

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Education  
Advanced Level Examination  
June 2011

# Geography

# GEO4A

## Unit 4A Geography Fieldwork Investigation

Friday 17 June 2011 9.00 am to 10.30 am

**You will need no other materials.**  
You may use a calculator.

### Time allowed

- 1 hour 30 minutes

### Instructions

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You will be marked on your ability to:
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.

### Advice

- You are advised to spend about 60 minutes on **Section A** and about 30 minutes on **Section B**.

For Examiner's Use	
Examiner's Initials	
Question	Mark
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5 (a)	
5 (b)	
<b>TOTAL</b>	



**SECTION A**

Answer **all** questions in the spaces provided.

**All** your answers must relate to the geography fieldwork investigation that you undertook in preparation for this examination.

State the aim(s) of your fieldwork investigation.

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**1** Explain how the location of your fieldwork was relevant to the theory / concept / issue being investigated.

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*(8 marks)*



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2 Describe and justify how you made sure that the data collected were as accurate and reliable as possible.

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Question 2 continues on the next page

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**4** In the light of your results, suggest how your investigation could be further developed and/or extended.

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## SECTION B

Answer **all** questions in the spaces provided.

- 5** **Figure 1** is a map of wards in Leicester. Four of the wards have been shaded. **Figure 2a** shows the population of the four shaded wards in 2001 by ethnic group. For the purpose of conducting a Chi-squared test, these data become the observed frequencies (O). **Figure 2b** shows the calculated expected frequencies (E) for these wards in a contingency table.

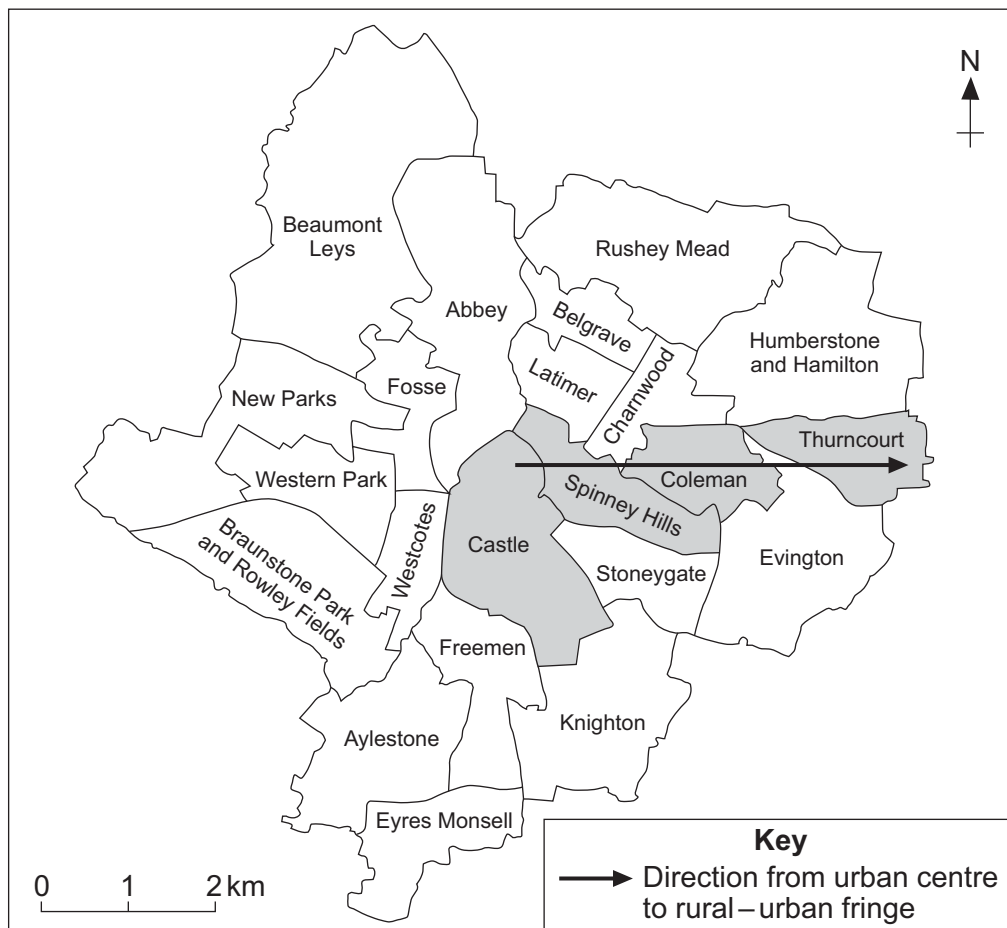
For this Chi-squared test, the hypothesis ( $H_1$ ) is:

'There is a difference in the distribution of population in different ethnic groups within selected wards in Leicester.'

The null hypothesis ( $H_0$ ) to be tested is:

'There is no significant difference in the distribution of population in different ethnic groups within selected wards in Leicester.'

**Figure 1**





**Figure 2a – Observed frequencies (O)**

Ethnic group	Ward				Total
	Castle	Spinney Hills	Coleman	Thurncourt	
White	10 221	3 739	4 653	8 258	26 871
Asian	1 786	15 402	6 488	1 266	24 942
Black	731	1 461	582	174	2 948
Other	727	647	376	238	1 988
<b>Total</b>	<b>13 465</b>	<b>21 249</b>	<b>12 099</b>	<b>9 936</b>	<b>56 749</b>

Source: Census data (2001)

**Figure 2b – Expected frequencies (E)**

These are calculated for each cell using the formula  $\frac{\text{row total} \times \text{column total}}{\text{grand total}}$ .

Ethnic group	Ward			
	Castle	Spinney Hills	Coleman	Thurncourt
White	6 376	10 062	5 729	4 705
Asian	5 918	9 339	5 318	4 367
Black	699	1 104	629	516
Other	472	744	424	348

A Chi-squared test was applied to these data, using the formula  $\chi^2 = \sum \frac{(O-E)^2}{E}$ .

Chi-squared was calculated as 18 995 and was significant at both the 95% and 99% significance levels.

- 5 (a) With reference to the **outcome of the Chi-squared test** and **Figures 1, 2a and 2b**, comment on the distribution of ethnic groups in the selected wards in Leicester.

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**Question 5 continues on the next page**

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ANSWER IN THE SPACES PROVIDED**

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