The dozen is a unit of counting objects.

1. How many eggs are there in a dozen eggs?
2. How many pencils are in a dozen pencils?
3. Write two forms of the conversion factor that will help convert a dozen to number of objects and number of objects to dozen.
4. Using the appropriate conversion factor in #3, convert 3.75 dozen eggs to number of eggs.
5. Using the appropriate conversion factor in #3, convert 248 eggs into dozens of eggs.

Similarly, the **mole** (mol) is a unit for counting objects. It is especially useful for counting tiny objects like atoms, molecules, ions, and formula-units.

**1 mole of objects = 6.022 x 1023 objects**

1. How many atoms of copper are in 1 mole of copper?
2. How many molecules of water are in 1 mole of water?
3. Write two forms of the conversion factor that will convert one mole to number of objects and number of objects to moles.
4. Using the appropriate conversion factor in # 8, how many atoms of zinc are in 10.2 moles of zinc?
5. Using the appropriate conversion factor in # 8, find out many moles of water contain 1.51 x 1024 molecules of water.

**Fun Questions:**

1. A grocery store has 75 dozen packages of hot dogs in stock. If there are 10 hot dogs in each package, how many moles of hot dogs is this?
2. Estimate the number of times a human heart beats during a life time of 80 years. Express this number in moles.