

**MARK SCHEME for the May/June 2010 question paper**  
**for the guidance of teachers**

**0653 COMBINED SCIENCE**

**0653/51**

Paper 51 (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) (i) 2 drawings with sun leaf smaller;  
shows some detail rather than simple outline e.g. veins; [2]
- (ii) accurate measurement of length of sun leaf from diagram +/- 2mm;  
accurate measurement of length of shade leaf from diagram +/- 2mm;  
(these values should be the maximum possible lengths)  
only ONE mark if in cm [2]
- (b) larger area for greater absorption of light (for photosynthesis);  
needs to say more than just more photosynthesis [1]
- (c) (i) table constructed correctly with correct headings;  
correct comparison of leaf thickness;  
correct comparison of numbers of palisade cells;  
correct comparison of size of air spaces;  
answers may be in words or figures [4]
- (ii) prevents too much water (vapour) loss due to transpiration; [1]
- [Total: 10]**
- 2 (a) suitable figures for both (refer to SV);  
(do not give this mark if in cm)  
use of figures correctly;  
answer; [3]
- (b) (iv) table  
5 readings;  
all decreasing;  
 $d_2$  values all less than  $d_1$ ;  
if only 4 readings, lose 1<sup>st</sup> mark  
if only 3 readings lose 1<sup>st</sup> and 2<sup>nd</sup> mark [3]
- (c) graph  
S suitable scale;  
P 4 points plotted correctly;  
L best straight line; [3]
- (d) correct evaluation; [1]
- [Total: 10]**

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- 3 (a) volume of drop between 0.03 and 0.1 cm<sup>3</sup> (inc); [1]
- (b) number of drops for **X** is between 20 and 30;  
values decrease;  
number of drops approximately halves going down; [3]
- (c) **X** is most concentrated because needs most drops (ecf); [1]
- (d) does not relight/extinguish;  
pops;  
hydrogen (stands alone); [3]
- (e) white ppt;  
hydrochloric; [2]

**[Total: 10]**