Redox reactions of transition metals

Pre-lesson assignment p.418-420 (and topic 23!)

Make notes on redox reactions of transition metals

1. Revise the redox titration Fe^{2+}/MnO_4^- (p.376-9)
    a. Give a suitable oxidising agent that will oxidise iron (II) ions into iron (III) ions. Write a balanced equation for this reaction.
    b. Use the electrode potential of each reaction to explain why this oxidation works.
2. Revise the redox titration $I^-/S_2O_3^{2-}$ (p.381-385)
    a. Give a suitable reducing agent that will reduce iron (III) ions back to iron (II) ions. Write an equation for the reaction.
    b. Explain why this species behaves as an oxidising agent in the titration, but a reducing agent in this case. Use electrode potential in your answer.
3. Write an equation to show how dichromate ions oxidise zinc.
4. Write an equation to show how zinc reduces chromium (III) ions to chromium (II) ions
5. Explain these observations using electrode potentials.
6. Show how hydrogen peroxide can turn chromium (III) ions into chromate (VI) ions
7. Show how copper (II) ions can be reduced to copper (I) ions (see thiosulfate titration).
8. Show how copper (I) oxide can be involved in disproportionation.