**MOLEcular Mathematics**   
To solve the puzzle and get the message, use your calculator to do the calculations. Then invert the calculator and read off the message word(s). For example, "11345" is "shell". Insert the message words in the sentences at the bottom of the page. Round off all atomic masses to the nearest whole number before using them.

**1 a)   i) Mass of 100 moles of Arsenic                    = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii) Add the mass of 1 mole of Cesium to (i)     = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii) Add 101 to (ii)                                              = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (a)                                      = \_\_\_\_\_\_\_\_\_\_\_\_**

**b)  i)  Number of moles in 10003 g of Hydrogen = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add the mass of 3281 moles of Carbon     = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  Add 1(a)(iii) to (ii)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**c)  i)  Mass of 10 moles of Germanium               = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add mass of 1 moles of Neon to (i)            = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  Subtract mass of 1 moles of Calcium**   
**from (ii)                                                       = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (c)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**d)  i)  Multiply 1(c)(iii) by 10                               = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add mass of 5 moles of Neon to (i)           = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  Subtract 95 from (ii)                                  = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (d)                                    = \_\_\_\_\_\_\_\_\_\_\_\_**

**2 a)  i)  Number of moles in 8385 g of Potassium  = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  (i) multiplied by the atomic mass of Neon  = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  (ii) added to 511208                                    = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (a)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**b)   i)  2(a)(iii) multiplied by 14                             = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Mass of 37243 moles of Nitrogen             = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  (i) added to (ii)                                            = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**3 a)  i)  Mass of 5 moles of Iron (II) metasilicate   = \_\_\_\_\_\_\_\_\_\_\_\_   (FeSiO3)**   
**ii)  Add number of moles in 1102 g Fluorine    = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  Subtract (ii) from 1606                                 = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (a)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**

**b)  i)  Mass of 151 moles of Vanadium                 = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add mass of 2 moles of Neon minus 6        = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**

**c)  i)  Mass of 1005 moles of Sodium                   = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  8226 added to (i)                                          = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  (b)(ii) added to (ii)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (c)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**

**4 a)  i) Mass of 3000 moles of Sodium nitrate      = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii) Add the mass of 1000 moles of Lead         = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii) Subtract the mass of 21346 moles**   
**of Helium                                                      = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (a)                                       = \_\_\_\_\_\_\_\_\_\_\_\_**

**b)  i)  Mass of 24 moles of Ammonium fluoride  = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add the atomic mass of Hydrogen plus**   
**that of Oxygen                                            = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**c) i)  Mass of 100 moles of Manganese             = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Add the molar mass of Lithium                  = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (c)                                      = \_\_\_\_\_\_\_\_\_\_\_\_**

**5 a)  i) Mass of 1100 moles of Chromium             = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii) Subtract 3481 from (i)                                 = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii) Subtract the mass of 0.125 mole of**   
**Cadmium                                                     = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (a)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**b) i) Take the atomic number of Mercury**   
**multiplied by its molar mass                      = \_\_\_\_\_\_\_\_\_\_\_\_**   
**ii)  Subtract (the number of electrons in**   
**Oxygen's outer shell times its atomic**   
**mass) from (i)                                              = \_\_\_\_\_\_\_\_\_\_\_\_**   
**iii)  Add the mass of 436 moles of Nitrogen**   
**gas plus 30957 to (ii)                                   = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**6 a) i)  Mass of 23538 moles of Oxygen atoms    = \_\_\_\_\_\_\_\_\_\_\_\_**   
**Word answer to (b)                                     = \_\_\_\_\_\_\_\_\_\_\_\_**

**1) It is said that in \_\_\_\_\_\_\_\_ the water \_\_\_\_\_\_\_\_\_\_, and hot \_\_\_\_\_\_\_ rises from the \_\_\_\_\_\_\_\_.**

**2) My \_\_\_\_\_\_\_\_\_\_\_\_ calling me with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**3) \_\_\_\_\_\_\_\_\_ the paper boy might \_\_\_\_\_\_\_\_\_ you the \_\_\_\_\_\_\_ and Mail.**

**4) A \_\_\_\_\_\_\_\_\_\_\_\_ is the opposite of a \_\_\_\_\_\_\_\_, as a win is the opposite of a \_\_\_\_\_\_\_\_\_.**

**5) Paul Simon once sang of South-African miners with diamonds on the \_\_\_\_\_ of their \_\_\_\_\_\_\_\_.**

**6)  I hope this did not \_\_\_\_\_\_\_\_\_ your mind.**