

**MARK SCHEME for the May/June 2013 series**

**0460 GEOGRAPHY**

**0460/43**

Paper 4 (Alternative to Coursework), maximum raw mark 60

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	43

- 1 (a) (i) Go to 2 sites on each road/opposite sides of road  
Split into groups/pairs  
Organise tasks within group  
Which points on the roads to do the survey  
Which day/when to do the survey  
What equipment they would need – stopwatch/clock/counters/clickers  
Synchronising timing/start & finish at same time  
Agree vehicle categories  
Information to include on recording sheet/put location or date  
Method – tally count/automatic counters [4]
- (ii) Being unable to count accurately at busy times/lots of traffic/traffic going too fast/too many lanes to count.  
Students losing concentration/bored/no break  
Breathing difficulties/breathing exhaust fumes  
Timings is hard to synchronise  
Specific weather difficulty – e.g. rain ruins paper/sunstroke  
Keep returning to do count/meet at different times (3 @ 1) [3]
- (b) (i) 158 [1]
- (ii) Completion of divided bar graph – van/minibus to 140 & lorry/bus to 158 for 1 mark each.  
Don't need V & L [2]
- (iii) Pie Chart [1]
- (iv) Hypothesis is true – 1 mark reserve  
Total number of vehicles decreases during day  
Bikes also decreases during day  
Cars/vans/lorries slightly increase then decrease/decrease overall  
Paired data to show changes to 2 mark max – need 2 times of day & figures  
e.g. at 08.00 total was 160 & at 14.00 total was 126  
e.g. at 08.00 there were 8 bikes and 2 bikes at 17.00 [4]
- (v) Number: less vehicles at site 7/more at site 3  
Type: more lorries/vans/less cars at site 7  
Need comparison (2 @ 1) [2]

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	43

- (c) (i) Bike = 3, Lorry = 54 (2 @ 1) [2]
- (ii) Completion of line graph: 14.00–15.00 = 1120, 17.00–18.00 = 1400  
 Both points plotted accurately + line = 2 marks  
 Both points plotted accurately but no line = 1 mark **OR**  
 1 point plotted accurately + line = 1 mark [2]
- (iii) Hypothesis 2 is incorrect – 1 mark reserve  
 Congestion only occurs at sites 1, 4, 5, & 6 (accept any 3)  
 No congestion occurs at sites 2, 3, 7 & 8 (accept any 1)  
 Credit data to 2 marks max – need time and site and reference to congestion level  
 e.g. at 08.00 at site 2 traffic = 1300 which is below congestion level  
 e.g. at 08.00 at site 6 traffic = 590 which is above congestion level [4]
- (d) Increase in traffic/cars/vans/lorries  
 Increase/cause congestion (2 @ 1) [2]
- (e) Widen roads/more lanes/more roads/better roads  
 By-pass/ring road/underpass/flyover/bridge/tunnel/elevated road  
 Park and ride  
 Bus lanes/bike lanes  
 Car sharing  
 More public transport or example  
 Parking restrictions/more parking spaces  
 One way streets  
 Restrict traffic to certain days/license plate policy  
 Congestion charge (3@1) [3]

**[Total: 30]**

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	43

- 2 (a) Don't do fieldwork if river is in flood/strong current  
 Check depth/don't go in deep water  
 Wear shoes/wellingtons  
 Don't do fieldwork alone – at least two preferably three people per group  
 Wear waterproofs/warm clothing/appropriate clothing/gloves/hats  
 Keep a look out for dangerous animals/mosquito spray  
 Don't do fieldwork if river is badly polluted  
 Tell someone where you are going/take a mobile phone  
 Beware of slippery rocks  
 Wear sunblock (2 @ 1) [2]
- (b) (i) Ranging poles/poles  
 Tape measure/metre rule  
 Float/orange/dog biscuit/a floating object  
 Stopwatch/watch/clock (3 @ 1) [3]
- (ii) Average length of time = 56.4 (secs)  
 Distance / Time = 10 (m) / 56.4 (secs) or calculated figure  
 = 0.18 m / sec / 0.177 [3]
- (iii) Measurements taken at different times/different flow conditions  
 Floats got stuck/obstacles blocking floats  
 Student error/timing error/measuring error  
 Measurements taken at different points across river/inside or outside  
 Use of different types of float (2 @ 1) [2]
- (iv) Two vertical surveying poles  
Distance apart/at least 5 m apart  
 Line up clinometer between same points on the poles  
 Measuring angle [3]
- (v) Hypothesis is incorrect – 1 mark reserve  
 Steeper gradient = lower velocity/gentler gradient = higher velocity  
 Use of paired data from 2 sites – to 1 mark max  
 e.g. at site 1 gradient = 8 degrees & velocity = 0.29, at site 2 gradient = 6 degrees  
 & velocity = 0.43 [3]

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0460	43

- (c) (i) Tape/rope & tape  
Pole (2 @ 1) [2]
- (ii) Completion of cross-section 2.5 m = 0.30 m = 1 mark  
Completion of line = 1 mark [2]
- (iii) Completion of scatter graph 3.5 m – 0.29 m/s  
Don't need point 1 [1]
- (iv) Hypothesis 2 is correct/partially correct – 1 mark reserve  
Anomaly at site 2 or 3  
Use of paired data from 2 sites – to 1 mark max  
e.g. site 1 w.p. = 3.5 & velocity = 0.29 & at site 5 w.p. = 12.1 and velocity = 0.47  
Credit data to show anomaly [3]
- (v) Too deep to reach the bed/cannot reach river bed  
Tape may not be long enough  
Current may move tape/pull tape downstream/lift it from bed  
Dangerous because too deep/fast flowing (2 @ 1) [2]

- (d) Impact  
e.g. People pollute the river with waste water from a factory  
People throw household rubbish into the river – 1 mark reserve

Investigation

Decide how many sites to investigate and where  
Devise a data collection sheet to record results of visual survey  
Test acidity of water/use pH paper  
Test clarity/colour of water see if can see through water  
Survey water life, using a species indicator (Biotic Index)  
Measure water temperature  
Sampling technique  
Sites before & after pollutant  
Compare results at different sites  
Survey types of litter  
Survey people about change

Other possible investigations into human impact on flow:

Bank strengthening reduces bank erosion  
Weir or dam construction decreases flow  
Channel straightening or dredging increases velocity [4]

**[Total: 30]**