Amount of Substances

**Balance the equation if needed**

**Masses from the question**

**Calculate the Mr**

**Calculate the number of moles**

**Work out the ratio**

**Calculate the mass**

1. A student reacts 45g of lithium with oxygen to make lithium oxide. What mass of lithium oxide is produced?  
   *4Li + O2 🡪 2Li2O*
2. Magnesium reacts with oxygen to form magnesium oxide (MgO). Calculate how much magnesium oxide is produced from 13.60g of magnesium.  
   *2Mg + O2 🡪 2MgO*
3. *2Li + F2 🡪 2LiF*
   1. *Show that 31g of Lithium produces approximately 115g of lithium fluoride.*
   2. *Show that 90g of fluorine produces approximately 123g of lithium fluoride.*
   3. *How much lithium was used if 87g of lithium fluoride is produced?*
4. *2Ca + O2 🡪 2CaO*
   1. Show that approximately 107g of calcium needed to produce 150g of calcium oxide.
   2. Show that the amount of calcium oxide produced from 1kg of calcium is approximately 1400g. (change everything into grams – opposite to Physics!)
   3. Calculate the amount of calcium oxide formed from 0.82g of oxygen.
5. *P4 + O2 🡪 P2O5*
   1. Show that the amount of product formed from 43g of phosphorous is just less than 100g.
   2. 21g of oxygen is used. How much product is formed?
   3. How much oxygen would be needed for 90g of product?

*It’s the same process for Q6 and Q7; but don’t balance at the beginning. Write the unbalanced equation, work to the ratio then write those numbers in next to the reactants and products in the symbol equation to balance it.*

1. Sodium nitrate, NaNO3, decomposes to give sodium nitrite, NaNO2, and oxygen gas. When 8.5g of sodium nitrate is used, 6.9g of sodium nitrite and 1.6g of oxygen is produced. Construct and balance an equation for this reaction.
2. Copper reacts with oxygen to form copper oxide, CuO. In an experiment 6.35g of copper reacts with 1.60g of oxygen. Balance an equation for this reaction.