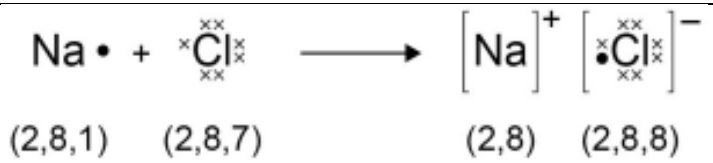
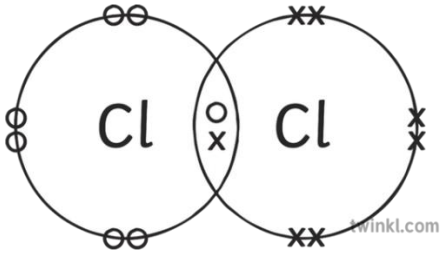
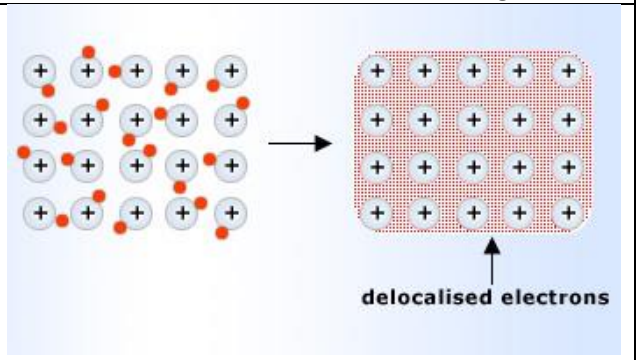
	Ionic Bonding (metal + non-metal)	
1.	Ion	an atom that has gained or lost an electron
2.	Ionic Bond	attraction of oppositely charged ions
3.	Metal ion	metals lose electrons to become positive ions
4.	Non-metal ion	non-metals gain electrons to become negative ions
5.	Electron	negatively charged sub-atomic particle
6.	Ionic Compound	a giant structure of ions held together by electrostatic forces
7.	Electrostatic forces	forces of attraction between ions
8.	Dot and Cross diagram	used to represent the electrons when bonding occurs.
9.	Ball and Stick model	using sticks to represent bonds between atoms
10.	Ionic Bonding in sodium chloride	
11.	Giant Ionic Lattice	positive and negative ions arranged in an interconnected network

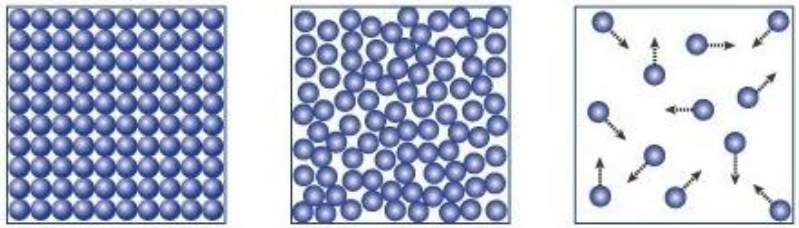
	Covalent Bonding (non-metal + non-metal)	
12.	Covalent Bond	a shared pair of electrons
13.	Covalent Bonding in Chlorine	
14.	Polymer	a large structure of repeating units (monomers) held together by covalent bonds.
15.	Molecule	more than one atom covalently bonded
16.	Intermolecular Force	the weak force of attraction between molecules
17.	Small molecules	covalently bonded & have not formed giant structures
18.	Giant Covalent Structures	many atoms in a large structure held together by strong covalent bonds.

For this section you need to be able to describe the properties of each type of bonding

	Bonding	**Properties**		
		Melting & Boiling Point	**Reason for melting/boiling point**	**Conduct Electricity?**
19.	**Ionic**	high	strong electrostatic forces between ions	yes if molten or dissolved
20.	**Simple Covalent (small molecules)**	low	only weak intermolecular forces to overcome	no
21.	**Giant Covalent**	high	lots of strong covalent bonds to overcome	no (except graphite)
22.	**Metallic**	usually high	strong electrostatic forces between ions	yes

	Metals	
23.	Metallic bonding	electrons are delocalised and free to move through the structure
24.	Delocalised Electron	an electron not held in orbit around a single atom
25.	Metallic bonding diagram	
26.	Alloy	mixture of metals (or metal & carbon)
27.	Pure Metal Structure	atoms in layers, so soft
28.	Alloy Structure	layers are distorted so harder than pure metal

	Structure & Bonding of Carbon	
29.	Diamond Structure	each carbon atom bonds to 4 others
30.	Diamond Properties	very hard, very high melting point, doesn't conduct electricity
31.	Graphite Structure	each carbon atom bonds to 3 others. layers of hexagonal rings. 1 delocalised electron
32.	Graphene	a layer of graphite
33.	Fullerenes	molecules of carbon atoms with hollow shapes
34.	Buckminsterfullerene	a spherical shaped fullerene with 60 Carbon atoms
35.	Nanotube	a cylindrical fullerene

	States of Matter	
36.	States of matter	solid, Liquid and Gas
37.	Particle diagrams	
38.	State Symbols: (s) (l) (g) (aq)	solid liquid gas aqueous (in solution / dissolved)
39.	Boiling Point	the temperature at which boiling and condensing take place
40.	Melting Point	the temperature at which melting and freezing take place