

# Converting Between Units of Length

The **wrong** way

$$1.83 \text{ m} \times \left( \frac{1 \text{ m}}{3.28 \text{ ft}} \right) = 0.56 \frac{\text{m}^2}{\text{ft}}$$

conversion factor

The **right** way

$$1.83 \text{ m} \times \left( \frac{1 \text{ ft}}{0.305 \text{ m}} \right) = 6 \text{ feet}$$

conversion factor

# Metric Prefixes

Prefix	Meaning	
giga (G)	1 billion	1,000,000,000
mega (M)	1 million	1,000,000
kilo (k)	1 thousand	1,000
centi (c)	1 one-hundredth	0.01
milli (m)	1 one-thousandth	0.001
micro ( $\mu$ )	1 one-millionth	0.000001

# Converting Grams to Kilograms



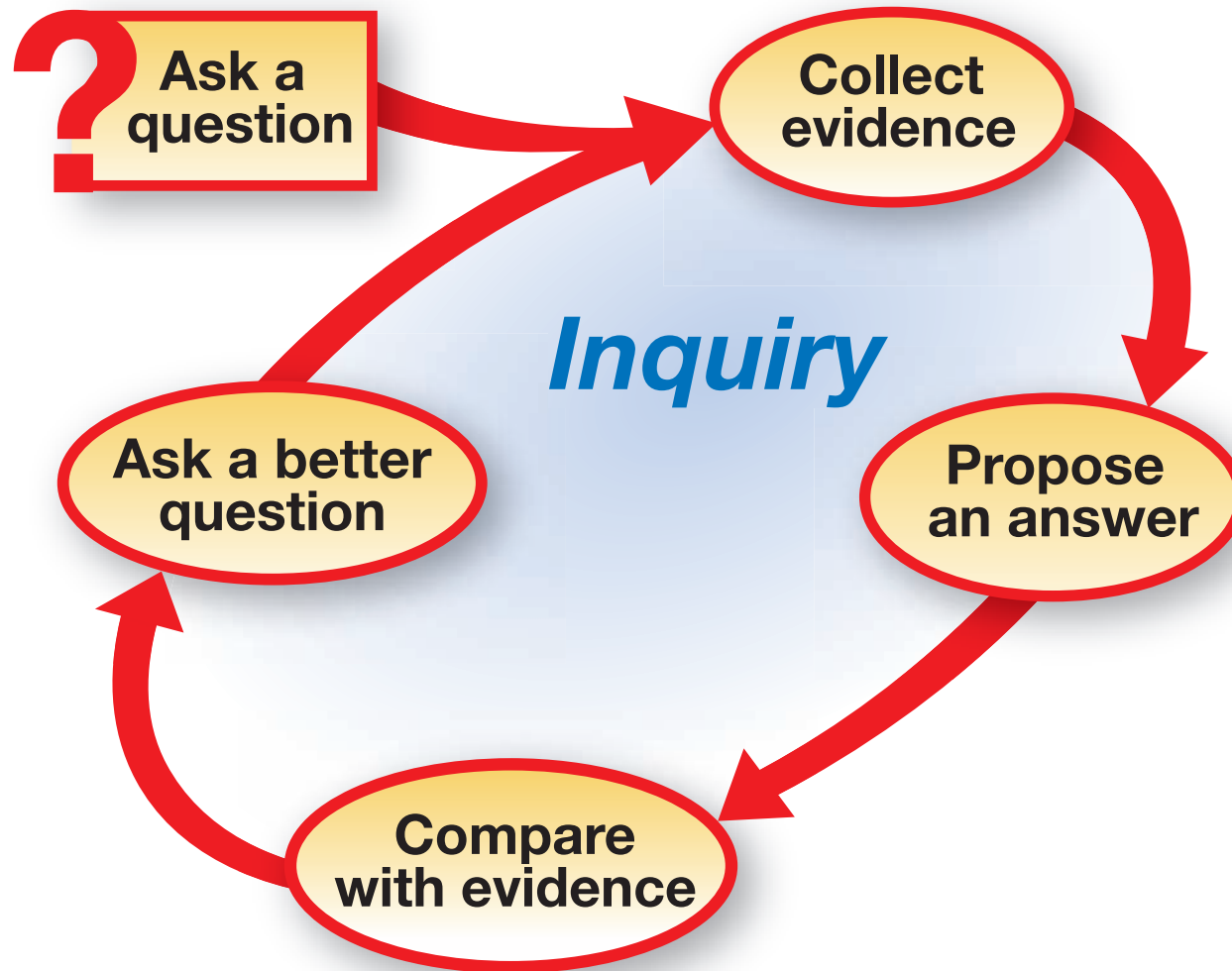
**Electronic balance**

**Converting from grams to kilograms**

$$96.2 \cancel{\text{g}} \times \frac{1 \text{ kg}}{1,000 \cancel{\text{g}}} = 0.0962 \text{ kg}$$

$$96.2 \text{ g} = 0.0962 \text{ kg}$$

# Steps in Learning Through Inquiry



# Forms of the Speed Equation

Equation	gives you	if you know
$v = d \div t$	speed	distance and time
$d = vt$	distance	speed and time
$t = d \div v$	time	distance and speed

# Steps to Solving a Problem

## Step 1

*What do you want to find?*



## Step 2

*What do you know?*



## Step 3

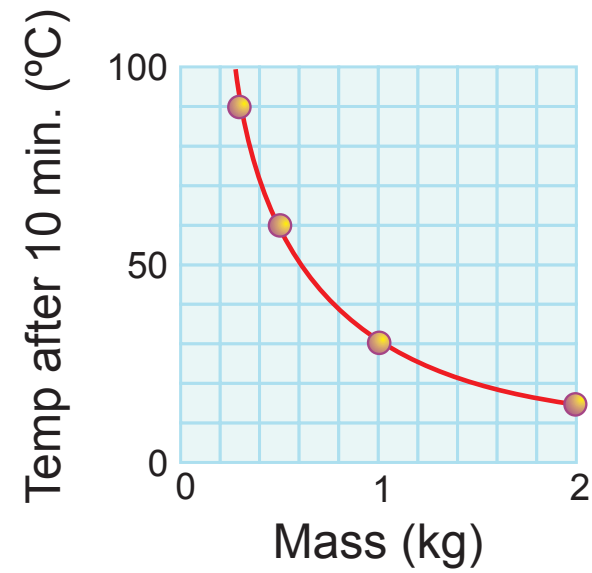
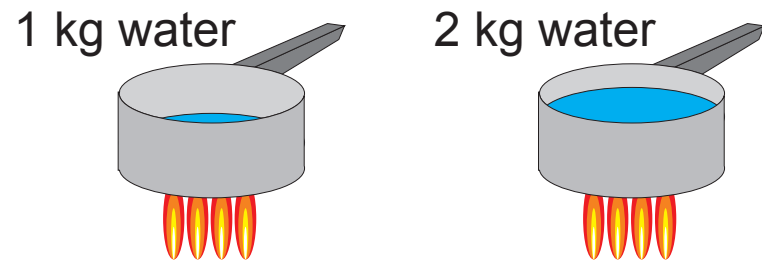
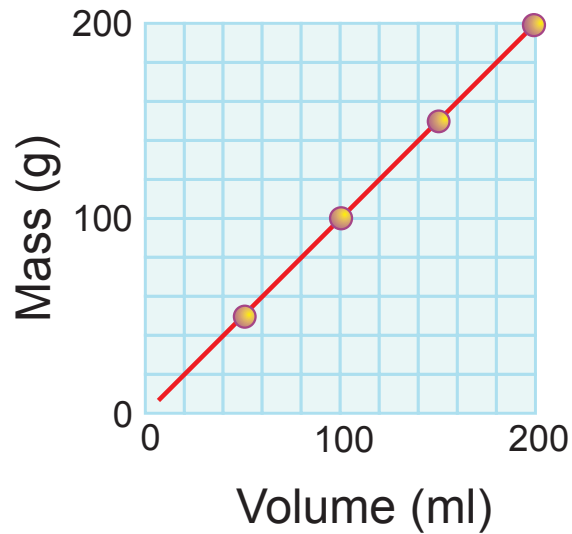
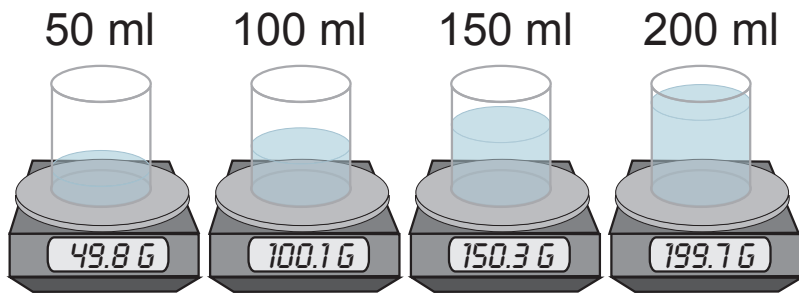
*Identify useful relationships*



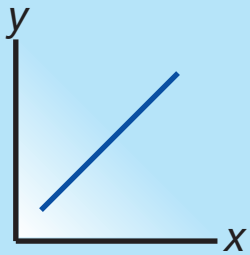
## Step 4

**Solve the problem**

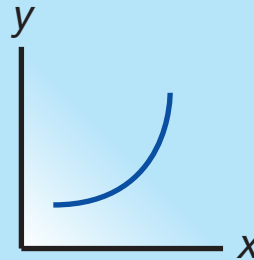
# Direct and Inverse Relationships



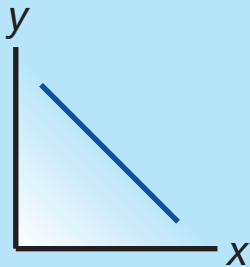
# Relationships Between Variables



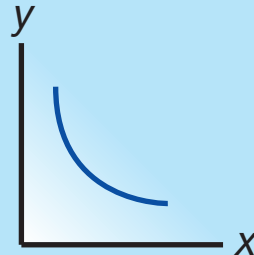
This graph shows a **direct linear relationship**, as the value of  $x$  is increasing as the value of  $y$  also increases.



This graph shows a **direct nonlinear relationship**. The curve slopes upward from left to right.



This graph shows an **inverse linear relationship**. As  $x$  increases,  $y$  decreases.



This graph shows an **inverse nonlinear relationship**. The value of  $y$  decreases quickly as the value of  $x$  increases.

## Linear and Nonlinear Relationships