

4.3 Mass in the Systeme International

1000 grams (g) = 1kilogram (kg)

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1 tonne (t) = 1000 kilograms (kg)

↪ metric tonne

4.3 Mass in the Système International

In the SI, the basic unit of mass is the **kilogram**. The common units of mass are:

grams (g)	1 kilogram (kg)
milligrams (mg)	1 gram
1 tonne (t)	kilograms

Note: tonne (t) is not the same as ton (tn)

A. Working with kilograms and tonnes

Example 1

- Four boxes of apples weigh: 1550 g, 1675 g, 1735 g, and 1900 g
- A truck weighs 2.10 tonnes

- What is the total weight in kilograms?

6860g

$\times \frac{1000 \text{ kg}}{1 \text{ t}} = 2100 \text{ kg}$

$6860 \text{ g} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 6.86 \text{ kg}$

Total: 2100 kg
 $+ 6.86 \text{ kg}$

 2106.86 kg

B. Converting kilograms to pounds**Example 2**

- 220 g flour
- convert to:

a) kilograms

$$220\cancel{\text{g}} \times \frac{1 \text{ kg}}{1000\cancel{\text{g}}} = 0.22 \text{ kg}$$

b) ~~pounds~~ milligrams

$$220\cancel{\text{g}} \times \frac{1000\text{mg}}{1\cancel{\text{g}}} = 220\,000\text{mg}$$

Example 3

- The cost of ham (deli meat) is $\$2.99/100\text{g}$ at Store 1
- The cost of ham (deli meat) is $\$10.98/\text{kg}$ at Store 2
- Which is the better buy?

$$\frac{\$2.99}{100\text{g}} \times \frac{1000\text{g}}{1\text{kg}} = \frac{\$29.90}{\text{kg}}$$

Store 2 is the better buy.