

	Topic:	The Three States (9.1.1)
1	In which state do atoms have strong bonds between them?	Solid
2	Describe motion of particles in a solid, liquid and gas	S = Vibrating, L = Sliding, G = quick & random
3	In which state can diffusion NOT happen?	Solid
4	In which states, can particles not be compressed?	Solid & liquid
5	Which state is the least dense?	Gas
6	Which state is the most dense?	Solid
7	In which state do the particles have no bonds between them?	Gas
8	In which state do particles remain in a fixed position?	Solid
9	What is the name for the change of state when a solid changes to a liquid?	Melted
10	What is the name for the change of state when a liquid changes to a gas?	Evaporation
11	What is the name for the change of state when a gas changes to a liquid?	Condensation
12	What is the name for the change of state when a liquid changes to a solid?	Freezing/solidifying
13	What is the name for the temperature where a liquid turns into a gas?	Boiling point
14	What is the name for the temperature where a solid turns into a liquid?	Melting point
15	What is the scientific name for the links between particles?	Bonds

	Topic:	Elements, Compounds, Mixtures (9.1.2)
1	Substances made of only one TYPE of atom are called...	Elements
2	Substances made of two or more types of atoms NOT chemically bonded together are called...	Mixtures
3	Substances made of two or more types of atoms chemically BONDED together are called...	Compounds
4	What is the formula for water?	H <sub>2</sub> O
5	What is the formula for Methane?	CH <sub>4</sub>
6	Define "alloy"	A mixture of a metal and at least one other element
7	Why are alloys harder than pure metals?	Different sized atoms → layers can't slide over each other
8	What is the word for an element that always exists as two atoms bonded together?	Diatomic
9	Is an alloy an element, compound or mixture?	Mixture
10	What is the formula for glucose?	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
11	Which elements exist diatomically?	N <sub>2</sub> , H <sub>2</sub> , O <sub>2</sub> and all of group 7
12	How many electrons can be held in the first shell and then second and third shell of an atom?	First shell is TWO, all other shells EIGHT
13	What is the difference between Ar (relative atomic mass) and Mr (relative molecular mass)?	Ar = for an element Mr = for a compound
14	Define "ion"?	An electrically charged atom that has gained or lost electrons
15	How do you calculate Ar of an element?	It is its mass number

	Topic:	Structure of an atom (9.1.3)
1	What is the charge, relative size and location of a proton?	Charge: 1+, Size = 1, Location = Nucleus
2	What is the charge, relative size and location of a neutron?	Charge: 0, Size = 1, Location = Nucleus
3	What is the charge, relative size and location of an electron?	Charge: -1, Size = 1/2000, Location = Shells
4	What is the radius of an atom?	0.1 nm (1 × 10 <sup>-10</sup> m)
5	What is the radius of a nucleus?	1 × 10 <sup>-14</sup> m
6	Define "atomic number"	No. of protons in an atom
7	Define "atomic mass number"	Sum of protons and neutrons in an atom
8	Define isotope?	Atoms of the same element that have the same number of protons but different numbers of neutrons
9	What was the Dalton model of the atom?	Atoms = tiny spheres
10	Describe Thompson's 'Plum Pudding' model of an atom.	Ball of positive charge with electrons embedded in it
11	Describe Rutherford's model of the atom	Mass in centre (nucleus) Nucleus = +ve
12	Describe the Neils Bohr model of the atom	Positive nucleus orbited by negative electrons
13	Describe Chadwick's 'Nuclear Model' of an atom	Neutrons & protons in a +ve nucleus, -ve electrons in shells
14	What is the name for the current model of the atom?	Nuclear model
15	What 3 things did the alpha scattering experiment prove?	1) Nucleus = positive (deflected & reflected +ve particles) 2) Mass = in centre of atom, rest = empty space

	Topic:	The periodic table (9.1.4)
1	How are elements arranged in the periodic table?	In order of atomic number (lowest to highest)
2	The column (group) in the periodic table tells us the ...	Number of electrons in the outer shell
3	The rows of the periodic table are called..	Periods
4	Why did Mendeleev do when creating the modern periodic table?	Left gaps to make the pattern fit
5	Where are alkali metals found in the periodic table?	Group 1
6	Where are non-metals found in the periodic table?	Right
7	Name the groups in the periodic table (1, 7, 0)	1 = Alkali metals 7 = Halogens 0 = Noble gases
8	State 3 properties of group 7	Non-metal, highly reactive, diatomic
9	What happens to reactivity as you move down group 7?	They become less reactive
10	What is the name of the elements found in the middle of the periodic table that are not part of a group?	Transition metals
11	Give 4 properties of metals	*High melting point *Good thermal and electrical conductors *Ductile *Malleable
12	Give 4 properties of non-metals	*Low melting point *Poor thermal and electrical conductors *Brittle
13	Give 5 properties of the alkali metals	*Highly reactive *Low melting and boiling points *Low density *Shiny when cut *Soft
14	What is formed when alkali metals react with water?	*Alkaline metal hydroxide
15	What happens to reactivity as you move down group 1?	They become more reactive

	Topic:	Types of bonding (9.1.5)
1	Which type of bonding occurs between metals and non-metals?	Ionic
2	Which type of bonding occurs between non-metals?	Covalent
3	Which type of bonding occurs between metals?	Metallic
4	When electrons leave the shells of an atom, they are said to be .....?	Delocalised
5	Which type of ions are formed by metals?	Positive ions
6	Which type of ions are formed by non-metals?	Negative ions
7	Define graphene?	A single layer of graphite
8	Define a fullerene?	Hollow carbon structures
9	Describe Buckminster Fullerene?	Spherical carbon shape with 60 carbon atoms
10	Define allotrope?	An element that is in a particular structure
11	What is a carbon nanotube	A cylindrical fullerene with a very high length to diameter ratio
12	Describe what happens in ionic bonding	Electrons are transferred from a metal atom to a non-metal atom
13	Describe what happens in covalent bonding	Electrons are shared between atoms
14	Describe what happens in metallic bonding	Electrons leave metal atoms forming positive ions & sea of delocalised electrons
15	Why do noble gases not form compounds?	Because they already have a full outer shell of electrons

	Topic:	Describing chemical reactions, reactions of metals & gas tests (9.1.7)
1	Metal + Oxygen →	Metal oxide
2	Metal + water →	Metal hydroxide + hydrogen
3	Metal + acid →	Metal salt + hydrogen
4	Define oxidation (in terms of oxygen)	Addition of oxygen to an element
5	Define reduction (in terms of oxygen)	Removal of oxygen from a compound
6	What is the law of conservation of mass?	No atoms are lost or made during a reaction (mass of reactants = mass of products)
7	Acid + alkali (or base) →	Salt + water
8	If sulphuric acid reacts with a metal, what will the salt end in?	Sulphate
9	If nitric acid reacts with a metal, what will the salt end in?	Nitrate
10	Metal carbonate + acid →	Metal salt + water + carbon dioxide
11	If hydrochloric acid reacts with a metal, what will the salt end in?	Chloride
12	What is the test for hydrogen gas?	A burning splint will make a squeaky pop
13	What is the test for carbon dioxide gas?	Limewater will turn cloudy
14	What is the test for oxygen gas?	A glowing splint will relight
15	What is the test for chlorine gas?	Damp litmus paper will be bleached and turned white