Revision 1 QUESTIONS

# Topic 1: Materials and Their Atoms

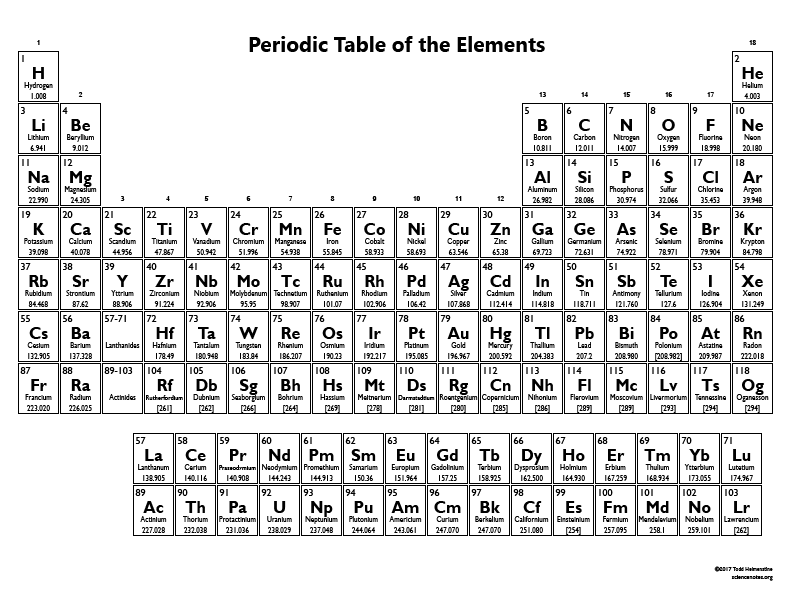
1. 1. Calculate the molar mass of Magnesium Silicide (Mg2Si).
   2. Hence calculate the number of moles in 0.700g of Magnesium silicide.
2. There are 0.1198 moles in 7.00g of sodium chloride.

Calculate the molar mass of sodium chloride

1. Carbon dioxide (CO2) has a molar mass of 44.01 g.mol-1

Calculate the mass of 2.335 moles of carbon dioxide.

1. State the name for the:
   1. Horizontal rows on the periodic table
   2. Vertical columns on the periodic table
2. Define the term *electronegativity*
3. Why does chlorine (Cl) have a higher electronegativity than Silicon (Si)? (can use a diagram)
4. Why does Phosphorus (P) have a smaller atomic radius than Magnesium (Mg)?
5. Elements from Group 1 on the periodic table all have one valence electron and react explosively with water. Why does the reactivity of these elements increase down the group on the periodic table?
6. Label the s, p, d, and f blocks of the periodic table



# Topic 2: Combining Atoms

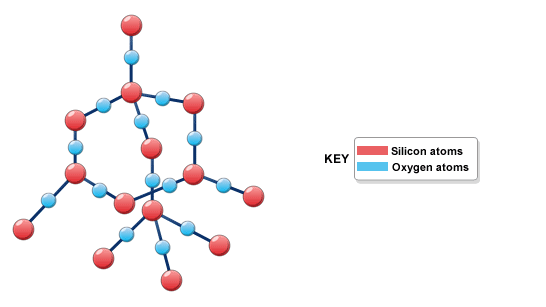
1. What are the three types of primary bonding?
2. State the primary bond that forms between the following atoms: Give reasons for your answer

a) Sodium and chlorine

b) Sodium and lithium

c) Iodine and bromine

1. Why are metals good conductors of electricity?
2. A mystery substance can conduct electricity well as a liquid but struggles to conduct electricity as a solid, what type of substance is it most likely to be? Why can it conduct electricity in liquid form but not as a solid?
3. Billy runs an experiment with a mystery substance, he finds out that the substance can conduct electricity but he struggles to melt the substance. What types of substance did Billy have?
4. What makes up ionic compounds and what shape is an ionic compound?
5. What type of compound is the diagram below? What are its properties?



1. What is a metallic bond?
2. What are the properties of a metallic bond?
3. Why do metallic substances possess high melting and boiling points compared with molecular substances?
4. What is an ionic bond?
5. What are the properties of an ionic bond?
6. What shape do ionic bonds form (molecule or lattice)?
7. What charge does Sodium Iodide (NaI) possess?
8. Write the electron configuration (using subshell notation) for Titanium
9. What is the special rule for Chromium and Copper electron configuration in subshell notation?
10. What is a covalent bond?
11. If you were to draw on a periodic table a line of best fit showing the electronegativity trend, how would it go?
12. Why are covalent bonds between different elements polar?
13. Within dihydrogen monoxide, which element is partially negative and which is partially positive?
14. What are the two different types of covalent compounds, and why are they different?

# Topic 3: Molecules

1. What does VSEPR stand for? And what is it used for?
2. Draw the structural formula of H2O
3. Draw the Electron-dot structure of COCl2
4. Name and Explain the shape of the COCl2
5. Draw the structural formula of SO3