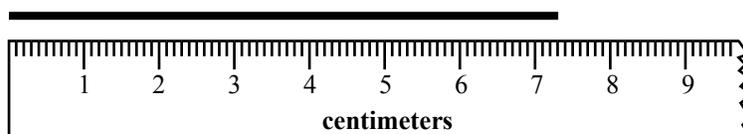


LESSON

• Measurement of Length to the Nearest Millimeter

A. As students look at their centimeter rulers, notice that each centimeter is separated into ten very small parts – so each of the parts is a tenth-centimeter. Remind them that these tiny lengths are also called millimeters because there are 1000 of them in a meter.

B. Draw a segment on a transparency, and demonstrate how to measure its length to the nearest millimeter or tenth-centimeter.



Remind students that this measurement can be written in two ways: 7.3 cm or 73 mm. Also note that although we say that the measurement was made to the nearest millimeter, we usually write it as 7.3 cm because that's how we actually read the ruler: 7 whole centimeters and 3 extra millimeters.

C. Emphasize that because millimeters are so small, it is very difficult to read a ruler accurately to the nearest millimeter; and it is particularly important to place the ruler carefully along the segment being measured.

Explain that although we do everything correctly, the class results for a measurement to the nearest millimeter will almost always include two answers. For example, 3.6 cm and 3.7 cm, or 64 mm and 65 mm. This doesn't mean that one of the answers is correct and the other incorrect; it doesn't even mean that one answer is better than the other. The discrepancy is due to limitations in the ability of our eyes to distinguish between such small intervals. If we used magnifying glasses to make the measurements, we would all get the same answer – except in cases where the actual length fell halfway between two millimeter marks.

Students must gradually come to understand that there is a built-in predictable “grey area” in the results of any measurement – not just those which involve very small units. And, because of this, any answers which are obtained by using measurements are, by their nature, approximations.

But, just as importantly, they must also understand that in our ordinary lives, these approximations are all we need – and for all practical purposes we can consider them to be exact.