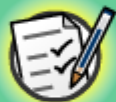


$$5 \times 7 = 35$$
$$20 + 2 = 22$$

# Converting Measures



## Common core icons



This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.



Slides containing examples of mathematical modeling are marked with this stamp.



This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

- 1) **Make sense of problems and persevere in solving them.**
- 2) **Reason abstractly and quantitatively.**
- 3) **Construct viable arguments and critique the reasoning of others.**
- 4) **Model with mathematics.**
- 5) **Use appropriate tools strategically.**
- 6) **Attend to precision.**
- 7) **Look for and make use of structure.**
- 8) **Look for and express regularity in repeated reasoning.**



This icon indicates that the slide contains activities created in Flash. These activities are not editable.



This icon indicates teacher's notes in the Notes field.



I need to know how big this box is. There are many different ways I could measure this, and many different units I could use.



**How many units of measurement can you name?**

miles

inches

gallons

grams

pounds

centimeters

feet

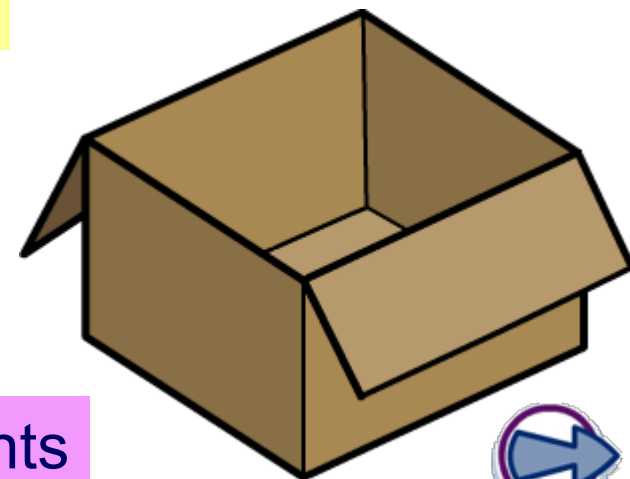
ounces

tons

meters

kilograms

pints



# Units of measurement



All of these units are different. Some are **standard**, and some are **metric**. Some measure **length**, some measure **mass** and some measure **capacity**.



miles

inches

gallons

grams

pounds

feet

centimeters

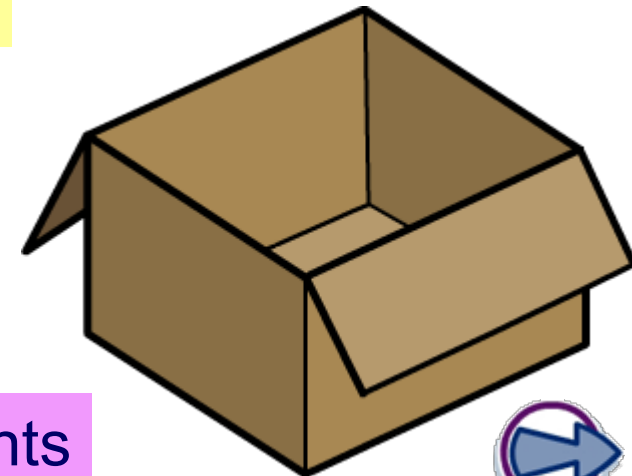
ounces

tons

meters

kilograms

pints

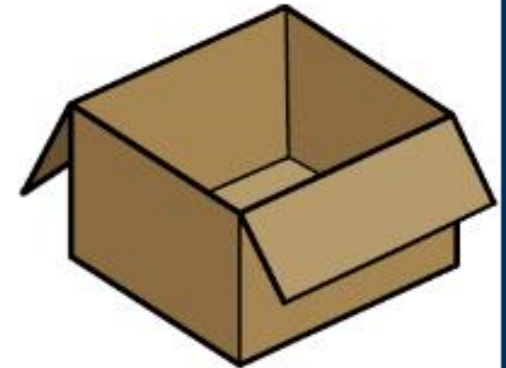


# Choosing appropriate units

It is important to choose the right units for what we want to measure.



miles                      inches                      liters                      kilometers  
grams                      feet                      pounds                      gallons  
centimeters                      tons                      ounces  
milliliters                      kilograms  
meters                      pints

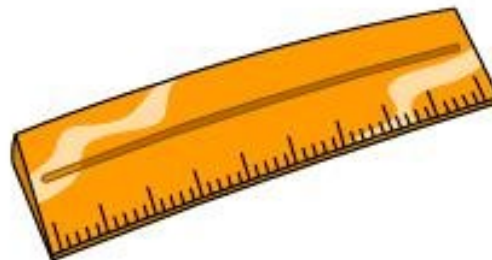


# Which units?



Which units would you  
use to measure each  
of these things?

Press **start** to begin.



start



# Standard or metric?

Metric

Standard

Can you remember which of these units are **standard** and which are **metric**?  
Drag each unit into the correct box.

Press **start** to begin

start

liter



Do you remember how to convert between metric units?



*Kilogram, kilometer; millimeter, milliliter – these words have something in common!*

“**Kilo**” means one thousand:

1,000 meters is 1 **kilo**meter.

1,000 grams is 1 **kilo**gram.

“**Centi**” means one hundredth:

1 meter is 100 **centi**meters.

“**Milli**” means one thousandth:

1 liter contains 1,000 **milli**liters.

1 meter is 1,000 **milli**meters.







The metric system uses prefixes:

**Kilo-** *a thousand*

**Centi-** *one hundredth*

**Milli-** *one thousandth*

... and **base units**:

The base unit for length is a **meter**.

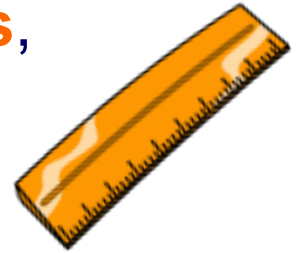
The base unit for mass is a **gram**.

The base unit for capacity is a **liter**.





The metric units for length are **kilometers**, **meters**, **centimeters** and **millimeters**.



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

1 meter (**m**) = 100 centimeters (**cm**)

1 meter (**m**) = 1,000 millimeters (**mm**)

1 centimeter (**cm**) = 10 millimeters (**mm**)





The metric units of capacity are **liters**, **centiliters** and **milliliters**.

$$1 \text{ liter (L)} = \underline{100} \text{ centiliters (cL)}$$

$$1 \text{ liter (L)} = \underline{1,000} \text{ milliliters (mL)}$$

$$1 \text{ centiliter (cL)} = \underline{10} \text{ milliliters (mL)}$$



The metric units for mass are **kilograms** and **grams**.

$$1 \text{ kilogram (kg)} = \underline{1,000} \text{ grams (g)}$$



1 centimeter

100 centimeters

1

Can you match the equal measurements to make five pairs?  
Press **start** to begin.

1 k

1 k

1 liter

1,000 grams

**start**





Nicole is selling lemonade. She has a 3 L jug of lemonade to sell, and she is serving the lemonade in 200 mL cups. How many cups will she need to hold all the lemonade?





Standard units do not use multiples of ten, so they can be harder to remember than metric. I'm making a chart to help me learn them. Can you help me finish it?



Length	Mass	Capacity
12 in = <u>  1  </u> ft	<u>  16  </u> oz = 1 lb	<u>  2  </u> pts = 1 qt
<u>  3  </u> ft = 1 yd	<u>2,000</u> lb = 1 T	<u>  4  </u> qts = 1 gal
5,280 ft = <u>  1  </u> mi		



Alex is 5 feet tall, and Nicole is 63 inches tall. Who is taller?



A horizontal toolbar containing a trash can, a yellow highlighter, a white eraser, and a set of navigation controls (back, forward, double forward, refresh, and question mark buttons).



Test your knowledge of converting measures in this team quiz!

Divide into two teams: A and B. If your team answers a question correctly, your team's basketball player will score a point. The team with the highest score wins!

Press **start** to begin.

**start**

