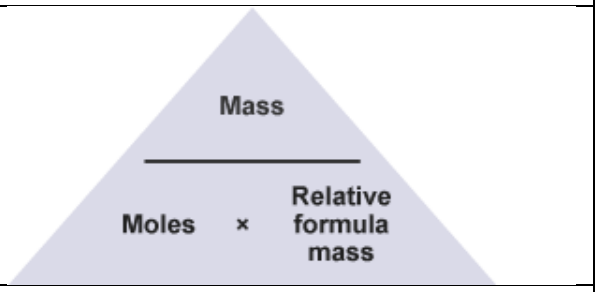
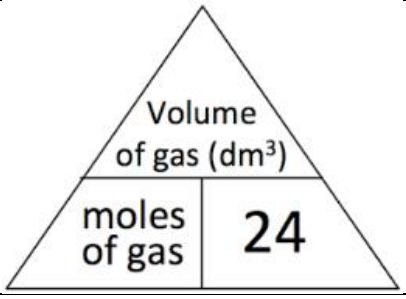
1.What is the law of conservation of matter?	No atoms are lost or made during a chemical reaction so Mass of reactants = Mass of products
2. How do you calculate the relative formula mass M_r of a compound?	Add together the relative atomic masses A_r of the elements in the compound.
3. If the following reaction was carried out in a non-enclosed system what would happen to the mass and why? $2Mg(s) + O_2(g) \rightarrow 2MgO(s)$	The mass would increase. Gaseous oxygen is added to produce a solid product.
4. If the following reaction was carried out in a non-enclosed system what would happen to the mass and why? $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$	The mass would decrease. A gaseous product is produced which can escape.
5. What is a mole	The relative formula mass M_r of a compound or the relative atomic mass A_r of an element in grams.
6. How many atoms are in 1 mole of an element?	6.02×10^{23} Avagadro's constant
7. How many molecules are in 1 mole of a compound?	6.02×10^{23} Avagadro's constant
8. What is the equation triangle for calculating moles from a mass or a mass from the number of moles?	
9. What steps do we use to calculate the unknown mass of a reactant used or a product made in a reaction given a known mass of another reactant or product?	1) Convert the known reactant or products mass into moles. 2) Use the balanced equation to tell you how many moles of the unknown reactant or product their should be. 3) Convert these moles to a mass.
10. What is a limiting reactant?	The reactant that is completely used up. Once used up the reactant stops.
11. How do you calculate the concentration (g/dm^3) of a solution?	Concentration = $\frac{\text{amount of solute (g)}}{\text{volume of solution } (dm^3)}$ (g/dm^3)
12. How can you increase the concentration of a solution?	1) Dissolve more solute in the same volume of solution. 2) Evaporate off some of the solution.
13. How do you calculate the concentration in mol/dm^3 of a solution given the mass of solute in a certain volume?	***1) Calculate the mass in grams in 1cm^3 of solution.*** ***2) Calculate the mass in 1000cm^3 of solution.*** ***3) Convert the mass to moles***

14. How do you carry out a titration to find out an unknown concentration? (this example will use acid as known and alkali as unknown)	***1) Measure 25cm3 of alkali using a pipette into a conical flask.*** ***2) Add a few drops of indicator (phenolphthalein is pink)*** ***3) Slowly add the acid from a burette swirling as you do.*** ***4) When the indicator changes (phenolphthalein goes colourless) stop adding the acid and record the volume used.*** ***5) Repeat until concordant results are obtained.***
15. How do use the results of a titration to find out an unknown concentration? (this example will use acid as known and alkali as known)	***1) Work out how many moles of the acid (known concentration) were used.*** ***2) Using the balanced equation work out how many moles of the alkali this reacted with (a simple ratio)*** ***3) This number of moles was in a given volume, so use this to calculate the moles in 1dm^3 (the concentration)***
16.What volume does 1 mole of a gas occupy at rtp (20°C and 1atms pressure)?	***24dm^3 = 24000cm^3***
17. What is the equation triangle for calculating moles of a gas from a volume or visa versa?	
18. How do you calculate % yield?	***% yield = <u>Mass of product actually made</u> x100*** ***Max theoretical mass of product***
19. Why is % yield never 100%	***1) reaction may not go to completion as it is reversible.***

	2) Some of the product may be lost when it is separated from the reaction mixture. ***3) We may get unexpected reactions.***
20. What is atom economy?	***A measure of the amount of starting material that end up a useful product.***
21. How can be calculate atom economy?	***<u>Relative formula mass of desired product</u> x 100*** ***Sum of relative formula masses of all reactants***
22. Why is a high atom economy preferable?	***1) Less raw materials are wasted.*** ***2) Less energy wasted*** ***3) Less waste produced*** ***4) More economical***