

(ii) Decant about 2cm^3 of the resulting solution from (c)(i) above into a test tube. Add sodium hydroxide solution in drops and then in excess.

Science Process Skills Involved.

Basic (lower -order) process skills: **Observing, Measuring, Inferring.**

Integrated (higher-order) process skills: **Manipulation, Organizing, Data in Table, Experimenting.**

Justification for the identified skills

- Transferring **G** (a mixture of ZnCl_2 and iron filings) into a beaker; adding about 20cm^3 of distilled water and stirring thoroughly the content in the beaker and thereafter filtering the content (**required manipulating and measuring**).
- Folding filter paper into cone shape in readiness for insertion into filtering funnel (**required manipulating**).
- Noticing the colour of the filtrate and residue (**required observation**).
- Drawing appropriate conclusions based on observation (**required inferring**).
- Noticing the reaction/action of water on the mixture (**required observation**).
- Pouring one half of the filtrate into a boiling tube and adding sodium hydroxide solution in drops until it is in excess (**required manipulation and measurement**).
- Noticing the product of the reaction between the filtrate and sodium hydroxide (in drops) (**required observation**).
- Noticing the action of excess sodium hydroxide on the product formed (**required observation**).
- Adding aqueous ammonia to the second half of the filtrate both in drops and excess (**required manipulation**).
- Noticing the product of the reaction between the filtrate and aqueous ammonia (in drops) (**required observation**).
- Noticing the action of excess aqueous ammonia on the product formed (**required observation**).
- Drawing appropriate conclusions based on observation (**required inferring**).
- Transferring the residue into a test tube, adding about 5cm^3 of dilute HCl and shaking the

mixture for some time (**required manipulating and measuring**).

- Decanting about 2cm^3 of the resulting solution from (c)(i) above into a test tube (**required manipulating and measuring**).
- Noticing the product of the reaction between the resulting solution from (c)(i) and sodium hydroxide solution in drops (**required observation**).
- Drawing appropriate conclusions based on observation (**required inferring**).
- Presenting qualitative analysis results clearly and correctly with the aid of a qualitative analysis report Table (illustrated below+) (**Required Organizing Data in Table**).