

Write one important vocabulary word from each paragraph in the space below.

Science Shorts -6

The Metric System

The metric system is a decimal system of physical units based on a unit of length known as the meter (Greek for measure). The meter (m), which is approximately 39.37 inches, is defined as the distance between two fine lines marked on a bar of platinum-iridium alloy that is kept in Paris, France.

The metric system is known for its simplicity. All units of measurement are based on decimals- that is, units that increase or decrease by multiples of ten. The simplicity of the metric system is evident in how easily one unit of measure can be changed into another.

The unit for length or distance in the metric system is a meter (m), which is about the distance from the floor to the top of a doorknob. The unit for volume in the metric system is a liter (L). We are familiar with a liter because of the many bottles of soda we drink. The basic unit of mass in the metric system is called a gram (g). A gram is about the mass of a regular size paper clip.

A series of Greek prefixes is used to express units of ten or greater; a similar series of Latin prefixes is used to express parts of ten. For example, deca equals 10, hecto equals 100 and kilo equals one thousand, Mega equals one million, giga equals one billion and tera equals one trillion. For units below one, deci equals one-tenth, centi equals one-hundredths, milli equals one-thousandth, micro equals one-millionth, nano equals one-billionth, and pico equals one-trillionth.

Until the metric system was adopted in the 1790s there was no common system of measurements in the world. In Europe the measuring system of the ancient Romans, some 2,000 years old, was still in use in the 1700s. The French, in fact had more than 1,000 units of measurement. To straighten out this confusion, committees of French scientists created the metric system.

In 1960 major revisions to the metric system resulted in a “new” metric system know as SI after the initial letters of its French name *Système International d’Unités*. The revisions were adopted at a General Conference of the Weights and Measures held by countries using the metric system and resulted in the creation of the International Systems of Units.

Determine if the measurements below are referring to length, volume or mass.

- | | | | |
|-----------|-------|------------|-------|
| 1. 2.0 m | _____ | 6. 10.4 mg | _____ |
| 2. 3.0 L | _____ | 7. 20.6 kg | _____ |
| 3. 4.5 cm | _____ | 8. 100 mm | _____ |
| 4. 5.9 g | _____ | 9. 245 kL | _____ |
| 5. 2.0 mL | _____ | 10. 3 dL | _____ |

Match each measurement on the left with the most appropriate unit on the right.

- | | | |
|-----------|----------------------------------|----------|
| 11. _____ | Width of the tip of a shoelace | |
| 12. _____ | Length of 12 city blocks | A. meter |
| 13. _____ | Mass of a turkey | |
| 14. _____ | Width of your hand | B. liter |
| 15. _____ | Amount of ink a pen will hold | |
| 16. _____ | Height of a giraffe | C. gram |
| 17. _____ | Mass of a nickel | |
| 18. _____ | Amount of water a sink will hold | |
| 19. _____ | Amount of soda in a bottle | |
| 20. _____ | Mass of a middle school student | |