

Homework Help for Math Out of the Box

Developing Measurement Benchmarks: Tools and Time

Information about homework assignments is provided to help parents and other homework helpers with the mathematics ideas that are being developed. The homework help includes definitions of key vocabulary, questions to ask that will help students connect to the classroom investigations, problem solving examples, and other helpful explanations.

Homework 5A1 follows Lesson 4

The U.S. customary units are a system of weights and measures used in the United States that are based on an earlier system developed in England. The basic units of length are the inch, foot, yard, and mile.

The first metric system was developed in France. This system was developed to relate to the number system of tens. Today, the metric system is the International System of Units, and its basic unit of length is the meter. The government agency that sets the standards for measurement systems in the United States is the National Institute of Standards and Technology (NIST). More information about units of measurement can be found at the NIST website.

Fifth grade students should recognize relationships between units within the two systems.

Metric System

From the National Institute for Standards and Technology

10 millimeters (mm) = 1 centimeter (cm)
10 centimeters = 1 decimeter (dm) = 100 millimeters
10 decimeters = 1 meter (m) = 1000 millimeters
10 meters = 1 dekameter (dam)
10 dekameters = 1 hectometer (hm) = 100 meters
10 hectometers = 1 kilometer (km) = 1000 meters

United States Customary System

From the National Institute for Standards and Technology

12 inches (in) = 1 foot (ft)
3 feet = 1 yard (yd)
16½ feet = 1 rod (rd), pole, or perch
40 rods = 1 furlong (fur) = 660 feet
8 furlongs = 1 U.S. statute mile (mi) = 5280 feet
1852 meters = 6076.115 49 feet (approximately)
= 1 international nautical mile



Homework 5B1 follows Lesson 9

Perimeter is the distance around a figure. Units of length, including both customary and metric, should be used to measure around figures.

Area is the measurement of a surface. Measurements of area are units of length squared. For example, a rectangular table might have a surface of 18 square feet.

Units of length are also used to measure volume. With volume, the units are cubed. A small box might have a volume of 25 cubic centimeters.

Fifth graders should have strategies to determine perimeter, area, and volume of polygons and rectangular prisms.

Homework 5C1 follows Lesson 12

To help fifth graders with elapsed time, use everyday questions such as the following:

How long is the school day?

How much time elapsed between waking up and going to bed?

How much time elapsed between soccer practices?

Homework 5D1 follows Lesson 19

The terms mass and weight are used interchangeably in everyday life. Mass is a measure of the amount of matter in an object, and weight is the measure of the force exerted on the object by gravity.

Common units for weight in the US Customary System are ounces, pounds, and tons. The metric units for mass are as follows:

Metric System Units of Mass From the National Institute for Standards and Technology

10 milligrams (mg) = 1 centigram (cg)
10 centigrams = 1 decigram (dg) = 100 milligrams
10 decigrams = 1 gram (g) = 1000 milligrams
10 grams = 1 dekagram (dag)
10 dekagrams = 1 hectogram (hg) = 100 grams
10 hectograms = 1 kilogram (kg) = 1000 grams
1000 kilograms = 1 megagram (Mg) or 1 metric ton(t)

