



Rewarding Learning

**General Certificate of Secondary Education
2011–2012**

Science: Single Award (Modular)

Materials and their Management

Module 4

Foundation Tier

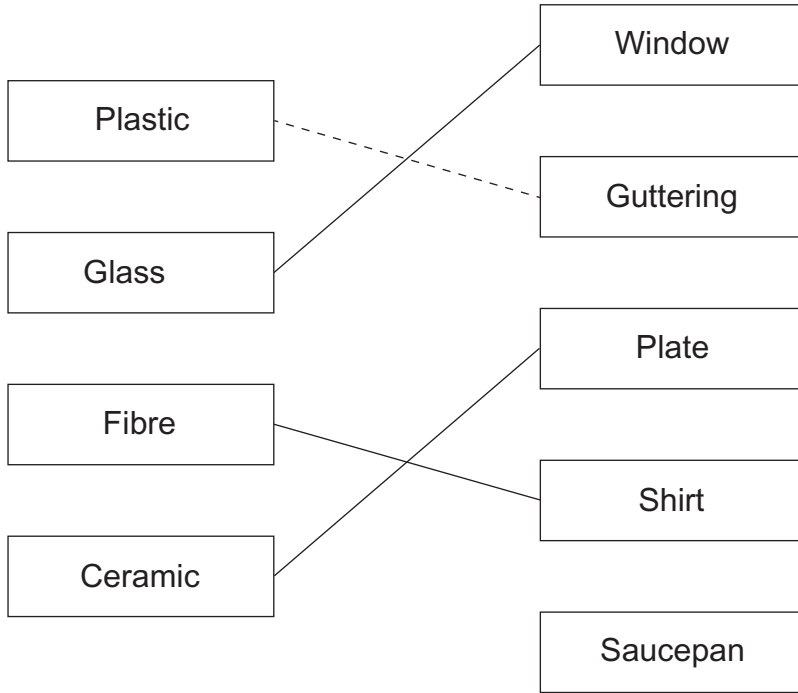
[GSC41]

MONDAY 21 MAY 2012

9.15 am–10.00 am

**MARK
SCHEME**

1 (a)



One mark for each correct line. [3]

(b) (i) Strong
Hard
relatively cheap
Any order, One mark for each correct response [3]

(ii) Any **two** of:
Plastic is lighter/less dense [1]
Plastic does not rust/react with water [1]
Plastic does not need to be painted [1]
Plastic is cheaper [1] (must be comparison)
Accept opposite argument for metal, e.g. metal is heavier [2]

8

2 (a) Cancel newspaper delivery
Close all gates
Ask a neighbour to check the house regularly
One mark for each correctly circled response [3]

(b) Any **three** of:
Quality of paper [1]
Watermarks [1]
Metal strip [1]
Bar coding [1]
Holograms [1]
Fake note will fluoresce under UV light [1] [3]

(c) Chromatography [1]

7

| AVAILABLE MARKS |
|-----------------|
| 8 |
| 7 |

| | | | AVAILABLE MARKS |
|---|---|--|-----------------|
| 3 | <p>(a) (i) 5 bars correctly plotted [2] 3/4 bars correctly plotted [1] [2]</p> <p>(ii) The amount of waste being recycling has increased over the past 8 years. [1]</p> <p>(b) (i) 2. Collection and Transport [1] 3. Reprocessing of Cullet/crushing of glass/making cullet [1] [2]</p> <p>(ii) Any one of:</p> <ul style="list-style-type: none"> ● Saves raw materials/saves resources ● Cuts down the number of quarries (to obtain raw materials) ● Cuts down the amount of energy/fossil fuels used ● Reduce landfill sites/glass is not biodegradable [1] <p>(c) Any one of:</p> <ul style="list-style-type: none"> ● Destroys natural habitats ● Noise pollution/increase in traffic ● Dust pollution ● Eyesore (Accept other suitable) [1] | | 7 |
| 4 | <p>(a) (i) C [1]</p> <p>(ii) A [1]</p> <p>(iii) B [1]</p> <p>(b) Any two of:</p> <ul style="list-style-type: none"> ● Same volume of water ● Shaken with the same vigour/same person shaking ● Same size of test tube ● Same amount of boiling (not: same amount of soap/temperature/time) [2] <p>(c) Calcium/Magnesium only [1]</p> <p>(d) Any two of:</p> <ul style="list-style-type: none"> ● Caves ● Stalactites ● Stalagmites ● Limestone pavements [2] | | 8 |

| | | | AVAILABLE MARKS |
|--------------|--|-----|-----------------|
| 5 | <p>(a) Thermoplastic/Thermosoftening [1] Thermosetting [1]</p> | [2] | |
| | (b) Non-Biodegradable materials will not decay [1] by the action of bacteria [1] | | |
| | <p>(c) (i) Starch/Plant material or any named starchy plant, e.g. potato, maize [1]</p> <p>(ii) Any two of</p> <ul style="list-style-type: none"> ● Other named recycling bin, e.g. glass, paper ● Providing recycling centres ● Recycling available at supermarkets, etc. ● Charging businesses for putting waste in landfill sites ● Advertising/Education | [2] | 7 |
| 6 | <p>(a) Any three of:</p> <ul style="list-style-type: none"> ● Crude oil is heated/vaporized ● Each hydrocarbon/fraction has a different boiling point ● Each fraction contains hydrocarbons with similar number of carbon atoms/similar sized hydrocarbons ● Each fraction separates at a different level/section ● Fractions are condensed and collected | [3] | |
| | (b) Fuel for gas ovens/LPG/Calor gas/heating homes [1] | | |
| | <p>(c) (i) Oxygen [1], Water [1] (accept correct symbols)</p> <p>(ii) Global Warming/Greenhouse effect [1]</p> | | |
| | <p>(d) Any one of:</p> <ul style="list-style-type: none"> ● Setting carbon dioxide emission limits ● Climate change program ● Clean Air act ● Air Quality strategy ● encouraging giving grants for use of alternative fuels ● adverts encouraging less use of cars | [1] | 8 |
| Total | | | 45 |