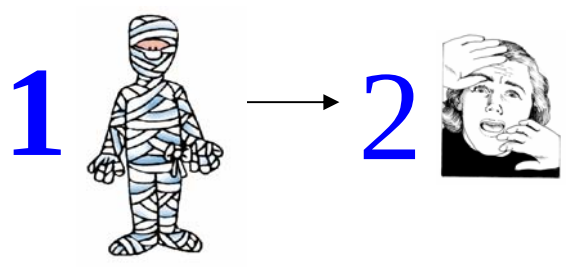
Moles for Mummies

It seems like a tough topic, but soon you'll say, "My God, a mummy can learn this!"

Equation to represent: "Each mummy gets two people scared"



Equation to represent: 1 mole of H_2SO_4 produces 2 moles of H_2O

1 H_2SO_4 + 2 NaOH→**2** H_2O + Na_2SO_4

How many mummies are needed to scare 8 people?

How many moles of H_2SO_4 must react to produce 8 moles of water?

Proportion method:

$$\frac{mummies}{1} = \frac{scared\ people}{2}$$

$$\frac{x}{8}$$

Cross multiply:

2x = 8

x = 4 mummies

Unit Conversion Method(ratio):

$$8\,scared\ people\left[\frac{1\,mummy}{2\,scared\ people}\right] =$$

$$8 \times 1 \div 2 = 4\ mummies$$

Notice there is no equal sign; it's just a whole number multiplied by a fraction. The "scared people" goes into the denominator to cancel the "scared people" attached to the number 8.

Proportion method:

$$\frac{H_2SO_4}{1} = \frac{H_2O}{2}$$

$$\frac{x}{8}$$

Cross multiply:

2x = 8

x = 4 moles of H_2SO_4

Unit Conversion Method(ratio):

$$8\,moles\,H_2O\left[\frac{1\,H_2SO_4}{2\,H_2O}\right] =$$

$$8 \times 1 \div 2 = 4\ moles\,H_2SO_4$$

But remember: you can only compare moles in a proportion; you can't assume those numbers mean grams, and you can't mix grams with moles.

If you are given grams, convert first to moles.

If you are asked for grams, get moles from the ratio, and then convert.

Assumptions: We have a spooky and dark

Assumption: we have enough NaOH to

enough pyramid to let the mummies do their scary stuff. **Mummies die again after scaring people.**	**completely use up the four moles of H_2SO_4**