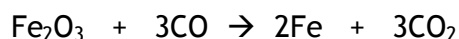


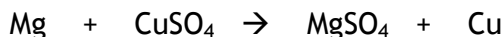
## Y12 Chemistry Project

1. How would you distinguish between the following pairs of salts? Where reasonable, include equations and explanations.
  - Lithium carbonate & potassium carbonate
  - Sodium chloride & sodium bromide
  - Magnesium sulphate & aluminium sulphate
2. Explain with equations and diagrams the bonding between
  - Magnesium and chlorine
  - Silicon and chlorine
3. Find the number of moles in:
  - 0.34g of ammonia
  - 2.45g of sulphuric acid
  - 90g of water
  - 25cm<sup>3</sup> of 0.45mol dm<sup>-3</sup> sodium hydroxide
  - 8000cm<sup>3</sup> of hydrogen gas at RTP
4. Compound X consists of 72.2% magnesium and 27.8% nitrogen by mass. What is the empirical formula of compound X ?
5. a. When iron is extracted from its ore, it is reacted with carbon (actually carbon monoxide) according to the equation



Explain why this is an example of a redox reaction.

b. magnesium metal reacts with a solution of copper sulphate according to the equation



Explain why this is an example of a redox reaction.

6. Write a brief (500 words) summary of the development of the periodic table. Include references.