**Homework Menu Grid**

Complete some of the tasks from the grid below to reach a total of points over this unit of work. Try and cover a variety of tasks over the unit so that you’re practising different skills. Once you’ve completed a task, colour that box on the grid to keep a record of your points. Can you get the highest point score this unit?

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| **Topic** | **1 Point** | **2 Points** | **4 Points** | **6 Points** | **10 Points = FGF!** |
| **Acids and alkalis** | Draw and label 4 common hazard symbols for chemical substances. | Draw and label a pH scale, to show acids, alkalis and neutral substances. Include everyday acids and alkalis along your pH scale. | Describe a method for investigating the pH of different household methods. Include all equipment that you would need. | Research 3 different types of indicators and describe the colour changes that they show when added to acids and alkalis. | Research and create a 2-page information booklet on the causes and effects of ocean acidification. |
| **Neutralisation** | Write a definition for neutralisation, including the general word equation for a neutralisation reaction. | Describe a method to neutralise an acid with pH 1. | Describe and explain why bee stings and wasp stings are treated with different chemicals. | Explain why antacids stop indigestion and toothpaste helps to keep teeth clean. | Research the importance of soil pH for farmers. Explain the impact of pollution and global warming on crop growth. |
| **Making soluble salts** | Write a definition for crystallisation and filtration. | Describe why filtration can be used to separate sand and water but it can’t be used to separate salt and water. | Create a poster to be  displayed in the lab,  showing all the safety  precautions that you must  take when using Bunsen  burners. | Write a flow diagram to describe the method needed to make pure, dry copper sulphate crystals. Include safety precautions and equipment. | You are stuck on a desert island! Conveniently, a full set of lab equipment has washed up on shore. Create a plan for how you would get clean, safe drinking water. Include diagrams! |
| **Reactions of metals** | Sort the metals below into order of most reactive to least reactive:   * Aluminium * Sodium * Copper * Zinc * Gold | Describe what you would see when a metal reacts with an acid. You must include 2 observations. | Complete the word equations below:  Magnesium + sulphuric acid 🡪  Aluminium + nitric acid 🡪  Calcium + hydrochloric acid 🡪  Sodium + hydrochloric acid 🡪  Lithium + nitric acid 🡪  Beryllium + sulphuric acid 🡪 | Explain why francium is one of the rarest elements on the periodic table. Include a description of the chemical properties of francium in your answer, to help explain it’s reactivity. | Research why Mars is red! Include data about the composition of Mars’ surface and how that data was collected. |

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| **Displacement reactions** | Define a displacement reaction. Explain why iron cannot displace sodium. | Watch a YouTube video on ‘The Thermite Reaction’. Write a word equation and a symbol equation for this reaction. | Complete the word equations below:  Iron oxide + sodium 🡪  Lead sulphate + potassium 🡪  Calcium oxide + copper 🡪  Magnesium nitrate + tin 🡪  Silver oxide + lithium 🡪 | Describe an investigation that you could do to use displacement reactions to find out the order of reactivity of metals. | Draw a comic strip to illustrate a displacement reaction using superheroes in place of the metals. |
| **Extracting metals** | Write a definition of a metal ore. Give two examples. | Describe why aluminium is extracted from it’s ore by electrolysis but iron is extracted from it’s ore by reduction. | Research what oxidation and reduction reactions are. Explain which element has been oxidised and which has been reduced in the reaction below:  iron oxide + carbon 🡪 iron + carbon dioxide | Mine some iron ore on Minecraft! Describe what happens to the iron ore to produce pure iron. | Create a news article to show why the Minas Gerais state has been named the ‘Iron Quadrangle’. |