

# Examiners' Report/ Principal Examiner Feedback

November 2010

GCSE

360Science

GCSE Science  
Multiple Choice Paper C1a (5007)

GCSE Chemistry  
Multiple Choice Paper C1a (5035)

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### Foundation Tier

Knowledge of atomic number was weak, 30% of candidates thought that the atomic number of helium was 6 (protons + neutrons + electrons) and 26% that it was 4. Only 46% knew that a reaction that gives out heat is exothermic with 32% choosing thermal decomposition. 56% knew that gold is used for jewellery because it remains shiny for many years but 35% thought that the reason was because gold does not conduct electricity. 55% knew that rusting is a slow chemical change but 29% thought that it is a slow physical change. Only 34% knew that the reaction of dilute hydrochloric acid with sodium hydroxide solution is an example of neutralisation with 32% choosing hydration. Only 34% of candidates knew that sodium compounds produce a yellow flame, 26% chose blue, 22% green and 18% red. Only 29% knew that zinc is obtained from zinc oxide by heating with carbon, 38% chose carbon dioxide, 23% oxygen and 10% copper. Only 24% could recognise that in the reaction of lead oxide with hydrogen to produce lead and water the lead oxide is reduced, 39% chose hydrated. Only 20% knew that the main ingredient in baking powder is sodium hydrogencarbonate with 58% choosing sodium carbonate. Only 40% knew that the acidic substance in baking powder is neutralised with 36% thinking that it is thermally decomposed. Only 43% knew the test for carbon dioxide with 23% thinking that it relights a glowing splint and 23% that putting out a glowing splint is a positive test for carbon dioxide. Only 30% correctly chose the apparatus that could not be used to collect carbon dioxide, 27% thought that it could not be collected by downward delivery, 24% that over water was not possible and 17% the gas syringe.

### Higher Tier

As would be expected higher tier candidates performed better than foundation candidates on questions 17 to 24 but some of the weaknesses indicated above were still present especially in questions 19 (54% correct), 20 (37% correct), 21 (33% correct), 22 (52% correct), and question 24 (45% correct).

Knowledge of periods was weak, when asked to identify a transition metal in period 5 44% chose the correct answer but 31% chose the one in period 6. Only 47% could identify the position of the element with atomic number 3 with 38% choosing the one in group 3 with an atomic number of 5. Only 44% of candidates could identify that chlorine and potassium iodide solution would undergo a displacement reaction, all the other mixture were popular choices. In question 31 only 24% could identify both statements as incorrect, 50% thought that the reactivity of the halogens increases as their atomic numbers increase and 45% that their boiling points decrease as their atomic numbers increase. As usual, balanced equations caused problems with only 38% choosing the correct answer in question 32, 43% chose options involving monatomic chlorine. Only 31% of candidates could identify the formula of a red-brown precipitate formed with sodium hydroxide solution as  $\text{Fe}(\text{OH})_3$ , 34% chose  $\text{Fe}(\text{OH})_2$  and 24%  $\text{Cu}(\text{OH})_2$ . Knowledge of salt preparations was weak with only 20% choosing to mix dilute hydrochloric acid with ammonia solution in question 35, 32% chose the dangerous option of mixing potassium and dilute sulphuric acid and 36% thought that potassium

chloride and dilute hydrochloric acid would react. Knowledge of the preparation of insoluble salts was weak with only 27% choosing to mix lead nitrate solution with dilute sulphuric acid when preparing lead sulphate, 30% chose to use lead oxide, 22% lead and 21% lead carbonate. Only 24% chose the correct equation in Q37, with 38% thinking that NaO is a product. Only 34% chose the correct answer for question 40, 60% though that copper carbonate was oxidised to copper oxide.

## Grade Boundaries - November 2010

### Multiple Choice Papers - GCSE Science

#### Raw Mark Grade Boundaries

5005/5025	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	13	9	7		
F	24				18	15	12	9	6

5006/5026	Max mark	A*	A	B	C	D	E	F	G
H	24	17	15	13	12	8	6		
F	24				15	13	11	9	7

5007/5035	Max mark	A*	A	B	C	D	E	F	G
H	24	18	15	12	10	7	5		
F	24				17	14	11	8	5

5008/5036	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	14	9	6		
F	24				18	15	12	10	8

5009/5045	Max mark	A*	A	B	C	D	E	F	G
H	24	16	14	12	11	8	6		
F	24				14	12	10	8	6

5010/5046	Max mark	A*	A	B	C	D	E	F	G
H	24	17	15	13	11	8	6		
F	24				17	14	12	10	8

#### Uniform Mark Grade Boundaries for these units

	Max UMS	A*	A	B	C	D	E	F	G
H	40	36	32	28	24	20	18		
F	27				24	20	16	12	8

Note: On higher tier papers, the "allowed" grade E is calculated as half a grade width

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