

## Chemguide – questions

### ELECTRONEGATIVITY

You will need a copy of the Periodic Table.

1. Define electronegativity.
2. a) On the Pauling scale the electronegativities of nitrogen and oxygen are respectively 3.0 and 3.5. Why is oxygen more electronegative than nitrogen?  
  
b) On the same scale, the electronegativity of sulphur is 2.5. Why is sulphur less electronegative than oxygen.
3. By thinking about where the following atoms are in the Periodic Table, sort them into order of *increasing* electronegativity:  
  
aluminium  
barium  
boron  
caesium  
calcium  
carbon  
fluorine
4.  $\text{Cl}_2$   $\text{CsCl}$   $\text{MgCl}_2$   $\text{NaCl}$   $\text{PCl}_3$   $\text{SCl}_2$   
  
a) Which of these substances has non-polar bonds? Explain your reasoning.  
  
b) Which of these substances is the most ionic? Explain your reasoning.  
  
c) Suggest a substance which has polar covalent bonds. Explain your reasoning.
5. Using the compounds  $\text{CHCl}_3$  and  $\text{CCl}_4$  as examples, explain the difference between a polar bond and a polar compound.