

## Connectors

Sodium, magnesium and aluminium are good electrical conductors .....of the 'sea' of delocalised electrons they possess. Silicon is a semi-conductor, .....not as good a conductor as graphite. All the other elements are electrical insulators.

Sulfur, another non-metal, has eight atoms in its molecules. ....the molecules are bigger, there are larger van der Waals forces than in phosphorus....., sulfur has a higher melting point than phosphorus.

**since - because - but - hence**

The reactions of the chlorides of period 3 elements with water (Table 9.4) give a clue to the bonding present. This is linked to the electronegativity of the element. As you saw in Chapter 3, the larger the difference in electronegativity, the more polar is the bond. ....sodium and chlorine have a difference of 2.1 .....sulfur and chlorine have a difference of only 0.5.

Electronegativity is the ability of an atom to attract a pair of bonding electrons. ....the size of the atom increases, any bonding pair of electrons is further from the nucleus, which means it is less strongly held .....the electronegativity falls.

**as - whereas - and - so -**

**Modal Verbs:** must - can x 2 - may

The first four elements in the period show positive oxidation numbers that correspond to the loss of all their outer electrons (silicon..... also gain four electrons in forming its hydride,  $\text{SiH}_4$ ). Elements in groups 5, 6 and 7 ..... also show positive oxidation numbers in their oxides and chlorides. You ..... think that it is unusual for non-metals to have positive oxidation numbers, but carbon has a positive oxidation number in carbon dioxide.

Lime' is used to reduce the acidity of soils in agriculture. It consists of powdered calcium carbonate which neutralises the soil to provide better growing conditions for crops. The application of lime .....be controlled carefully to achieve the right soil pH and not make it too alkaline.