**Homework Menu Grid – C7 Atoms Elements and Compound**

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!** |
| **States of matter** | Draw particle diagrams for a solid, a liquid and a gas. Identify and describe the four main changes of state between solid, liquids and gases. | Describe two properties of solids, two properties of liquids and two properties of gases. | Create a table comparing evaporation and boiling. You must include the words energy, liquid, gas, temperature, quick, slow and particles. | Write a letter to the X factor production team explaining what ‘stage smoke’ is and how it gives the effect that it does. | Create a comic strip of a group of particles describing how their movement and arrangement changes as they go from a solid to a liquid, and from a liquid to a gas. |
| **Ionic bonding** | Define the following:   * Electrostatic * Giant ionic lattice * Property * Intermolecular | Produce flash cards describing how to draw dot and cross diagrams, including an example. | Write a paragraph explaining why copper can be used to make saucepans and as an insulator around electrical cables. | Baking soda (sodium bicarbonate) is an ionic compound. Write a letter to a magazine, explaining why a reader can’t get her cakes to rise without this ingredient. | Make up a six-mark answer exam question on ionic bonding and compounds, including mistakes, and get a friend to find the mistakes. |
| **Covalent bonding** | Write a tweet to describe what covalent bonding is. | Explain why oxygen is a gas at room temperature but salt is a solid. Include the words boiling point and intermolecular forces. | Draw a flow map to describe and explain the boiling points and the conductivity of covalent compounds. | Polymers contain covalent bonds. Write a letter to a scientific journal explaining the advantages and the disadvantages of polymers that we use in everyday life. | Hydrogen cyanide (HCN) is a covalent compound that was used in the war. Create an information leaflet on how and why this compound was used as a chemical weapon. |
| **Metallic bonding** | Define the following words:   * Delocalised * Ductile * Conductor * Malleable | Explain why alloys are much stronger than pure metals. Include a diagram in your answer. | Create a table comparing the properties and uses of high carbon steel and low carbon steel. | Mercury is the only metal that is a liquid at room temperature. Create a fact file about the metal mercury. You must include 6 facts. | Make a model of metallic bonding using whatever resources you have. Extra HPs if you can also show how delocalised electrons move! |

**Homework Menu Grid**

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| **Testing for gases and formulations** | Create revision flashcards showing the tests for carbon dioxide, oxygen, chlorine and hydrogen. | Explain why pharmaceutical companies must use exact formulations in drugs like pharmaceuticals. | Fertilisers are formulations and usually contain nitrogen, potassium and phosphorus. Write a paragraph to explain the benefit of each of these elements to plants. | Make an information booklet to convince people about the importance of carbon monoxide detectors in homes. | Research and create a newspaper article on the Hindenburg disaster. |
| **Chromatography** | Define the following:   * Stationary phase * Mobile phase * Soluble * Solvent | Explain how to calculate Rf values and describe how you can use Rf values to identify unknown substances. | Write a paragraph to explain how chromatography can be used to test whether food samples are safe for human consumption. | Draw a flow diagram to describe the method for analysing substances in an ink sample. Include all equipment needed. | Research and create a newspaper article on how ink chromatography helped to solve the case of the ‘Forged Hitler Diaries’. |