

AS 91162
Carry out procedures to identify ions present in solution
Level 2 3 Credits
(Internally Assessed)

Achievement	Achievement with Merit	Achievement with Excellence
Carry out procedures to identify ions present in solution.	Carry out procedures to justify the identification of ions present in solution.	Carry out procedures to comprehensively justify the identification of ions present in solution.

- Use a flow chart / provided procedure to determine unknown ions in solution
 - collecting primary data
 - using observations to identify ions
 - identification of ions supported by experimental observations and identification of all precipitates formed
 - writing balanced equations for all the reactions where precipitates are formed
 - interpreting observations by recognising the formation of complex ions and writing balanced equations for these reactions
- Identification of cations Ag^+ , Al^{3+} , Ba^{2+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Mg^{2+} , Pb^{2+} , Na^+ , Zn^{2+}
 - Na^+ identified by a process of elimination
- Identification of anions Cl^- , CO_3^{2-} , I^- , NO_3^- , OH^- , SO_4^{2-}
 - NO_3^- identified by a process of elimination
- Complex ions
 - $[\text{FeSCN}]^{2+}$ formed when $\text{Fe}^{3+}(\text{aq})$ reacts with $\text{SCN}^-(\text{aq})$
 - those formed with $\text{OH}^-(\text{aq})$ reacts with Al^{3+} , Pb^{2+} and Zn^{2+} , ie $[\text{Al}(\text{OH})_4]^-$, $[\text{Pb}(\text{OH})_4]^{2-}$, and $[\text{Zn}(\text{OH})_4]^{2-}$
 - those formed with $\text{NH}_3(\text{aq})$ reacts with Ag^+ , Zn^{2+} and Cu^{2+} , ie $[\text{Ag}(\text{NH}_3)_2]^+$, $[\text{Zn}(\text{NH}_3)_4]^{2+}$, and $[\text{Cu}(\text{NH}_3)_4]^{2+}$

