

Dimensions Math

Grade 4 Letter Home #10

Chapter 10 Measurement

Dimensions Math
Letters Home

Home Connection

In Chapter 10, your child will build on their understanding of measurement. In Dimensions Math 3B, students measured and calculated with metric units of measurement. After a brief review of the metric measurements and calculations, your child will extend their knowledge to customary units of length, weight, capacity, and time. In addition, your child will practice multiplying fractions by whole numbers to convert units of measurement.

Length

Your child will begin by converting length given in compound units to the same units. For example, 1 foot 3 inches is equal to 15 inches. They can then compare the two friends' heights.

I am 4 feet and 6 inches tall.



I am 51 inches tall.



We can find Sofia's height in inches:

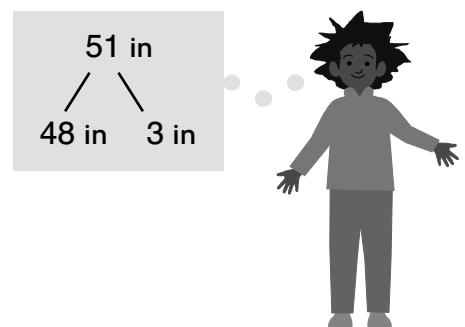
$$4 \text{ ft} = 4 \times 12 \text{ in} = 48 \text{ in}$$

$$48 \text{ in} + 6 \text{ in} = 54 \text{ in}$$

$$51 \text{ in} = 48 \text{ in} + 3 \text{ in}$$

$$= 4 \text{ ft} 3 \text{ in}$$

Your child will then add and subtract units of length. For example:
A green ribbon is 4 ft 7 in long. A red ribbon is 2 ft 9 in long.



What is their total length?

First add the feet: $4 \text{ ft} + 2 \text{ ft} = 6 \text{ ft}$

Then add the inches:

$$7 \text{ in} + 9 \text{ in} = 15 \text{ in} = 1 \text{ ft} 3 \text{ in}$$

$$6 \text{ ft} + 1 \text{ ft} 3 \text{ in} = 7 \text{ ft} 3 \text{ in}$$

What is the difference in their lengths?

First subtract the feet:

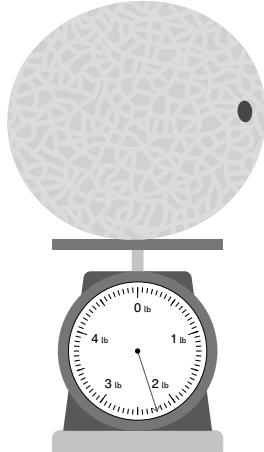
$$4 \text{ ft} 7 \text{ in} - 2 \text{ ft} = 2 \text{ ft} 7 \text{ in}$$

Then subtract the inches:

$$2 \text{ ft} 7 \text{ in} - 9 \text{ in} = 1 \text{ ft} 10 \text{ in}$$

Weight

Students will complete similar problems converting between pounds (lb) and ounces (oz), and then adding and subtracting pounds and ounces.



To convert the weight of the cantaloupe from pounds and ounces to ounces, we multiply the number of pounds by 16 and add in the additional ounces:

$$2 \times 16 = 32$$

$$32 + 4 = 36$$

The cantaloupe weighs 36 oz.

The cantaloupe weighs 2 lb 4 oz.

Capacity

Units of capacity can be harder for students. Students do not need to memorize the conversions; they will be provided throughout the Dimensions Math materials.

Fluid ounces (fl oz), cups (c), pints (pt), quarts (qt), and gallons (gal) are customary units of capacity.

$$\begin{aligned}1 \text{ c} &= 8 \text{ fl oz} \\1 \text{ pt} &= 2 \text{ c} \\1 \text{ qt} &= 4 \text{ c} \\1 \text{ qt} &= 2 \text{ pt} \\1 \text{ gal} &= 4 \text{ qt}\end{aligned}$$

$$\begin{aligned}1 \text{ c} &= 16 \text{ tbsp} \\1 \text{ tbsp} &= 3 \text{ tsp}\end{aligned}$$



Time

Your child will also convert between units of time, and will add and subtract time in compound units of seconds, minutes, and hours.



1 hour = 60 minutes
1 minute = 60 seconds

$$2 \text{ h} \longrightarrow 2 \times 60 = 120$$

$$120 + 19 = 139$$

$$139 \text{ min} \times 60 = 8,340$$

How many minutes did it take the runner to complete the marathon?

How many seconds did it take the runner to complete the marathon?

The runner took 139 minutes to complete the marathon.

The runner took 8,340 seconds to complete the marathon.

Finally, your child will express a fraction of a larger unit of measurement as a smaller unit of measurement, and express a smaller unit of measurement as a fraction of a larger unit of measurement.

A melon weighs $\frac{3}{8}$ lb. Express the weight of the melon in ounces.

$$\frac{3}{8} \text{ lb} = \frac{3}{8} \times 16 \text{ oz} = 6 \text{ oz}$$

The melon weighs 6 oz.

A tree is $5\frac{3}{8}$ meters tall. How tall is the tree in meters and centimeters?

$$\frac{3}{5} \times 100 = 60$$

The tree is 5 m 60 cm.

What can we do at home?

- Because your child is putting together all they have learned this year in addition, subtraction, multiplication, division, mental math, and measurement, they may be overwhelmed with some of the problems. Encourage your child to persevere while practicing and celebrate all that they understand and apply!