

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Working Scientifically	Tiered Vocabulary and Reading Activity	Support
Lesson 1: Group 0	- Students will know that elements found in group 0 are known as the "noble gases" - Students will know that the noble gases are unreactive (chemically inert) - Students will know that the noble gases are chemically inert as they have a full outer shell of electrons - Students will know that all noble gases have 8 electrons in their outer shell, except for helium which has 2 electrons in its outer shell - Students will know that the boiling point of noble gases increases as you go down the group (with increasing relative atomic mass)	Students need to already know that chemical properties are related to the number of electrons in the outer shell	Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts	Tier 2 <i>Scrupulous: Careful, thorough and extremely attentive to detail</i> <i>Property: a distinctive attribute of a material or substance</i> Tier 3 <i>Chemically Inert: Unreactive</i> <i>Octet: Eight electrons in outer shell</i> <i>Monatomic: Substance made from one atom</i>	Periodic tables left over from exams are in a box in the workroom to save on printing Tassomai Knowledge organiser BBC bitesize Kayscience videos
Lesson 2 & 3: Group 1 PRACTICAL	- Students will know that elements found in group 1 of the periodic table are known as the "alkali metals" - Students will know that alkali metals are relatively soft when compared to other metals (can be cut by a knife), and the melting points of the alkali metals are relatively low - Students will know that the alkali metals are very reactive, and this is due to the fact they have one electron in the outer shell - Students will know that the reactivity of group 1 metals increases as you go down the group - Students will know that when the alkali metals react with water they produce hydrogen gas and a metal hydroxide - Students will know that when lithium reacts with water fizzing is observed - Students will know that when sodium reacts with water it reacts violently, forming a ball and moving around the surface of the water	Students need to already know that chemical properties are related to the number of electrons in the outer shell	Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts Experimental skills – hypothesising, design investigations Measurements – make and record accurate observations	Tier 2 <i>Density: A measure of mass per unit volume</i> <i>Relative: In relation or proportion to something else</i> Tier 3 <i>Alkali: A base dissolved in water. pH is above 7</i> <i>Electrostatic attraction: Attraction between a positive and negative charge</i>	Tassomai Knowledge organiser BBC bitesize Kayscience videos

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	- Students will know that when potassium reacts with water a lilac flame is observed - Students will know that at room temperature alkali metals will react with oxygen to form metal oxides - Students will know that alkali metals burn vigorously with water. - Students will know that alkali metals react vigorously with chlorine gas, and the products are chlorides - Students will know that when a group 1 metal reacts it loses its outer electron - Students will know that reactivity is linked to how easy it is for the atom to lose the outer shell electron. - Students will know that the further down the group you go, the easier it is to remove the electron from the outer shell. - Students will know that when we go down a group: 1) The atoms get bigger 2) The bigger the atoms the further away the electrons are from the nucleus 3) The further the electrons are from the nucleus the smaller the attraction to the nucleus 4) The smaller the attraction the easier it is for the electron to be removed - Students will know how to represent the reactions of alkali metals with word and balanced symbol equations				
Lesson 4&5 Group 7	- Students will know that elements found in group 7 are referred to as the "halogens" - Students will know that the halogens have similar chemical properties as they all have 7 electrons in their outer shell - Students will know that halogens are non-metals, and exist as diatomic molecules (molecules made up of 2 atoms) - Students will know that the boiling points of halogens increases as you go down the group - Students will know that when halogens react they gain an electron for their outer shell	<i>Students need to already know that chemical properties are related to the number of electrons in the outer</i>	Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts Experimental skills – hypothesising, design investigations	Tier 2 Tier 3 <i>Salt: A product formed when a metal reacts with a halogen</i> <i>Diatomic: Molecule made of 2 atoms</i> <i>Displacement: When a more reactive element takes the place of a less</i>	Periodic tables left over from exams are in a box in the workroom to save on printing Tassomai Knowledge organiser BBC bitesize Kayscience videos

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	- Students will know that when halogens react with metals they form compounds known as salts - Students will know that the reactivity of the halogens decreases as you go down the group - Students will know that a displacement reaction is a reaction where a more reactive element will take the place of a less reactive element in a compound - Students will know that more reactive halogens can displace less reactive halogens in compounds. - Students will know that when halogens react with hydrogens they form hydrogen halides - Students will know that when the hydrogen halides are dissolved in water they form an acidic solution. - Students will know that as you go down the group it is harder to gain an electron, this is because: 1) The atoms get bigger 2) the outer shell gets further away from the nucleus 3) There is less attraction between the outer shell and the nucleus, so harder to attract other electrons - Students will know how to represent the reactions of the halogens with word and balanced symbol equations		Measurements – make and record accurate observations	<i>reactive element in a compound</i>	
Lesson 6: Transition Metals (TRIPLE ONLY)	- Students will know that transition metals all have similar properties - Students will know that the middle block of atoms in the periodic table are the transition metals - Students will know that compared to the group 1 metals, transition metals have higher melting points and larger densities - Students will know that transition metals can form ions with different charges - Students will know that transition metals form coloured compounds, and can be used in catalysts	- Students need to already know that chemical properties are related to the number of electrons in the outer shell - Students need to already know that the majority of elements in the periodic table are metals	Development of scientific thinking – understanding how to characterise transition metals	Transition metals – have variable oxidation states and formed variable ions	Tassomai Knowledge organiser BBC bitesize Kayscience videos