



*Rewarding Learning*

General Certificate of Secondary Education  
2010–2011

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**Science: Single Award (Modular)**

Materials and their Management  
Module 4

Foundation Tier

**[GSC41]**

**FRIDAY 20 MAY 2011, AFTERNOON**

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**MARK  
SCHEME**

			AVAILABLE MARKS
1	(a) relatively cheap [1], strong [1], easy to shape [1]	[3]	5
	(b) less damage in accident/lightweight/long lasting/cheaper/appearance (any 2)	[2]	
2	(a) bitumen/tar [1], naphtha/chemicals [1], diesel/fuel [1]	[3]	6
	(b) (i) carbon [1], hydrogen [1]	[2]	
	(ii) carbon	[1]	
3	(a) brightness	[1]	4
	(b) thermochromic	[1]	
	(c) particles [1], size [1]	[2]	
4	(a) visitors/bathers [1], wind [1], washed in [1] or other suitable	[2]	8
	(b) charge for bags [1], promote reusing bags [1], biodegradable plastic bags (any 2)	[2]	
	(c) kills wildlife	[1]	
	(d) (i) have to be separated	[1]	
	(ii) thermoplastic [1], thermosetting [1]	[2]	
5	(a) (i) solvent would dissolve inks [1], inks could not be separated [1]	[2]	9
	(ii) will be able to compare dyes in all three words [1], result of comparison [1]	[2]	
	(iii) 4 dyes	[1]	
	(iv) it contains 2 different black inks as shown by the different number of dyes [1], more dots/dyes in the ninety	[1]	
	(b) three from /cut out different words [1], add a few drops of water [1] use a small capillary dropping tube to spot chromatogram [1] use clean droppers/dry between spots [1] or other suitable e.g. damp cotton bud [2]	[3]	

		AVAILABLE MARKS
6	(a) potassium chloride [1], magnesium sulphate [1]	[2]
	(b) two from magnesium sulphate/magnesium chloride/calcium nitrate	[2]
	(c) measuring cylinder/pipette/burette	[1]
	(d) calcium carbonate [1], carbon dioxide [1] accept <i>correct</i> formula	[2]
7	(a) 5 points correct [2], 4 points [1] line [1]	[3]
	(b) answer from graph	[1]
	(c) cut down on levels CO <sub>2</sub> /greenhouse effect/global warming/ non-renewable or named effect	[1]
	(d) important in making polymers/polythene/plastic	[1]
<b>Total</b>		<b>45</b>