



Rewarding Learning

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

Science: Single Award (Modular)

Chemical Patterns and our Environment

Module 3

Foundation Tier

[GSC31]

WEDNESDAY 9 NOVEMBER 2011

9.15 am–10.00 am

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Hazard	[1]	5
	(b) Understood internationally/greater visual impact/some people cannot read	[1]	
	(c) (i) C	[1]	
	(ii) B	[1]	
	(iii) Petrol/lighter fuel/matches/hairspray/deodorant spray	[1]	
2	(a) Indicator	[1]	6
	(b) Beetroot/blackcurrant/any dark coloured fruit or flower/red rose/red onion	[1]	
	(c) (i) Lemon juice – pH 3 [1] sodium carbonate – pH 9 [1] Calcium hydroxide – dark blue [1]	[3]	
	(ii) calcium hydroxide	[1]	
3	(a) Anti-oxidants – Stop fat from going off Sweeteners – Alternative to sugar Emulsifiers – Stabilises oil and water mixture Colouring – Makes food look attractive	[4]	7
	(b) E	[1]	
	(c) Hyperactivity/headaches/may cause cancer	[2]	
4	(a) A = electron B = neutron	[2]	6
	(b) 7	[1]	
	(c) nucleus – protons – lithium	[3]	
5	(a) A = crust B = mantle C = Core	[3]	7
	(b) Richter – tsunamis – tectonic – magma	[4]	

		AVAILABLE MARKS
6	(a) chromatography	[1]
	(b) blue	[1]
	(c) black colouring is made of 3 dyes [1] The green dye in black colouring is not the same as the green dye tested [1]	[2]
7	(a) because one metal has replaced another metal from a solution	[1]
	(b) copper	[1]
	(c) all the copper had left the solution	[1]
	(d) No chemical reaction took place because copper is less reactive or unable to displace the lead	[2]
	(e) copper nitrate and silver	[2]
	(f) silver	[1]
	(g) Sodium is too reactive [1] It would react violently with the water [1]	[2]
Total		45