## Collisions theory

Collisions theory	
- More collisions increase rate of reaction	
Higher temperature	Higher concentration (pressure)
<ul> <li>Temperature increased = particles move quicker</li> </ul>	- More concentrated = more particles between water
- Move quicker = more frequent reactions	molecules
- High temp increases energy of collisions	- Makes collisions between particles more likely
- Faster collisions only caused by increases in temp	- In gas, increasing pressure = more particles squashed
- Reactions only happen if particles collide with enough	together = more frequent collisions
energy	
Large surface area	Catalyst
<ul> <li>Reactant is solid = smaller pieces increases surface</li> </ul>	<ul> <li>Solid catalyst works by giving reacting particles a</li> </ul>
area	surface to stick to
<ul> <li>Particles in solution have more surface area to react</li> </ul>	- Increase number of successful collisions by lowering
on = more frequent collisions	energy particles need to react
A <sub>r</sub>	
<ul> <li>Relative atomic mass, top number in periodic table</li> </ul>	
Relative formula mass (M <sub>r</sub> )	
- Sum of all the relative atomic masses, add up all masse	es in atom
e.g. $H_2O$ (1 x 2) + 16 = $M_r$ 18	
Empirical formula	
- Simplest whole number ratio of each element	
List the two elements Mg O	
Write in the experimental masses9.66.4	
Divide by the $A_r$ of each element $9.6/24 = 0.4$ $6.4$	/ 16 = 0.4
Multiply by 10 4 : 4	11K
Divide by 4 1 : 1	
Simplest formula = 1 atom of Mg + 1 atom of O = MgO	
	1.40501
Percentage mass of an element in a compour	A Constant of the second se
mon	$M_r$ ( $\mathbf{G}$ where compound
% Composition	
- Percentage what over a cheer the second	
	Actual vield = experiment vield
% yield = actual yield x 100	
Theoretical vield	Theoretical yield = calculated from balanced equation
Calculating mass	
- Write out balanced equation	
- Identify given elements	
- Find number of moles of given elements	n = m/M.
- Look at ratios of moles in equation + scale	n = number of moles
$- \qquad \text{Use } m = n \times M \text{ to find mass of unknown}$	m = mass
	M <sub>r</sub> = formula mass
E.g. How many moles is 64g of methane CH.	
List new many mores is 0-g or methane cri4	= 12
١٧١ <sub>٢</sub>	 1 x4
	16
	10
n.	- 64
113	- <del>0+</del> 16
	10
° − 1	moles
n = 4	