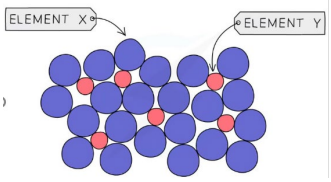
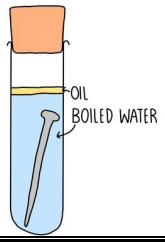
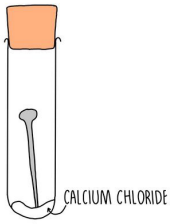
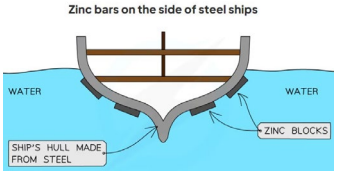
metals with high densities, high melting points, form coloured compounds & often act as catalysts	general equation (very reactive) metal + water →	general equation (reactive) metal + acid →	metal used to make • aircraft – low density • overhead electrical cables - low density and good electrical conductor • food containers – resistant to corrosion
transition metals	metal hydroxide + hydrogen	metal salt + hydrogen	aluminium, Al
metal used to make • bottom of saucepans – good heat conductor • water pipes and Plumbing – resistant to corrosion • electrical cable – good electrical conductor	a mixture of a metal with other elements is called …	brass is an alloy of a mixture of ..... and	stainless steel is an alloy or a mixture of iron and other elements such as .....
copper, Cu	an alloy	copper and zinc	chromium / nickel / carbon
why are alloys often more useful than pure metals?	why are alloys harder and stronger than the pure metals?	what is shown here? 	naming the salt If hydrochloric acid is used, the salt is a .....
alloys can be harder and stronger	different sized atoms mean layers can no longer easily slide over each other	alloy (of element X and Y)	chloride salt
naming the salt If nitric acid is used, the salt is a	naming the salt If sulfuric acid is used, the salt is a	reactivity series order mnemonic (most to least)	metals that will react with cold water
nitrate salt	sulfate salt	please send cats, monkeys and cute zebras in huge cages securely guarded	K, Na and Ca

metals that will react with steam (i) violently (ii) less violently	term for the corrosion of iron, Fe	what is needed for the rusting chemical reaction?	iron + water + oxygen → hydrated iron(III) oxide this is rusting or the ..... of iron
(i) K, Na, Ca (ii) Mg	rusting	iron, water and oxygen	corrosion / oxidation
reactivity series of metals (most to least reactive)	metals that will react with dilute HCl or dilute H_2SO_4	metals that will NOT react with dilute HCl or dilute H_2SO_4	reactive metal whose reactivity is 'hidden' by an oxide layer that forms
K Na Ca Mg Al C Zn Fe H Cu Ag Au	K, Na, Ca (violently) Mg, Zn, Fe	Cu, Ag, Au	Al
why is there no rust?  	why is there no rust?  	way of preventing rusting – example of barrier method	how does this work? 
boiling water removes the O_2; oil stops it re-entering	calcium chloride removes water (from the air)	painting / greasing / coating with plastic	more reactive Zn oxidises & corrodes first, protecting less reactive Fe from corrosion
name of process where the iron is protected from corrosion by coating with a layer of zinc	way of preventing rusting – chemical method	how the barrier method prevents rusting / corrosion	
galvanising	sacrificial protection – coated / in contact with Zn or Mg	prevents O_2 and/or H_2O reaching the Fe	