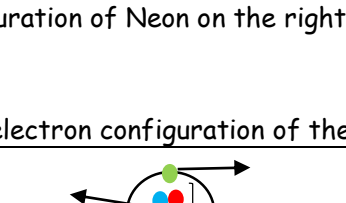
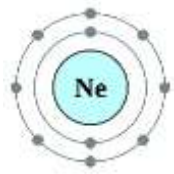
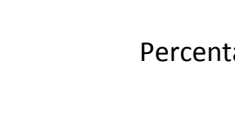
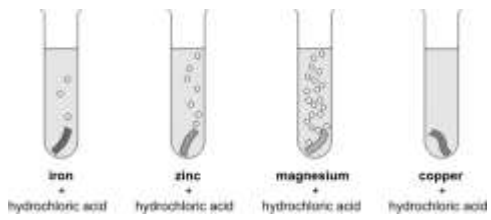
Fast and Furious Reactions

%	I can …		Prove it!
80%+	**Write balanced symbol equations for displacement reactions (MM6)** **Use trends to predict the properties of a substance based on its position in the periodic table (MM3)** **Use the reactivity series to predict the outcome of reactions involving metals (MM4)** **Explain the reactivity of alkali metals and halogens linking to electron configuration (MM2)**		1) Write a balanced symbol equation for each of the reactions in 70% Q2. 2) (a) A new element (Z) is discovered which fits between lithium and sodium on the periodic table. Predict what you would see when it is reacted with water? (b) A new element is discovered which is incredibly unreactive and a gas at room temperature. Where would you put it on the periodic table? Explain your decision! 3) For each of the reactions: (a) Predict what would happen in each of these reactions (b) Explain your prediction (c) Write a word equation (d) Write a symbol equation (i) Potassium and Aluminium Chloride (ii) Iron Sulphate and Copper (iii) Silver nitrate and Calcium 4) Draw the electron configuration diagrams for Chlorine and Fluorine below:  5) Explain why Chlorine is less reactive than Fluorine using the electron configuration diagrams below to help you.
70%	**Predict whether displacement reactions will occur or not (MM4)** **Write word equations for displacement reactions.(MM4)** **Calculate the number of protons, neutrons and electrons in an atom. (MM2)** **Draw the electronic structure and write the electronic configuration of an atom (MM2)** **Describe trends that occur as you move up and down the Alkali metal and Halogen groups (MM3)** **Explain reactivity of the Noble gases. (MM3)**		1) Are the following displacement reactions possible or not? (a) Copper and Zinc Sulphate -> Copper Sulphate and Zinc (b) Iron and Gold Nitrate -> Iron Nitrate and Gold (c) Potassium and Copper Sulphate -> Potassium Sulphate and Copper 2) Write a word equation for the following displacement reactions: (a) Zinc and Copper Sulphate (b) Magnesium and Silver Nitrate (c) Potassium and Zinc Nitrate 3) Work out the number of protons, neutrons and electrons in: (a) Lithium (b) Hydrogen (c) Helium (d) Magnesium 4) Draw the electronic structure and write the electronic configuration of the above atoms. 5) Describe what happens to (a) reactivity, (b) softness of the alkali metals as you move **<u>down</u>** the group. 6) Describe what happens to (a) reactivity, (b) melting and boiling point of the halogens as you move **<u>down</u>** the group. 7) Look at the electron configuration of Neon on the right. Use it to answer the questions below: a) Why is Neon unreactive? b) What is the trend for the electron configuration of the Noble gases? 
60%	**I can label the structure of an atom. (MM2)** **Name some common compounds from their symbol (MM1)** **Place metals in order of reactivity. (MM4)** **Identify independent and dependent variables.(MM5)** **Write a scientific conclusion using data to support your conclusion. (MM7)**		1) Label the atom below.  2) Can you name these compounds? (a) NaCl (b) H_2SO_4 (c) $CuSO_4$ (d) $Ca(OH)_2$ (e) H_2O (f) SO_2 3) Put these three metals in order from most to least reactive: Gold Potassium Magnesium Mahmoud is carrying out an investigation into the effect of temperature on rate of reaction. He puts the magnesium into hydrochloric acid and measures how long the reaction takes at different temperatures; 30°C, 40°C and 50°C. 4) What are the independent (the one he is changing) and dependent (the one he is measuring) variables? 5) Use the data in the table below to write a scientific conclusion linking concentration of acid to rate of reaction. _____ _____ _____ _____ _____ _____ _____

Concentration of acid (mol)	Time taken for reaction to finish (s)
0.2	159
0.4	143
0.6	121
0.8	118
1.0	78
1.2	63
1.4	39
1.6	19

Fast and Furious Reactions

%	I can …		Prove it!
50%	**Write a simple scientific conclusion (MM7)** **Identify the appropriate units for a given measurement (MM6)** **Classify a substance as an element or compound giving a reason for your answer (MM1)** **Identify 2 properties of the Alkali metals, Halogens and Noble gases (MM3)** **Identify 2 uses of the Alkali metals, Halogens and Noble gases (MM3)** **Write a simple prediction (MM5)** **Identify controlled variables (MM5)**		1) Complete the sentence below: *As the size of marble chip _____, the volume of Carbon Dioxide produced _____.* **Size of marble chips** / **Volume of Carbon Dioxide produced in 1 minute (cm^3)** Powder: 75 Small: 53 Medium: 30 Large: 10 2) Match the unit to the measurement Time — *s*; Temperature — *N*; Force — *kg*; Mass — *m/s*; Speed — *cm*; Length — *cm^3*; Volume — *°C* 4) Which of these substances is a compound? Explain your answer. Water Copper Sulphate Hydrogen Chlorine 5) Give 2 properties and uses of the alkali metals group, halogens group and the noble gases group. Mahmoud is carrying out an investigation into the effect of temperature on rate of reaction. He is going to put magnesium into hydrochloric acid and measure how long the reaction takes. He is going to be changing the temperature. 6) Complete this simple prediction: *As the temperature increases the rate of reaction will increase/decrease/stay the same.* 7) Name one variable Mahmoud would need to keep the same in his investigation. Why is it important to keep some factors the same?
40%	**Identify six signs of a chemical reaction occurring (MM4)** **Decide which reaction happens at fastest rate (MM4)** **Decide which piece of equipment is the most appropriate to use (MM4)** **Identify some of the characteristics of metals (MM6)** **Name 4 elements in the Alkali metals, Halogens and Noble gases (MM1)** **Identify elements and symbols on the Periodic table. (MM1)** **Identify solids, liquids and gases on the periodic table. (MM1)** **Identify metals and non-metals on the Periodic table. (MM1)**		1) Eley adds some hydrochloric acid to some copper sulphate. Give things she should be looking out for to show that there has been a chemical reaction. 2) Match the piece of equipment to what it is used to measure: Time Temperature Force Mass Speed Length Volume  3) Using the diagram on the right put the **four** metals in the order of how strongly they react with the acid: **most reactive** .... **least reactive** .....  4) **Circle** the properties that describe metals. Brittle Sonorous Shiny Dull Ductile Malleable **Using the periodic table on the right:** 5) Find the chemical symbol for Sodium, Iron and Chlorine. 6) Put a red circle around a solid, a blue circle around a liquid and a green circle around a gas. 7) Draw a black line between the metals and non-metals. 8) Highlight the alkali metals in pink, the halogens in green and the noble gases in yellow. 

Key Terms:

Solid Liquid Gas Metal Non-Metal Element Compound Particles Bonds
Effervesce Vigorous Colourless Precipitate Odour Symbol Formula Atom
Property Conservation of Mass Carbonate Sulphate Hydroxide Acid Classify
Exothermic Endothermic Bonding Element Compound Oxidation Reactivity
Trend *Electron *Proton *Neutron *Electronic Configuration *Electrostatic attraction