## 2011 Geography

## Advanced Higher

## Finalised Marking Instructions

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## Geography 2011

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## Section A

The North Yorkshire Moors area is a popular destination for schools to visit for geographical fieldwork, due to its varied landscape and fieldwork opportunities.

To exploit this popularity a new route, making use of existing paths and roads, is to be established which would introduce students to aspects of the physical and human environment.

The route should be between 12 and 15 km long and should start at the car park at 844088, and finish at an appropriate location. This grid reference for a suitable final pickup point must be identified. It is expected that the route and activities would involve a full day's fieldwork.

## Question 1

(a) Penalise for under or overlong routes. There is no 'correct' answer but care to use existing paths and roads is required as is a varied physical environment along the route.
(b) The four locations chosen should show different physical and human environments eg differing woodlands on either side of the road at the car park, the River Esk, village study at Sleights, Grosmont or Egton, study of Whitby, historic study, coastal study.
(c) It is important the whole route is discussed and not just the four locations. The question asks them to consider a route which shows the diversity of landscape that the area has to offer. Along the route mention may be made of the different forest and woodland. Different types of trees mean a variety in plants and animals which can be found. Various fieldwork activities are possible.

Small settlements and their distribution, and comparisons with the larger town of Whitby may also be mentioned. If observant, students will notice that Whiteby is not within the National Park boundary and comparisons could be made to settlements within to see the impact of the restrictions of the National Park. Evidence of more ancient settlement in the area can be studied as can the site, growth and function of smaller settlements.

A river study of the River Esk, showing the differences between sites of the river and the features could be discussed. Field sketches and photographs could be used to highlight the difference between stretches of the river.

Differences in the height and slope of the land coupled with the landscape that can be seen. Examples of carboniferous scenery, disappearing and reappearing streams, may be mentioned.

There is also the potential to show two differing coastal landscapes and the erosional and depositional features that may be found.

Students are asked to briefly outline fieldwork activities and this should be awarded a maximum of 4 marks of the total 18. Maximum of 4 marks for describing how the techniques are carried out.

Do not give credit for endless lists even if they have grid references. Expect candidates to do joined up thinking and expand and relate different points.

## Question 2

(a) The photograph used in conjunction with the OS map should allow a wide range of descriptions and explanations to emerge. GRs should be included to highlight and exemplify. The Physical Geography must be drawn out to answer this question properly. Where this is not done, mark out of a maximum of 6 marks.

Whitby's site is closely to its position at the mouth of the River Esk where it creates an 'opening' in the coast between the rocky coast to the south and the sandy beaches to the north...bridging point, finishing port, route inland along the river valley. The higher land to the east of the river mouth ( 50 m contour) affords a defensive site occupied by the remains of the Benedictine Abby; historical link; development of the fishing harbour is shown by the harbour walls; photograph shows modern use of river for pleasure boats/marina; lifeboat station links to use of coastal waters for fishing; + current recreational use backed up by having an inshore rescue boat in summer. The steeper slopes on the east side of the river have restricted settlement although, from both map and photograph, this has certainly not prevented them packing in as much as possible! The more gently sloping west side around 897104 shows housing developments from $19^{\text {th }}$ century with grid iron pattern streets close to railway and station; railway follows the river valley quite closely; more modern housing farther from the river to the west. The western side with its wide sandy beaches and grassy cliffs reflects use for recreation; layout of some of the cliff top housing suggestions large houses with sea view which may now be B\&B or combined to form hotels. Once the land levels out to the west away from the valley sides development has been much easier as shown by the lower density housing areas \& c. Development along roads is also evident in many areas to west and east eg the modern housing development around 905095 and the nearby industry estate. There is a huge range of possible answers but care should be taken that they relate directly to the question asked, evidence is specific to THIS map and lists are not acceptable.
(b) This is an opportunity for candidates to demonstrate their ability to select information from the map. If they waste time redrawing the OS map they are unlikely to have answered the question which relates to the general distribution. In the area of Supplementary Item D (suggest Eastings $80-89$ and Northings $01-08$ ) there are examples of villages of varying size viz. Grosmont, Sleights, Goathland, Egton Bridge, Egton. There are also many farms and hamlet sized settlements. It would be helpful to link these to main roads and or physical features.

10 marks

8 marks
(c) Possible answers could include; Grosmount's river valley site with valley and nearby confluence giving opportunity for railway development; its function as a railway junction linking Whitby to west and south towards Pickering through lower land offering by the river valleys; current use as North Yorkshire Moors Railway is named. Egton's location in a gently sloping farming area originally providing services for farms; pub still functional; linear development along the road to Egton Bridge; Egton Bridge's site at a crossing point of the River Esk and its link to the development of the railway; also Egton Manor House, riverside setting with views of river and its valley, originally providing work for locals on its land and in big house; could link to site of hotel too; farm sites can be linked to the physical Geography very easily with the valley farms, the 'hillfoot' farms using valley and hill land; routes along valleys to market; physical Geography also links settlements with many footpaths for walkers in the NP; they take advantage of routes often unsuitable for vehicles eg the paths from Grosmont to Beck Hole. Historical evidence of quarries and existence of areas of woodland may also be useful in identifying possible functions. Goathland's location the broad valley of the Eller Beck, slopes either side giving attractive views and access to the Moors; other attractive physical features like waterfalls, and the now very obvious resulting tourist functions eg rail trail, caravan/camping sites, pub, tourist information.

## Section B

## Question 3

(a) There is no relationship between average annual rainfall and wheat yield.
(b)

| Year | Wheat <br> yield <br> (tonnes/ <br> hectare) | Average annual <br> rainfall, <br> Sittingbourne, <br> Kent (mm) |  |  |  |  |  |
| :---: | :---: | :---: | :--- | :--- | :--- | :--- | :--- |
|  | x | y | $(\mathrm{x}-\overline{\mathrm{x}})$ | $(\mathrm{x}-\overline{\mathrm{y}})$ | $(\mathrm{x}-\overline{\mathrm{x}})_{2}$ | $(\mathrm{y}-\overline{\mathrm{y}})_{2}$ | $(\mathrm{x}-\overline{\mathrm{x}})(\mathrm{y}-\overline{\mathrm{y}})$ |
| 1996 | 8.1 | 463 | 0.37 | -173.08 | 0.14 | 29956.69 | -64.04 |
| 1997 | 7.4 | 595 | -0.33 | -41.08 | 0.11 | 1687.57 | 13.56 |
| 1998 | 7.6 | 724 | -0.13 | 87.92 | 0.02 | 7729.93 | -11.43 |
| 1999 | 8.0 | 628 | 0.27 | -8.08 | 0.07 | 65.29 | -2.18 |
| 2000 | 8.0 | 931 | 0.27 | 294.92 | 0.07 | 86977.81 | 79.63 |
| 2001 | 7.1 | 733 | -0.63 | 96.92 | 0.40 | 9393.49 | -61.06 |
| 2002 | 8.0 | 723 | 0.27 | 86.92 | 0.07 | 7555.09 | 23.47 |
| 2003 | 7.8 | 567 | 0.07 | -69.08 | 0.00 | 4772.05 | -4.84 |
| 2004 | 7.8 | 581 | 0.07 | -55.08 | 0.00 | 3033.81 | -3.86 |
| 2005 | 8.0 | 410 | 0.27 | -226.08 | 0.07 | 51112.17 | -61.04 |
| 2006 | 8.0 | 642 | 0.27 | 5.92 | 0.07 | 35.05 | 1.60 |
| 2007 | 7.0 | 636 | -0.73 | -0.08 | 0.53 | 0.01 | 0.06 |
|  | 92.8 | 7633 |  |  |  |  |  |
|  | $\mathrm{x}=7.73$ | $\mathrm{y}=636.08$ |  |  | 1.55 | 202318.9 | -90.13 |

$$
\begin{aligned}
r & =\frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^{2} \sum(y-\bar{y})^{2}}} \\
& =\frac{-90.13}{\sqrt{1.55^{-} \times 2023-18.96}} \\
& =\frac{-90.13}{\sqrt{313594.39}} \\
& =\frac{-90.13}{559.99} \\
r & =-0.16
\end{aligned}
$$

(c) PPM is suitable to use as it uses actual values so is a very powerful statistic. It recognises differences that SRC would ignore as it uses the values themselves. The data is interval data and is normally distributed.
(d) There is a very weak negative correlation, as one increases the other decreases. The null hypothesis cannot be rejected as the result is very close to 0 . The result is not statistically significant at $95 \%$ or $99 \%$ and its value is far away from both figures. The data set used is very small and may not have been over a long enough period. Accuracy of the data collected could also be questioned. The climate at Sittingbourne may not be very representative of the wheat producing areas in the UK. Looking at the atlas, Sittingbourne is on the SE of England (one of the direct areas in the UK) and there may be areas which are further north and of a more central location that may have been more representative when looking at rainfall amounts. Factors other than rainfall may be included.
(e) Candidates may use Table 3 as a prompt when answering. Other climate factors such as temperature and the effects of extreme weather resulting in flooding, drought, high wind speeds and late frosts which could lead to differences in production. Quality of the soil and the relief of the land would be relevant. Reduction in production may also be due to economic factors such as market price which can fluctuate, cost of production against price achieved. Change in consumer habits ie eating less wheat based food may also influence the amount grown. The use of chemical fertilisers, machinery etc. Government intervention like set aside would also have an influence with farmers diversifying into other land-use eg paint balling etc. which again could also lead to changes in wheat production. Accept answers that are related to total production and/or yield.

5 marks

7 marks
(20)

## Question 4

(a) - The median is the middle value when all the data is placed in descending or ascending order.

- The inter-quartile range is the range of data when the extremes are omitted ie it refers only to the middle half of the results. The interquartile range is Q3-Q1.
- Lower quartile (Q1) is the bottom quarter of the data when data is put in order.
- Upper quartile (Q3) is the upper set of the data when data is put in order.


## 4 marks

(b) Description of changes

- Smaller range in 1950 and 2030.
- Larger range in 1975 and 2000.
- In 1950 most countries had low levels of urbanisation with little variation around the mean - IR only $32 \%$.
- Upper quartile has nearly doubled between 1950 and 2030.
- Lower quartile has more than quadrupled between 1950 and 2030.
- \% urban population has steadily increased between 1950 and 2030.
- By 2030, the lower limit will be considerably higher than the upper quartile limit in 1950.

Explanation of technique

- Median less sensitive to the tails of distribution and gives equal weight to each of the readings which can help with comparison.
- IR more robust than range which can be influenced by extreme values.
- Useful for skewed data sets.
- Small IR usually means that the data is generally consistent about the median, a larger data value indicates a higher spread.


## 6 marks

(c) Candidates should make reference to specific countries to achieve full marks. They can refer to other countries of their choice. Good geographical reasons should be used to explain the changes for example.

Generally more developed countries are expecting to see a smaller increase in urban population. Their populations are more stable with lower rates of growth. However there are small changes to some of the countries eg desertification/salinisation in Australia may force more farmers to abandon land and seek employment in urban areas. In addition there has been population growth in Australia along the sun-belt coast - in part due to higher quality of living. Continued mechanization in agriculture and changes to farming practices could result in changes in countries such as Denmark and Canada.
Portugal is expected to see a much greater change - this could be related to a growth in the tourism sector.

Developing countries are expecting to see a higher growth in urban population. This could be attributed to rapid population growth consequences of declining death rates and higher birth rates.
In India natural increase will put pressure on agricultural land and result in rural urban migration. The definition of urbanisation in India is more rigorous than some other countries eg Bangladesh.
In Napal the increase in urban population could be a result of rapid population growth and overcrowding in the Himalayan foothills. The growth of tourism in cities such as Kathmandu could provide more jobs and encourage migration. Lack of urban planning encourages urban growth.
Further economic development and growth in the urban areas of the UAE eg Dubai and Abu Dhabi should cause a higher \% of urban population. Massive land reclamation in Dubai ( 2300 hectares to be reclaimed) will result in growth to the area and its population in the next 30 years.

## Question 5

(a) Accept any reasonable research question.
(b) This first part requires DESCRIPTION of the techniques and not a list; so... 'maps' would not be acceptable but "mapping tourist-related land uses on a base map" would show a simple description of the process involved; interviewing X number of relevant people about provision of tourist related amenities; this could be as a questionnaire aimed at a specific group, personal interviews with tourists or with tourist providers or with planning 'people'; taking photographs for later annotation; doing field sketches to highlight particular issues; identify likely methods of transport used by tourists; mapping different types of tourist accommodation on a base map; find out numbers of tourists visiting the area over time from local information centre or equivalent. Any other, relevant techniques can be acceptable provided they are described and not listed. If candidates make use of the map of Whitby to illustrate their answers with sketch maps or GRs of specific places this can be accepted as 'description' if well done. (They are not asked to justify their choice of techniques so take care not to doubt credit any one technique).

This presentation section must relate to specific techniques described (it may be integrated with the first part) eg a bar graph could be used to show changes in numbers of tourists over the years; photographs could be annotated and linked to maps to show provision of amenities eg tourist attractions or accommodation or transport foci or car parks; pie charts could be used to show \% tourist using various methods of transport to reach Whitby; could use Google maps to link/hyperlink with or illustrate tourist attractions; could include quotes from interviews with 'important' people to highlight issues. Any other suitable ideas can be accepted provided they show the 'thinking' behind the likely presentation method.

1 mark

9 marks

