Teaching notes

Using this issue

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These notes are intended for use with GEOGRAPHY REVIEW Vol. 28, No. 4. They suggest ways in which you might develop further some of the articles in the magazine with your A-level and IB Diploma students.

Managing flood impacts: a case study from Northumberland (page 2)

This article provides A-level and IB diploma students with useful information about the 2008 flooding in Northumbria. It is a case study which can be used to help students gain the highest marks in an essay discussing the impacts of river flooding, thanks to the attention the author gives to the varying scale and context of impacts.

Possible follow-up activities

1. Students can analyse the article to find details of a wide range of impacts as follows (a few clues have been added):

<table>
<thead>
<tr>
<th>Impact on</th>
<th>Analysis of the impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>The village of Kirknewton and its residents</td>
<td>Consider both short-term and long-term effects such as the loss of tourism revenues</td>
</tr>
<tr>
<td>The local landscape</td>
<td>Consider several aspects such as erosion, flood deposition and the impact on human features</td>
</tr>
<tr>
<td>The course of the River Glen</td>
<td></td>
</tr>
<tr>
<td>The river ecosystem</td>
<td></td>
</tr>
<tr>
<td>Farmland and farmers</td>
<td>Remember to mention the how farmers need to carry out their own repairs due to Environment Agency rules</td>
</tr>
<tr>
<td>Long-term planning for the area</td>
<td></td>
</tr>
</tbody>
</table>
A possible exam question is shown below, along with conceptual scaffolding.

Examine the impacts of one flood event you have studied.

Examine means ‘Consider an argument or concept in a way that uncovers the assumptions and interrelationships of the issue.’ What ‘assumptions’ do you need to think about when answering this question? Ask yourself: what kind of impacts are there and how can these be structured in an essay? How long do the impacts of a flood event last for?

While the event itself may last for just a few days, the impacts of flooding can be felt for many years afterwards (think of damaged infrastructure and property, or displaced families). The word ‘event’ is a clue to get you thinking about the timescale of impacts and this could provide you with a framework to structure your essay.

Impacts on what? This could be divided into physical and human impact. In turn, these can be divided further into ecological or landscape changes. Using the case study, it is interesting to contrast the impacts on urban and rural areas (and the fact that farmers have to restore their land themselves, meaning that the impact on them is very great in terms of the work they have to do after the event).

Building on the basics Managing the coastline (page 9)

This very useful case study of integrated management provides students with plenty of opportunities to prepare for possible examination questions.

Possible follow-up activity

1 On the map extract, mark two boxes labelled A and B. Box A should be drawn around Dunwich Hill, the Warren and Coney Hill. Box B is drawn around Sizewell B and the Hall (at the very bottom of the map extract). As an extension activity, students could use Google Earth to inspect the two areas further. As practice for possible exam questions, ask students to compare the land uses in each box. Then ask them to write an extended response as follows: ‘Suggest why different areas of the coastline are managed in different ways’.
High-speed rail: the route to economic growth? (page 12)

This case study has plenty of relevance for studies of urban rebranding and unequal places. It can also be used to support teaching of a ‘shrinking world’.

Possible follow-up activities

1 Ask students to analyse the changes in Figure 2. To what extent do they show a ‘shrinking world’?
As part of this extension exercise, students should discuss what ‘shrinking world’ really means. It describes our perceptions of space, rather than actual distance. For instance, we might consider:

- how HS2 could impact on a London-based student’s decision about whether to study geography at Manchester University
• how HS2 could impact on a foreign investor’s decision whether to invest in properties or businesses outside of London

2 Ask students to find out more about core and periphery theory. According to this model, core areas extract value from peripheral areas through a process called backwash. In return, benefits are gained by peripheral areas through a process called spread effects (or trickle down). How might HS2 contribute to both of these, and what do you expect the net balance would be? Most school geography libraries will contain books that give an account of this classic theory by Gunnar Myrdal.

**Cold environments**  Climate change in the Antarctic peninsula (page 22)

For students who have a climate-change or glaciation component in their course, this Antarctic update should be seen as essential reading.

**Possible follow-up activities**

1 The article provides a fascinating glimpse into how system theory can be applied to changes in the size and behaviour of Antarctic ice sheets. To consolidate reading, students could fill in the table below.

<table>
<thead>
<tr>
<th>What is changing?</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing snow fall</td>
<td></td>
</tr>
<tr>
<td>Thickening glaciers above 400 m</td>
<td></td>
</tr>
<tr>
<td>Ice-shelf collapse</td>
<td></td>
</tr>
<tr>
<td>Accelerating glaciers</td>
<td></td>
</tr>
<tr>
<td>Increasing sea ice</td>
<td></td>
</tr>
</tbody>
</table>

2 The Royal Geographic Society website has an interactive graphic that allows students to think systematically about how changing inputs and outputs affect the size of ice stores. Although aimed primarily at younger age groups, this could provide a fun starter or plenary for an A-level lesson.


**Environment today**  Working animals (page 26)

This article looks at the ways in which people use animals, and how this varies from place to place and over time. There are many areas of the AS/A2 geography curriculum where this theme could be examined, including (a) rural rebranding and (b) the impacts of development on the environment.

**Possible follow-up activities**

1 In studies of rural rebranding (Edexcel), students carry out an inquiry into what kinds of economic change have taken place in the post-productive countryside. As an economic survival strategy, farmers have often re-evaluated how they make use of working animals, leading to rural diversification. For instance, some farmers have set up petting zoos, or now provide an educational experience for children. This may involve the introduction of ‘exotic’ species such as llamas that are not part of the traditional mix of farmyard animals. Such initiatives may involve collaborating with
educational authorities and other local players. Two examples of this are Farmer Ted’s farm in Lancashire, and Old MacDonald’s in Essex.

- Farmer Ted’s, Lancashire: http://www.farmerteds.com/wp/
- Old MacDonald’s, Essex:
  http://www.omdfarm.co.uk/open_animal_petting_farm/kids_days_out_in_essex/fun_things_to_do/tourist_attraction_east_london/educational_visits/entrance_fees/

2 An alternative diversification approach adopted by some UK farmers is to raise rare breeds of animal with a view to producing expensive speciality meats. These can also be cured or processed on-site and sold in a farm shop, allowing farmers to move further up the value chain (into secondary and tertiary activities directly linked with their own animal husbandry).

- Deer ‘n Dexter, Penrith: http://www.deer-n-dexter.co.uk/

3 Changing human attitudes toward animals is a fascinating area of study which some students might like to take further with extra reading. Possible books to recommend include:

- Man and the Natural World by Keith Thomas is a classic text which is used by university students following a range of courses, including geography, history and anthropology:
  http://en.wikipedia.org/wiki/Man_and_the_Natural_World:_Changing_Attitudes_in_England_1500–1800
- Feral by George Monbiot looks at the re-wilding of landscapes. This involves the re-introduction of species that were once hunted to extinction, such as wolves or wild boar:
  http://www.monbiot.com/2013/05/24/feral-searching-for-enchantment-on-the-frontiers-of-rewilding/

Understanding migration: can we predict the future? (page 28)

This article provides students and teachers with important contemporary insights into the process of migration, including new models to support teaching and learning.

Possible follow-up activities

1 Ask students to compare the classic Lee model of migration with the ‘drivers of migration’ model shown in the article. What are the strengths and weaknesses of both models? Is it possible to combine the two, and how could this be drawn? [Hopefully, students will notice that the ‘drivers’ model does not look at pull factors - perhaps these should be attached to the ‘migrate’ circle?]
Lee’s model of migration

Figure 1 The drivers of migration

- Social drivers: Education, family
- Environmental drivers: Hazards, land productivity, food/energy/water security
- Economic drivers: Employment, cost of living
- Political drivers: Persecution, conflict, direct coercion
- Demographic drivers: Population size/density, disease

Personal/household characteristics: Age, sex, education, wealth, marital status, ethnicity, religion, language

Intervening obstacles and facilitators: Political/legal framework, cost of moving, social networks, technology

Origin

Intervening obstacles

Positive factors
Negative factors
Neutral factors

Destination
2 A possible exam question is shown below. This is a data-stimulus task, requiring students to use information from the figure in conjunction with some of their own ideas.

![Figure 2 Future scenarios for migration](image)

(a) Discuss the four scenarios shown in Figure 2 using contemporary examples of migration. (15 marks)

Tip
Before they begin, talk through the scenarios with students. ‘Global growth’ could be taken to describe the overall economic health of a global region. ‘Governance’ here refers both to the domestic policies of states (whether they accommodate multiculturalism) and any decisions made to belong to a global grouping such as the EU. Thus, troubled regions such as parts of the Middle East, or Congo, where governance structures have broken down, provide contemporary examples of trapped and displaced populations. Whereas, internal migration in the EU meets the criteria for ‘planned, regular migration’.

Today, the yellow square could represent Asia (an area of economic growth where unmanaged migration takes place across many borders, yet North Korea remains highly isolated). The green square is perhaps hardest to apply. Possibly, it could be argued that the EU exhibited these characteristics in 2008–09, during the financial crisis.

IB Geography examination tip
This is a very useful article for students to support their P3 studies. With an eye on meeting the AO3 criteria for essay writing, Figure 1 provides an opportunity for students to synthesise a number of themes from the Guide while also evaluating the importance of individual perspectives and circumstances for determining whether an individual will actually migrate or not.

**Everybody’s talking about… 3D printing (page 34)**

This article could be used to support the study of globalisation and global interactions. The suggestion that information flows are beginning to replace some commodity flows, especially in hi-tech areas of manufacturing such as aerospace and biotechnology, is one that some students may like to
investigate further. 3D printing might also make a good topic of study for a geographically-themed EPQ (A-level) or Extended Essay (IB).

**Possible follow-up activities**

1. For further reading and study, here are some suggestions:


2. As an extension activity for students thinking of studying geography at university, ask them to contrast the geography of 3D printing with classic models of industrial location (in which the location of raw materials is of primary importance for economic activity). While Weber’s model is no longer taught on most courses, students may find it interesting to reflect on just how important it used to be for the study of schools geography.

3. Two possible exam questions are shown below.

   ![Graph](image)

   **Figure 3** Growth of cross-border internet traffic

   **(a) Describe the trend shown. (3 marks)**
   
   **Tip**
   This is not a simple linear increase. Students should identify an acceleration of the growth trend in either around 2008-09 or again in 2011

   **(b) Suggest reasons for the changes shown. (6 marks)**
   
   **Tip**
   A good answer may suggest three very differently themed geographical reasons, such as:
   - economic demands of TNCS/businesses needing to stay in touch with each other
   - growing traffic on social networks such as Facebook or the use of Skype by migrants staying in touch with their families
   - the possibility of increasing flows of data serving 3D printing
IB Geography examination tip

This is an useful article for students to support their P3 studies. The Guide requires that students can conceptualise different kinds of flow and also evaluate their relative importance. A suggested essay title appears in the main body of the article.

**Bioprotection: working with nature to manage coastal hazards (page 37)**

This article provides AS/A2 students with a contemporary look at coastal defence management and breathes new life into what can sometimes be a dull and repetitious topic (if students have previously studied coasts at GCSE). Moreover, the synoptic connections in this article provide a great showcase for physical geography. The authors demonstrate how a number of physical geography topics — coastal erosion, biotic environments and weathering processes — are all interconnected in important and interesting ways.

**Possible follow-up activities**

1. Get students to map the connections between different areas of physical geography.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Geographic connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal erosion and flooding</td>
<td>A range of natural processes give rise to coastal hazards. High-energy waves are driven by low-pressure systems and bring damage to the coastline through abrasion and hydraulic action. This may trigger a need for coastal protection if assets are at risk</td>
</tr>
<tr>
<td>Coastal deposition</td>
<td>Sedimentation takes place in coastal environments when wave energy is lower. This geomorphological process can play a role in helping saltmarshes to develop, which provide a ‘buffer’ against erosive waves</td>
</tr>
<tr>
<td>Biological processes</td>
<td>Plant succession can take place in areas where sedimentation is occurring. When biological and geomorphological processes work together and interact, we call this overlap biogeomorphology</td>
</tr>
<tr>
<td>Weathering</td>
<td>Bioprotection is an exciting new area of physical geography research which looks at how vegetation cover can protect artificial structures from weathering processes such as expansion-contraction and salt crystallisation. While there may be some biological weathering (from organic acids), the net effect of vegetation colonisation seems to be beneficial.</td>
</tr>
</tbody>
</table>

2. Ask students to undertake a parallel study of mangrove forest, looking for further evidence of biogeomorphology in action. Mangroves are areas of swampy forest found in estuaries and along marine shorelines in around 120 tropical and subtropical countries. Many of these are densely populated, especially in coastal Asia. Mangrove plants have evolved to tolerate daily tidal flooding and high salinity. Long twisting roots anchor the trees against a constantly ebbing and flowing tide. The roots trap mud, in turn creating a habitat for crustaceans.

3. Encourage students to investigate the important EU Water Framework Directive. The article describes how the Water Framework Directive requires that the ecological potential of new developments is maximised. This has created opportunities for scientists to explore the ecological and
engineering benefits of allowing bioprotective species to grow on hard coastal structures. Find out more at: http://publications.naturalengland.org.uk/publication/44008

4 A possible exam question might be: ‘Discuss the costs and benefits of different approaches to coastal management’. This article will help students to write a more nuanced and discursive answer, because it may no longer be the case that there is a stark choice to be made between the adoption of purely functional, ugly defences or a ‘managed retreat’ approach that allows nature to take over. The idea of using bioprotection on hard structures gives us a hybrid ‘third way’ that allows defences to be built yet also lets nature take over, thereby creating a ‘win-win’ situation.

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