

**MARK SCHEME for the May/June 2011 question paper**  
**for the guidance of teachers**

**0653 COMBINED SCIENCE**

**0653/51**

Paper 5 (Practical Test), maximum raw mark 30

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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- 1 (a) 2 readings for inhaled air ; [1]
- (b) 2 readings for exhaled air and average of 2 readings less than average of 2 readings in (a) ; [1]
- (c) (i) average for inhaled air ;  
average for exhaled air ;  
inhaled air = higher reading than exhaled air ; [3]
- (ii) time for atmospheric/inhaled air longer ;  
more oxygen ;  
(reverse argument true) (ignore references to carbon dioxide) [2]
- (iii) exhaled – cloudy and atmospheric/inhaled – clear ;  
CO<sub>2</sub> linked to cloudiness or to B ;  
respiration/breathe out CO<sub>2</sub>/no CO<sub>2</sub> in A ; [3]
- [Total: 10]**
- 2 (a) measurement clearly in mm ; [1]
- (b) *table*  
5 sets of results ;  
force correct (2.0, 3.0, 4.0, 5.0) ;  
increase in length greater as goes down ;  
increase in length is correct ; [4]
- (c) *graph*  
suitable scale ;  
plotting correct for at least 4 points ; [2]
- (d) yes, with suitable explanation ; [1]
- (e) suitable straight line or curve drawn related to answer in (d) ; [1]
- (f) read correctly ; [1]
- [Total: 10]**

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- 3 (a) violet/lilac/purple ; [1]
- (b) (i) dissolves in cold water ; [1]
- (ii) brown ppt./orange ppt ;  
litmus red to blue ; [2]
- (iii) red brown ppt./orange ppt ; [1]
- (c) sulfate ;  
added barium chloride ; [2]
- (d) (any order)  
iron(III)/Fe<sup>3+</sup>/Fe (III) and valid reason ;  
sulfate/SO<sub>4</sub><sup>2-</sup> and valid reason ;  
ammonium/NH<sub>4</sub><sup>+</sup> and valid reason ; [3]

**[Total: 10]**