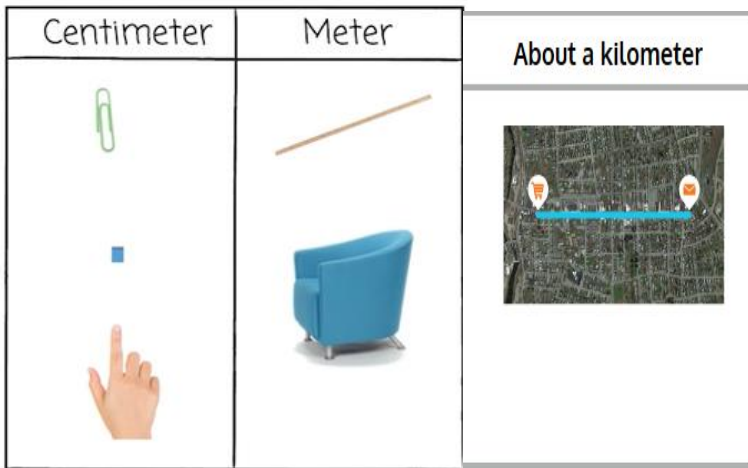


4th Grade Mission 2 Notes

Measurement



A centimeter is smaller than a meter.

A kilometer is bigger than a meter.

When you change from one unit of measurement to another, it is called **converting**.

km	m
1	1,000
2	2,000
3	3,000
7	7,000
70	70,000

1 kilometer (km) = 1,000 meters (m)

1 meter (m) = 100 centimeters (cm)

m	cm
1	100
4	400
7	700
60	6,000
140	14,000

mixed unit

1 km 500 m

When working with mixed unit, convert one unit to match the other. Then, add the like units together.

Convert 1 km 500 m to meters.

$$1 \text{ km } 500 \text{ m} = ? \text{ m}$$

$$1,000 \text{ m} + 500 \text{ m} = 1500 \text{ m}$$

$$1 \text{ km } 734 \text{ m} + 4 \text{ km } 396 \text{ m}$$

$$1,734 \text{ m} + 4,396 \text{ m} = 6,130 \text{ m}$$

$$= 6 \text{ km } 130 \text{ m}$$

Mass/Weight

Mass

kg	g
1	1,000
2	2,000
3	3,000
4	4,000
5	5,000
6	6,000
7	7,000
8	8,000
9	9,000
10	10,000

1 kilogram (kg) = 1,000 grams (g)

A kilogram is heavier than a gram.

$$1 \text{ kg } 300 \text{ g} = 1300 \text{ g}$$

$$2,500 \text{ g} = 2 \text{ kg } 500 \text{ g}$$

Converting mixed units

$$\begin{aligned} & 8 \text{ kg} + 8,200 \text{ g} \\ &= 8,000 \text{ g} + 8,200 \text{ g} \\ &= 16,200 \text{ g} \\ &= 16 \text{ kg } 200 \text{ g} \end{aligned}$$

First- convert to the smaller unit.

Second- add or subtract the like units.

Third- convert the sum back to a mixed unit.

$$10 \text{ kg} - 2 \text{ kg } 250 \text{ g}$$

Step 1

$$\begin{array}{r} \\ \\ 10,000 \text{ g} \\ - 2,250 \text{ g} \\ \hline 7,750 \text{ g} \end{array}$$

Step 2

$$7 \text{ kg } 750 \text{ g}$$

Step 3

Capacity

1 Liter (L) = 1 kilogram (kg) so 1 Liter (L) = 1,000 grams (g)

1 Liter (L) = 1,000 milliliters (mL)

$$5 \text{ L } 246 \text{ mL} = 5246 \text{ mL}$$

$$14 \text{ L } 6 \text{ mL} = 14,006 \text{ mL}$$

Two different ways to solve this problem:

$$32 \text{ L } 420 \text{ mL} + 13 \text{ L } 585 \text{ mL} =$$

$$\begin{array}{r} 32 \text{ L } 420 \text{ mL} \\ + 13 \text{ L } 585 \text{ mL} \\ \hline 45 \text{ L } 1,005 \text{ mL} \\ - \quad \quad \quad \text{1 L } 5 \text{ mL} \\ \hline 46 \text{ L } 5 \text{ mL} \end{array}$$

Add the like units. If you have 1,000 or more mL, convert them to L. Add the new L number to the L number in the original sum.

$$\begin{array}{l} 32 \text{ L} + 13 \text{ L} = 45 \text{ L} \\ 420 \text{ mL} + 585 \text{ mL} = 600 \text{ mL} + 405 \text{ mL} \\ = 1,005 \text{ mL} \\ = 1 \text{ L } 5 \text{ mL} \end{array}$$

Add the L first. Then add the mL. If there are 1,000 or more mL, then convert them to L. Add the new L number to the L sum from step 1.

$$45 \text{ L} + 1 \text{ L} + 5 \text{ mL} = 46 \text{ L } 5 \text{ mL}$$

$$\begin{array}{r} \text{ L } \text{ mL} \\ 12 \text{ L } 215 \text{ mL} \\ - 8 \text{ L } 600 \text{ mL} \\ \hline 3 \text{ L } 615 \text{ mL} \end{array}$$

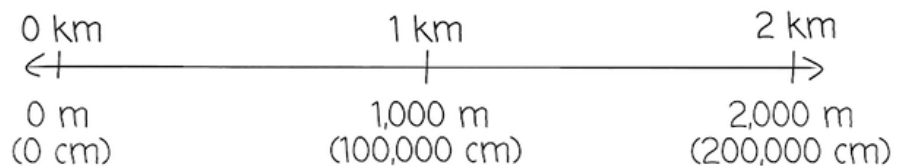
$$\begin{array}{l} 1 \text{ L} = 1,000 \times 1 \text{ mL} \\ 1 \text{ kg} = 1,000 \times 1 \text{ g} \\ 1 \text{ km} = 1,000 \times 1 \text{ m} \end{array}$$

$$\begin{array}{l} 1 \text{ thousand} = 1,000 \times 1 \text{ one} \\ 1 \text{ ten thousand} = 1,000 \times 1 \text{ ten} \\ 1 \text{ hundred thousand} = 1,000 \times 1 \text{ hundred} \end{array}$$

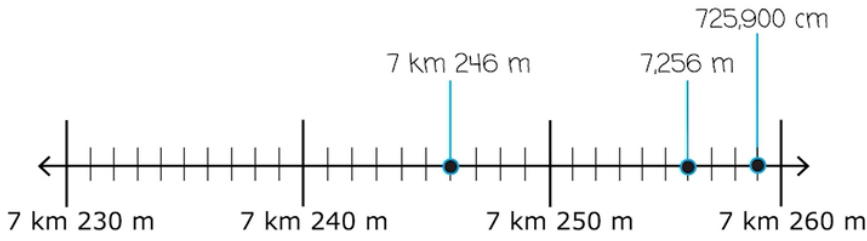
$$\begin{array}{l} 1 \text{ m} = 100 \text{ cm} \\ 1 \text{ L} = 1,000 \text{ mL} \end{array}$$

$$\begin{array}{l} 1 \text{ hundred} = 100 \text{ ones} \\ 1 \text{ thousand} = 1,000 \text{ ones} \end{array}$$

$$1,200 \text{ mL} = 1 \text{ L } 200 \text{ mL}$$



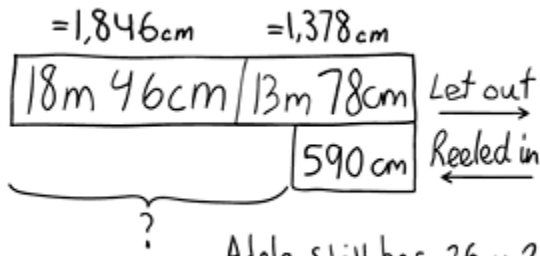
$$\begin{array}{l} 1 \text{ m} = 100 \text{ cm} \\ 1 \text{ km} = 1,000 \text{ m} \\ 1 \text{ km} = 1,000 \times 100 \text{ cm} = 100,000 \text{ cm} \end{array}$$



$$7 \text{ km } 246 \text{ m} < 7,256 \text{ m} < 725,900 \text{ cm}$$

Adele let out 18 meters and 46 centimeters of string to fly the kite. She then let out 13 meters and 78 centimeters more before reeling back in 590 centimeters.

How much string does Adele still have out?



Adele still has 26m 34 cm of string out.

$$\begin{array}{r} 1,846 \\ + 1,378 \\ \hline 3,224 \end{array}$$

$$\begin{array}{r} \times 12 \\ 2,284 \\ - 590 \\ \hline 2,634 \\ = 26\text{m } 34\text{ cm} \end{array}$$