C2 Topic 4 Metallic bonding and properties

Metallic bonding	
1. How are the atoms in metals arranged?	In a giant, regular structure of positive ions surrounded by a sea of delocalised electrons
2. Describe the electrons in metals	The electrons in the highest occupied orbitals of metal atoms are delocalised and so free to move throughout the structure
3. What holds the ions and electrons in metallic structure together	Strong electrostatic forces
Metallic properties	
4. Describe how metals are able to conduct heat and electricity	Because the delocalised electrons in their structure are free to move
5. Explain why metals are able to be bent and shaped	The atoms in metals are arranged in layers which are able to slide over each other
Alloys	
6. What are alloys made from?	Two or more elements mixed together, one of which must be a metal
7. Give an example of an alloy	Steel – made from iron and carbon
8. Explain why alloys are harder than pure metals	The layers in alloys are distorted due to be made up of different sized metal atoms, and so are unable to slide over each other easily
9. Describe the properties of shape memory alloys	They are able to return to their original shape after being deformed
10. Give an example of a shape memory alloy	Nitinol – used in dental braces