



*Rewarding Learning*

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

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**Science: Single Award (Modular)**  
Chemical Patterns and our Environment  
Module 3  
Foundation Tier  
[GSC31]  
**TUESDAY 28 FEBRUARY 2012**  
**11.00 am–11.45 am**

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**MARK  
SCHEME**

			AVAILABLE MARKS	
1	(a) (i)	corrosive sign drawn	[1]	6
	(ii)	radioactive/radiation/nuclear/named source	[1]	
	(iii)	greater visual impact understood internationally	[2]	
	(b) (i)	magnesium hydroxide	[1]	
	(ii)	alkaline	[1]	
2	(a)	sweeteners – alternative to sugar colourings – makes food look attractive anti-oxidants – stops fats from going off	[3]	6
	(b)	E	[1]	
	(c)	hyperactivity/migraines/allergies	[2]	
3	(a)	purple	[1]	6
	(b)	indicator	[1]	
	(c) (i)	pH probe/meter	[1]	
	(ii)	more accurate	[1]	
	(d)	lime is alkaline/a base/basic/soil is acidic lime neutralises the soil/removes acid	[2]	
4	(a)	magma moves up from the centre it comes out of the crater it flows down the sides as lava it can cause loss of life any 2	[2]	6
	(b)	giant wave destroys buildings causes destruction of habitats loss of life any 2	[1]  [2]	
	(c)	Richter scale	[1]	

			AVAILABLE MARKS
<b>5</b>	<b>(a)</b> moved on water surface	[1]	4
	<b>(b)</b> hydrogen	[1]	
	<b>(c)</b> it melted/potassium caught fire immediately	[1]	
	<b>(d)</b> potassium hydroxide	[1]	
<b>6</b>	<b>(a)</b> A – neutron	[1]	10
	B – shell	[1]	
	C – electron	[1]	
	<b>(b)</b> protons/neutrons either order	[2]	
	<b>(c)</b> 2, 6 arrangement – 1 mark for each correct shell	[2]	
<b>7</b>	<b>(d)</b> protons: 20, electrons: 20, neutrons: 20	[3]	7
	<b>(a)</b> displacement	[1]	
	<b>(b)</b> 3/none	[1]	
	<b>(c)</b> copper metal	[1]	
	<b>(d)</b> copper came out of the solution	[1]	
	<b>(e)</b> zinc	[1]	
<b>(f)</b> copper displaced the silver the silver was deposited on the strip	[2]	<b>45</b>	
<b>Total</b>			