



*Rewarding Learning*

**General Certificate of Secondary Education  
2014–2015**

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**Science: Single Award**

Unit 2 (Chemistry)

Foundation Tier

**[GSS21]**

**THURSDAY 13 NOVEMBER 2014, MORNING**

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**MARK  
SCHEME**

## General Marking Instructions

### Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

### The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

			AVAILABLE MARKS	
1	(a)	Baking soda [1] lemon juice [1]	[2]	5
	(b) (i)	Corrosive	[1]	
	(ii)	2	[1]	
	(c)	Blackcurrant/beetroot/red cabbage or other suitable	[1]	
2	(a)	Crust [1] mantle [1] core [1]	[3]	7
	(b)	limestone/sandstone [1] igneous [1]	[2]	
	(c)	Lava [1] magma/magma chamber [1]	[2]	
3	(a) (i)	Potato	[1]	5
	(ii)	Blackcurrant	[1]	
	(iii)	five	[1]	
	(b)	lime/calcium oxide	[1]	
	(c)	More accurate/precise	[1]	
4	(a) (i)	Circle around first pin (closest to heat) on copper rod	[1]	5
	(ii)	copper, brass, iron, glass (two materials in correct order [1])	[2]	
	(b)	Any <b>two</b> from: same thickness of rod same distance between pins same amount of wax/same type of wax rods same distance from heat source/same amount of heat/heat for same amount of time same number of pins/same type of pins	[2]	
5	(a)	Composite	[1]	4
	(b)	Carbon/Carbon black	[1]	
	(c)	Crimes could be solved quicker/easier/more crimes could be solved/ can be internationally shared [1] may fall into the hands of criminals/Invasion of privacy [1]	[2]	

			AVAILABLE MARKS	
6	(a)	29 + 22 + 18 + 12 = 81 [1] 19% [1]	[2]	3
	(b)	Boiling point/temperature	[1]	
7	(a)	Cannot be broken down/rot/decompose/decay [1] by microbes [1]	[2]	5
	(b)	Recycling	[1]	
		Explanation, any <b>two</b> from:		
		• causes less air pollution/no toxic gases produced [1]		
		• no use of land-fill sites/no litter produced [1]		
		• less water pollution [1]		
		• saves (natural) resources [1]	[2]	
8	(a)	(i) Mg/magnesium	[1]	6
		(ii) Any <b>two</b> : Magnesium/chlorine/argon (accept symbols)	[1]	
		(iii) Lithium/Li	[1]	
		(iv) Chlorine/helium/argon (accept symbols)	[1]	
	(b)	The Halogens	[1]	
	(c)	H added in correct position	[1]	
9	(a)	(i) All four bars drawn correctly (three bars drawn correctly award [1])	[2]	14
		(ii) C [1] It took the most soap to produce a lather [1]	[2]	
		(iii) Measure out 50 cm <sup>3</sup> of water/measure same volume [1]  boil the sample [1]  less soap is needed after boiling [1]	[3]	
	(b)	(i) Calcium [1] and magnesium [1] (either order)	[2]	
		(ii) Good for teeth or bones/prevents heart disease	[1]	
	(c)	(i) Calcium carbonate [1] water [1] carbon dioxide [1] ( <b>any order</b> )	[3]	
		(ii) It stops kettles working properly/wastes energy	[1]	

**10 Indicative Content:**

- A composite material is one that combines the properties of more than one material
- to produce a more useful/new material for a particular purpose
- **Three** from glass fibre is light/glass fibre is easily moulded/car can go faster/ car will use less fuel or other suitable
- Composites are expensive [6]

**AVAILABLE MARKS**

6

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe composite materials using <b>five or more</b> of the points above, in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	[5]–[6]
B	Candidates use some appropriate specialist terms to describe composite materials using <b>three or four</b> of the points above, in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
C	Candidates describe composite materials using <b>one or two</b> of the above points. However, these are not presented in a logical sequence. They use limited spelling, punctuation and grammar and have made limited use of specialist terms. The form and style are of a limited standard.	[1]–[2]
D	Not worthy of credit.	[0]

**Total**

**60**