

Explore 3

Teacher's Guide

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Introduction to the series

Explore is a new, up-to-date geography series for secondary classes 6–8. The series covers all the geographical topics and learning competencies from the National Curriculum for Pakistan. Guided by the structure of the National Curriculum for Geography, from Book 1 to Book 3, the focus gradually switches from local (including the geography of Pakistan) to global (world issues such as forest clearances, population and big city growth, and globalization). However, this is done not by following the exact layout and order of the written curriculum, but by identifying and developing particular topics and themes, in order to make the learning process more student-friendly and relevant.

Explore consists of three components: the Students' Books, Workbooks, and the Teachers' Guides. Together, the three books and their components provide a comprehensive introduction to geography for secondary classes. They meet all the main **Aims** outlined in the Introduction to the National Curriculum for Geography.

AIMS

- To create an understanding of the Earth as a planet within the solar system—Book 1
- To familiarize students about the environment in which people are living, by studying major land features of the Earth—Books 1 and 2
- To provide an insight into the natural and human geography of Pakistan, and the changes taking place in its administration, population, their activities and resources—Books 1, 2, and 3
- To provide more knowledge to students about the environment in which they are living—Books 1, 2, and 3
- To create awareness among students about the neighbouring countries—Books 1 and 3 in particular

Likewise, the full course will enable students to satisfy all the general subject **Objectives** in the National Curriculum (numbered 1–10). Although many are met throughout all three books, for some it is possible to identify particular chapters where the objective is addressed more strongly.

OBJECTIVES

1. *To impart an understanding of the Earth as a home of man with emphasis on spheres of water, land and atmosphere.*
Earth (Book 1, Chapter 3), Atmosphere (Book 1, Chapter 4), Land and sea (Book 1, Chapter 5), Water (Book 2, Chapter 4), Landforms (Book 3, Chapter 2)
2. *To get acquainted with the concept of location and its importance with regard to what, where and how.*
Throughout all three books
3. *To understand varying environments depending on climate, fauna and flora, natural resources and related human responses.*
Climate and human responses (Book 2, Chapter 3), Natural resources and economic activities (Book 2, Chapters 5 and 6), Fauna and flora and human responses (Book 3, Chapters 1 and 3)
4. *To develop consciousness about man-environment relationship and environmental hazards*
From first mention of environmental geography in Book 1, Chapter 1 and throughout all three books; Environmental hazards and people: Tectonic (Book 2, Chapters 1 and 2), Climatic (Book 2, Chapter 3); Environmental problems (Book 2, Chapters 7 and 8); Natural regions (Book 3, Chapters 1 and 3)
5. *To know main population characteristics and patterns of population distribution*
Asia (Book 1, Chapter 6), Pakistan (Book 1, Chapter 7), The world (Book 3, Chapters 4 and 5)
6. *To understand nature of human dwellings; rural and urban, and knowledge of selected cities and their functions*
Pakistan (Book 1, Chapter 7), Pakistan and the rest of the world (Book 3, Chapters 6 and 7)
7. *To get acquainted with the administrative divisions/units of Pakistan*
(Book 1, Chapter 7)
8. *To enhance understanding of the physical and human aspects of Geography of Pakistan*
In particular Book 1, Chapters 7 and 8; also throughout the rest of Book 1, and Books 2 and 3, including settlement (urban and rural) Book 3, Chapter 6.
9. *To get a knowledge about major natural regions of the World*
Especially Book 3, Chapters 1, 2, and 3
10. *To get acquainted with Maps, Map Symbols, and Elementary Map Reading*
Specifically Book 1, Chapter 2, and then throughout the three books

Introduction to *Explore 3*

STUDENT'S BOOK

Explore Book 3 consists of nine chapters. A photograph is used on the first page of each chapter to illustrate the topic under study. Questions arranged below it are intended to encourage pupils to observe and to think about what they are going to learn under this geographical heading. Each chapter is further broken down into sections, typically between two and four in number, for ease of study.

Activities are included both within and at the end of the sections. The majority can be answered from book content, using both text and figures, either directly or with some interpretation and thinking. A few activities require pupils to search for answers elsewhere—from an atlas, from another written source such as newspapers, from TV or the Internet, or from knowledge and investigation of the home area. In those activities where pupils are required to discover for themselves, some guidance about what to look for and what to do is usually included in the question.

From time to time, opportunities are provided for pupils to work in pairs or in small groups. Often it would be possible for the pupil to complete the same activity working alone, should that be considered more desirable. However, working with others can result in a greater number of suggestions and a wider range of points being made. Likewise pupils exchanging work and marking another pupil's work according to a marking guide can be valuable in highlighting to them where they have done well and what is less good about their own work compared with that of others. If successful, the technique might be used on other activities in the textbook, according to the teacher's discretion.

WORKBOOK

The Workbook contains thirty-two pupil activities across the nine chapters. The layout of these is of particular help to lower-ability pupils compared with activities in the book, since spaces are left for completing the answers. Tables, charts, and map outlines are provided for answers. Compared with *Explore 1* and *2*, there is a lower emphasis on practical skills in favour of more and slightly longer written responses. Largely this is a reflection of the different nature of the geographical work between Book 3 and the earlier books, but it also takes into account higher pupil

age. However, the important geographical skills learned in *Explore 1*, and used again in *Explore 2*, are still much needed and used. As in the workbooks for *Explore 1* and *2*, some workbook activities are merely extensions of activities in the book, giving pupils extra opportunities to use practical geographical skills in drawing maps, graphs and diagrams.

TEACHER'S GUIDE

The main purpose of the Teacher's Guide is to provide a commentary to make the textbook easier to use. The main focus of the work is indicated; themes, topics, and key terms worthy of highlight are identified. Ideas which may be useful in planning and executing lessons are included. From time to time, some ways to extend the study are suggested. These can involve individual pupil investigation from other sources, such as the media or Internet, while some of the others rely upon pupil investigation of geographical characteristics in the local surroundings.

Some indication is given for what is expected from the Activities in the textbook and workbook. As appropriate, the best or expected answers to the questions are included. References to the workbook activities are inserted in the commentary after the work, to which they are related, has been covered in the textbook. Occasionally it would be possible, and/or desirable, for pupils to work ahead of coverage in the text.

At the beginning of each chapter is a table which summarizes

- teaching objectives and learning outcomes in relation to the National Curriculum,
- geographical skills included in the chapter,
- new geographical terms used, and
- workbook activities which support and extend book content and activities.

At the end of each chapter is a summary of how the teaching objectives have been met, and how teachers might check the extent of pupils' knowledge and understanding.

LESSON PLANS

The inclusion of teaching objectives and learning outcomes, identifying the main topics of each chapter, and the guidance and explanation preceding each section's content in the Teachers' Guides will facilitate lesson planning. A sample lesson plan outline is given below to facilitate further lesson planning.

The sections in each chapter have their concluding questions in the textbook and following activities in the workbooks, which give a framework for planning lessons, class work, and homework, and assessments.

Finally, it goes without saying that a good, updated, and comprehensive atlas and a globe are indispensable components of teaching and learning geography. *The Oxford School Atlas for Pakistan* (OUP, 2008) is recommended for use along with the *Explore* series.

SAMPLE LESSON PLAN

Class: 8

Subject: Geography

Topic: Distribution and density of population Pages 44–46, Chapter 4

Additional resources: Atlas maps of population distribution and density. Population map of Pakistan for pupils to describe density of population in the home region and suggest factors for high or low density compared with densities elsewhere in Pakistan.

Teaching time: 1 period (generally 40 minutes)

Objective: To acquaint students with the concepts of distribution and density of population

Outcome: Pupils will be able to recognize and describe population patterns on maps and suggest factors to explain the uneven spread of population shown, including factors for both high and low densities.

Introduction: Begin with the dot map in Figure 3.2 on page 28, showing world population distribution. Ask pupils to focus on identification of areas of very low and very high densities. Discuss the clarity of the map for showing the uneven spread of world population.

Lesson outline: Explain the differences between population distribution and density. Ask pupils to identify the main areas of high and low world population density on Figure 4.2 (the bullet points in the text are given as a guide for pupils). Study the physical and human factors affecting population density; stress to pupils the significance of physical factors for explaining low densities and allowing high densities of population.

Activities: (Class work) Activities 1 and 2, page 46

Reinforcement: (Homework) Workbook Activity 1, Chapter 4

Recap/conclusion: After completion of the workbook activity, discuss with pupils the relative merits of the two mapping techniques for showing the uneven spread of population. Identify factors responsible for the high/low density of population in the home region.

Chapter 1 **Natural regions—physical characteristics**

National Curriculum

Target study area in NC

Natural Regions I, II, and III

Teaching Objectives

An understanding of the concept of natural regions, knowing the basis of their classification, especially climate, flora and fauna; knowledge of selected natural regions

Learning Outcomes

Identification of natural regions on a world map; knowledge and identification of changing patterns of regions in tropical, temperate, and polar regions in relation to latitude

Geographical Skills

Skills used are mainly those of interpretation, from a wide variety of source materials including photographs, world map, and climate data

Key geographical terms

- | | |
|---------------------|-------------------------|
| * natural region | * equatorial rainforest |
| * tropical | * savanna grassland |
| * temperate | * monsoon lands |
| * polar | * hot desert |
| * flora | * Mediterranean climate |
| * fauna | * tundra |
| * landscape feature | * fold mountains |

SECTION 1: WHAT ARE NATURAL REGIONS? (PAGES 1–4)

Pupils have already been introduced to the geographical concept of ‘regions’ in earlier books. The study of natural regions represents a good place to begin *Explore 3*. This is because natural regions are the starting point for studying world geography. There are significant differences in opportunities for human settlement and land use between tropical, temperate, and polar zones shown in Figure 1.2, and roughly divided into 30 degree blocks of latitude north and south of the Equator. In advance of individual studies of selected natural regions, pupils can be asked questions such as:

- Why do so few people live in polar lands? Direct them towards Figures 1.9 on page 10, 2.14 on page 19, 3.15 and 3.16 on page 39, and 9.26 on page 131.
- Are the world's wealthy countries (GDP above US\$10,000 per head) predominantly located in temperate latitudes? Look ahead to Figure 8.4 on page 98.
- How and why are opportunities for people so different within tropical latitudes? Compare the photographs, all showing tropical views, on pages 26–27 and 30–31.

Figure 1.3 shows the world distribution of major natural regions. Use the bullet points on page 3 to guide pupils to look for what is of greatest geographical significance. The text then emphasizes the importance of the east-west alignment, indicating the dominant role of climate as the major controlling factor. High relief is the most important factor for disrupting the continuous east-west extent of natural regions across the full width of the continents. Figure 1.4 shows how the equivalent natural regions are arranged vertically in high mountain ranges as opposed to latitudinally across lowlands and plains. Question 1 in the activities on page 4 checks pupils' understanding of the concept of natural regions. Question 2 focuses on natural regions in Asia.

SECTION 2: NATURAL REGIONS IN THE TROPICS (PAGES 4–8)

The objective in this section is to give equivalent information about climate, flora, fauna and landscape features for the four major natural regions in the tropics so that they can be compared, and the distinguishing differences between them are easier to pick out. Direct pupils to first look at climate, the already identified key factor; most of the other differences follow from differences in climate. What really matters in the tropics is precipitation, which is why the average monthly totals have been given for all months of the year. Although there are variations in temperature, the climate is always hot—hot enough for plants to grow and for a wide range of human activities to be carried on, provided that water is available. Notice how the precipitation between the Equator and 30° N and 30° S changes from rain all year, to seasonal rain, to little rain at any time of year. This has consequences for the density and variety of flora and fauna and the major landscape features—from dense rainforests (the 'jungle') around the Equator to bare sandy and rocky surfaces, and highly specialized animals like the camel (Figure 1.7), between 20 and 30 degrees north and south of the Equator.

Given the amount of detail, it is important that pupils are able to see the significant differences. This is the purpose of Question 1 in the activities on page 8. By directing pupils to select only information needed for completing the table, they should have a summary of main changes from 0° to about 30°. Of course, there will still be a considerable amount of detail communicated in the table; Question 2 aims to make pupils identify a single, easy to use, distinguishing physical characteristic for each of the four tropical natural regions.

SECTION 3: NATURAL REGIONS IN TEMPERATE LATITUDES AND COLD POLAR LANDS (PAGES 8–10)

The same layout is used for one example of a natural region in temperate latitudes (Mediterranean) and one in polar latitudes (tundra). Question 1 in the activities on page 10 attempts to highlight certain key features of Mediterranean regions. Part (a) aims to make pupils aware of the larger seasonal differences in temperature in a region located in temperate as opposed to tropical latitudes. Part (b) refers to the unique characteristic of a Mediterranean climate, i.e. seasonal summer drought, which does not exist in any other climate type. Natural vegetation needs special adaptations to survive (part c). Question 2(a) asks for explanation of the tundra's most defining feature (no trees) for determining where a cold temperate climate ends and a tundra climate begins when moving north in Asia and North America. Part (b) requires pupils to make use of Figure 1.9 (also useful after studying landforms made by ice in Chapter 2).

WORKBOOK

- Activity 1 Major natural regions in Africa
- Activity 2 Variations in flora and fauna in the tropics
- Activity 3 Tundra lands of the world

Africa was chosen in **Workbook Activity 1** because of the regularity of the layout of natural regions around the Equator running across the middle of the continent (although the range of major natural regions is less than in Asia). Africa offers quite strong support for the generalizations made about the world distribution of natural regions on page 3 in the textbook. However, it is also useful for showing pupils that nothing in the natural world is ever that neat and simple, that the concept of natural regions is a helpful guide for further study and not something that is set

in stone. In **Workbook Activity 2**, the focus is narrowed down so that pupils can use the text and figures to assemble more detail about flora and fauna in three contrasting tropical natural regions. **Workbook Activity 3** makes fuller use of the world map (Figure 1.3) and the photograph (Figure 1.9). Three physical regions can be clearly identified in Figure 1.9, namely mountains, and lowland, including the lake (water). Pupils can return to this activity after studying the work of ice in Chapter 2 in order to add even more precise labels for the landforms of glaciation shown here (aretes, corries, and moraines).

SUMMARY CHECK

Teaching objective: Knowledge and understanding of the world's natural regions

How it has been met:

- World map of major natural regions
- Separate studies of natural regions in the tropics (equatorial rainforests, savanna grasslands, monsoon lands, and hot deserts)
- Study of major natural regions in temperate latitudes and polar regions (Mediterranean and tundra)

Learning outcome: Knowledge and understanding of the patterns of location and main characteristics of the world's major natural regions

Checking that the objective has been met:

- Pupils study a physical map of the world or one continent in particular such as Asia or the Workbook example of Africa; ask them to identify major natural regions and describe some of the main differences between them.
- Refer to photographs in this chapter and from elsewhere for pupils to identify distinguishing characteristics of selected natural regions.
- Look at the quality of pupils' answers to Activities 1 and 2 on page 8 to check knowledge and understanding of natural regions in the tropics.

Chapter 2 **Landscape features of natural regions**

National Curriculum

Target study areas in NC	Mountains, and Plains, Plateaus and Valleys
Teaching Objectives	An understanding of how landscapes in different natural regions are shaped by the work of rivers, ice, sea, and wind
Learning Outcomes	Students will be able to recognize major surface landforms (of both erosion and deposition) and understand their formation in relation to the work of rivers, ice, sea, and wind

Geographical skills

The main geographical skills practised are observation from photographs and interpretation of diagrams, in order to identify landforms and describe their main features. Practical skills used include drawing sketches and cross sections from photographs

Key geographical terms

* weathering	* glacier
* erosion	* U-shaped valley
* freeze-thaw	* hanging valley
* transport	* corrie
* deposition	* arete
* drainage basin	* pyramidal peak (horn)
* source (of a river)	* crevasses
* delta	* moraine
* tributary	* ribbon lake
* long profile	* lateral moraine
* abrasion	* ground moraine
* hydraulic action	* terminal moraine
* V-shaped valley	* cliff
* gorge	* cave
* rapids	* arch
* waterfall	* stack

- | | |
|-------------------|-------------|
| * lateral erosion | * sand dune |
| * meander | * spit |
| * ox-bow lake | * bar |
| * flood plain | * barchan |
| * levee | * seif dune |
| * distributaries | * wadi |
| * ice sheet | |

SECTION 1: LANDSCAPE FEATURES (PAGES 12–15)

Figure 2.3 and the introductory text essentially show and explain the Earth's rock cycle—what happens to rocks once they are pushed up by major Earth movements (Chapter 1, *Explore Book 2*). The combined effects of weathering and erosion break rocks down and wear them away. Agents of transport (glaciers and rivers) carry them, until eventually they are deposited as sediments in the sea where they accumulate. After millions of years, these sediments may be folded up again into new mountain ranges. It is important to stress to pupils how weathering and erosion work together, with weathering often being the cause of initial rock break-up before agents of erosion take over.

The work of rivers, as the most widespread agent of erosion, is studied first. The River Indus is one of the world's big rivers, dominating the physical and human geography of Pakistan. This is why the extent of the drainage basin is shown in Figure 2.4, essentially all of Pakistan. Rivers are always studied going with the direction of flow from mountains to sea. Figure 2.5 illustrates the change in gradient between upland and lowland sections, which essentially marks the dividing line between erosion and deposition as the dominant river processes. Figures 2.6 and 2.7 show some of the characteristics of mountain rivers and their valleys. Here vertical erosion, or down-cutting, is dominant as the river tries to reach base level (the sea).

Study of landforms involves the use of many specialized geographical terms, some in widespread use, some not. Therefore, Question 1 is included in the activities on page 15 so that pupils can keep on top of the new terminology by making their own dictionary of geographical terms. The terms are highlighted in bold in the text, and in most cases the definition accompanies their use. An alternative approach would be a 'Mix and Match' exercise in which pupils match definitions to river terms. Drawing a valley cross section in Question 2 may be a new task for some

pupils. The sketch drawn in Figure 2.8 quite closely matches the cross section in the Indus gorge shown in Figure 2.7. The valley in Figure 2.6 would also be described as having a steep V-shape, but without being as vertical as that in the gorge section.

SECTION 2: RIVERS AND VALLEYS IN THE LOWLANDS (PAGES 15–18)

The significant changes in river and valley features as the river enters the lowlands are listed in the five bullet points on page 15. Pupils should be able to pick out most of them in the photo in Figure 2.9. It provides a real contrast with the features shown in Figures 2.6 and 2.7. Lateral erosion and deposition replace vertical erosion as the dominant processes, and they lead to the formation of meanders, ox-bow lakes, and flood plains. For the formation of levees and deltas, deposition is the most important process. It is worth stressing the importance of flooding to the formation of all these landforms. It is during times of flood, when river flow is stronger, that lateral erosion is greatest, when rivers are most likely to break through two adjacent outside bends to cut off an ox-bow lake. Flood waters, laden with sediment, build up the levees and add new layers of silt to the top of the flood plain.

Acquaintance with geographical terms continues in a different way in Question 1 of the activities on page 18: pupils are required to show that they understand the difference between listed pairs of features. Figure 2.12 provides the base map for answering Question 2. The delta labels that can be added include many distributaries (including two that are noticeably larger), the River Nile splitting into distributaries (or the delta starting) after Cairo, the triangular shape of the delta, silt or sediment for the area shaded as delta land, and new land built into the sea beyond the old coastline.

SECTION 3: THE WORK OF ICE (PAGES 18–21)

First explain the difference between an ice sheet and a glacier—both made of snow and ice, but differentiated according to size and location. After this, the focus is on the work of valley glaciers for a variety of reasons—they are more numerous and more widespread; they make big, easily observable changes to river valleys; they create distinctive landforms; and they are to be found also in the Himalayan range (including in northern Pakistan).

In any photograph of a glaciated mountain range, such as the one in Figure 2.14, the pupils should be trained to look first for corries, as places of snow and ice accumulation. In this photograph, corries can be seen best in the centre at lower slope levels on K2, below its rocky (pyramidal) peak; other corries can be seen at higher levels particularly towards the top right. Ice movement down the valley, responsible for forming glacial valley landforms, takes place from corrie hollows, while much of the steepening and sharpening of the peaks above begins in the head wall of the corrie. This is why the corrie needs to be studied first.

Diagrams A and B in Figure 2.15 show how glaciers do the work of erosion and transport. The key processes of glacial erosion are abrasion and plucking; pupils can be asked to compare these and how they work with the abrasion and hydraulic work of rivers. The main landforms of glacial erosion are shown and named in Figure 2.16; again, start the study with the corrie and work in both directions up and down the mountain. The scale and size of landforms of glacial deposition shown in Figure 2.17 are less dramatic. Glacial deposits are quite different from river deposits—they are more mixed, less sorted, less rounded, and larger. Some are blocks of rock / big boulders with sharp edges known as erratics. Most other deposits go under the general heading of boulder clay, an unsorted mixture of boulders, clay, and sand. This is dumped by the melting glacier as ground moraine. Occasionally it is shaped by the moving ice into regular small hills, called drumlins. More pronounced lines of moraine are deposited at the glacier edges to form lateral moraines and at the further point reached by the glacier to form a terminal moraine.

In the activities on page 21, Question 1 checks pupil understanding of the difference between an ice sheet and a (valley) glacier. Question 2 is a practical skills exercise, requiring a sketch to be drawn from a photograph, and labelled to identify named glacial features. Question 3 focuses on glacial deposition.

SECTION 4: THE WORK OF THE SEA (PAGES 22–24)

As an introduction to this section, pupils can be asked to describe what they can observe from Figure 2.18. Many pupils may not have had personal experience of coastal features. What is shown is the battle ground between land and sea, with plenty of signs that these cliffs have been eroded, even if the sea was too calm for much erosion to be taking place at the time the photograph was taken. Notice the signs of

undercutting at the bottom of the cliffs, most clearly visible beyond the boats on the left of the photo. Processes of sea erosion have the same names as those for rivers, and operate in similar ways. Just as river erosion is greatest during floods, sea erosion is greatest during storms when waves are bigger and more powerful.

The basic coastal feature, the one that forms first, is the sea cliff. Where rocks have many weaknesses, caves, arches, and stacks may form. The main coastal feature of deposition, and the one most highly valued by people, is the beach. Sea deposition can extend the beach along the coast to form spits and bars, or the wind can blow sand inland to form coastal (as opposed to desert) dunes. Activities for this coastal section are on page 24. They all relate to landforms of coastal deposition. This leaves opportunities for using Figures 2.18 and 2.21 for questions about coastal erosion such as drawing sketches to describe coastal features shown, writing a short paragraph to explain the formation of cliffs and arches, and describing and explaining the changes shown at Paradise Point.

SECTION 5: WIND ACTION (PAGES 24–26)

Many places in the southern half of Pakistan—which has more desert—have ideal physical conditions for wind action. The effects of wind abrasion are easiest to notice on surface rock outcrops, which are highly polished, with all rock weaknesses exposed (Figure 2.22). However, the results of wind deposition are more extensive. Large areas of the Thar Desert are covered by seif dunes. Rainstorms are irregular events in desert regions; however, when they do occur, they are often in the form of intense, sometimes violent, downpours. The flash floods that result have great power of erosion; since water flow is not maintained in deserts, an equally large amount of deposition occurs in and around their wide channels as they dry up. The related activities on page 26 are a mixture of definitions, description, and explanation.

WORKBOOK

- | | |
|------------|--|
| Activity 1 | River in the lowland—before and after river flooding |
| Activity 2 | How glaciers change river valleys |
| Activity 3 | Changing coastlines |

The same theme runs through the three Workbook activities—changes to the landscape caused by agents of erosion. **Workbook Activity 1** shows

the result of a river flood, eroding on the outside bend of the meander (so that the fence is broken) and depositing more sediment on inside bends as flood waters recede. The changes can be explained by factors such as increased force of water in times of flood, main current concentrated on the outside bend and silt/sediment deposition as water levels drop back to normal flow in the channel.

Workbook Activity 2 is about the changes resulting from the passage of a glacier down a pre-existing river valley. The weight of water locked up as ice in the glacier is much greater than was the weight of flowing water in the river; the glacier also fills more of the valley. Therefore, it is easy to understand why the glacial valley is bigger (both deeper and wider), straighter (the glacier has the power to push forward and remove spurs of rock sticking out in its path), and more irregular (rock weaknesses are more ruthlessly eroded by glacial abrasion and plucking).

Workbook Activity 3 shows how wave erosion has changed two sections of coast. Sketch B shows further cliff collapse after a storm. Note that the cliff has retreated inland from its position in Sketch A. The size of the pile of loose rocks broken off by erosion has increased, now almost reaching out to the lighthouse, which is a fixed point for comparison between A and B. The stack in the foreground in Sketch C suddenly collapsed, leaving the stump of rock shown in Sketch D. The rocks forming the stacks can be seen to have both vertical and horizontal lines of weakness. These help to explain the periodic collapses. There used to be a total of twelve stacks on this section of the coast (only five of them are shown in Sketch C); now there are only eleven. All will eventually collapse; separated from the mainland cliffs, they are exposed to greater wave forces and the sea has a larger area to attack, all around their bases.

SUMMARY CHECK

Teaching objectives: Understanding of how landscapes in different natural regions are shaped by the work of rivers, ice, sea, and wind; knowledge of the resulting landforms

How these have been met:

- General explanation about how the land is worn away by a combination of weathering and erosion
- Separate sections on the work of rivers, ice, sea, and wind

- Frequent use and references to photographs and diagrams of landscape features and landforms resulting from the work of rivers, ice, sea, and wind

Learning outcomes: Ability to recognize major surface landforms of erosion and deposition and understand their formation in relation to the work of rivers, ice, sea, and wind

Check that the objectives have been met:

- Pupils can be shown photographs from elsewhere of different landscapes and asked to identify landforms; photographs in other chapters can also be used, such as Figure 1.9 for glacial landforms like arete peaks and moraines.
- Ask pupils further questions about the photographs used in the chapter, beyond the questions already used in activities.
- Check the worth of pupils' answers to the Workbook activities, all of which require understanding of changes to landforms.

Chapter 3 **Natural regions—economic activities and issues**

National Curriculum

Target study area in NC	Natural regions II and III
Teaching Objectives	Impart knowledge of a number of different natural regions in relation to major economic opportunities for people
Learning Outcomes	Knowledge and understanding of changing life patterns in selected natural regions in the tropics and elsewhere

Geographical skills

Skills required include interpretation from maps, diagrams, and photographs and the use of spider diagrams, as well as an ability to express a view on a major issue and give support for it

Key geographical terms

- * pastoralist
- * pastoral nomad
- * oasis
- * Green Revolution
- * temperate grassland
- * indigenous people
- * biodiversity
- * interception
- * hunter-gatherer
- * shifting cultivation
- * sustainable activity
- * plantation agriculture
- * intensive farming
- * extensive farming
- * permafrost

SECTION 1 HOW ECONOMIC ACTIVITIES VARY BETWEEN NATURAL REGIONS (PAGES 28–30)

The dot map of world population distribution (Figure 3.2) allows pupils to identify both the well-populated and largely unpopulated parts of the world. Letters on the map indicate natural regions with few people that cover great expanses of land: A is tundra, B is hot desert, and C is tropical rainforest in the Amazon Basin. The monsoon lands of Asia are shown to be one of the largest areas with continuously high numbers of people. The rest of this section concentrates on hot desert as a natural region which hinders economic activity and human settlement. Physical characteristics were covered in Chapters 1 and 2; questions in the text direct pupils towards landscape features and climate in hot deserts.

The focus here is on traditional ways of life. Contrasts between nomadic and settled ways of life are explained in the context of Arabia and North Africa. Then these are compared with the modern ways of life in parts of the Middle East where significant change has occurred as a result of great oil wealth. Activities on page 30 follow up these themes. Part (b) of Question 2 might offer follow-up possibilities, making use of pupils' knowledge of family and friends who work in the Gulf States.

SECTION 2: MONSOON LANDS AND TEMPERATE GRASSLANDS (PAGES 30–32)

Monsoon lands, and to a lesser extent temperate grasslands, are examples of natural regions where physical advantages encourage economic activities. As a result, little of the original natural vegetation cover remains. The flood plains of the big rivers in South Asia offer ideal environments for intensive farming through a combination of monsoon climate with summer rains (i.e. rain during the main growing season),

flat land, and fertile silt (alluvial) soils. The introduction of high yielding varieties of seeds, plus other farm improvements, has led to economic advances with record levels of crop output. However, the results have been socially less beneficial, creating a widening gap between landless peasants and large landowners.

The temperate grasslands of North America and Asia are ‘bread-baskets’ supplying the urban and industrial areas of the temperate zones of Europe and North America with wheat, maize (corn), and beef. Unlike the monsoon lands, these areas were not densely populated by indigenous peoples; new technology from the era of the Industrial Revolution was needed to allow settlers from outside to successfully exploit the fertile black soils. The level or rolling plains stretch for miles without a person in sight, especially in areas used for pasture as Figure 3.7 shows.

In the activities on page 32, Question 1(a) asks pupils to state similarities and differences between landscapes in the two different natural regions. For answering part (b), you may direct pupils towards an atlas example of a climate graph within the Prairies or Steppes, such as on page 78 of the *Oxford School Atlas for Pakistan*. Question 2 is narrower, just about the Green Revolution. Since this has had a big impact on South Asian agriculture, it is worthy of special study; it is useful for emphasizing again to students that changes for overall good do still have their downsides.

SECTION 3: TROPICAL RAINFORESTS (PAGES 32–35)

This and the next two sections are given over to tropical rainforests; this can be justified on the basis of their global importance and the extent to which their clearances have become a topic of international debate. By means of an introduction, revise earlier coverage of the forests on pages 4 and 5. This time, lay stress on their great biodiversity, which is briefly illustrated in the Information Box on page 33. As previously for hot deserts, the human occupation is split between the traditional and the new. The theme running through the traditional is one of sustainable living—why do traditional activities such as hunter-gathering, shifting cultivation and rubber tapping using wild trees leave such a low imprint on the rainforests? The key question is put to pupils in the paragraph at the top of page 33—why are they in decline when they are so sustainable?

What might be called ‘modern’ forest uses and types of farming are described in the rest of this section. After the separate information about

logging hardwoods, plantation agriculture and commercial cattle ranching, pupils are asked the same question—how sustainable is each of these activities? Of course, these farming activities have taken rainforest regions a long way from their distinguishing characteristic of great biodiversity, referred to in the first paragraph.

Questions in the activities on page 35 continue the themes in the text. Question 1 checks pupil understanding of biodiversity. Question 2 asks for the main differences between different types of farming, both traditional and modern, subsistence and commercial. Question 3 is more of an evaluation exercise. The best rank order for farm output is: 1 (most) plantation agriculture, 2 cattle ranching, and 3 (least) shifting cultivation. The best order for damage to the environment is: 1 (most) cattle ranching, 2 plantation agriculture, 3 (least) shifting cultivation. There is plenty of supporting evidence in the text and figures for pupils to use to explain this rank order for damage to the environment.

SECTION 4: PRESERVING THE WORLD'S TROPICAL RAINFORESTS (PAGES 35–36)

The importance of preserving the world's tropical rainforests is explained first in terms of saving the forest soils, the fertility of which depends on a continuous and rich nutrient cycle with few leaks. Figure 3.10B is good visual evidence of what happens after forest clearance on a slope. Then a more global view is taken, with reference to the usefulness of the biodiversity of plant species to the discovery of new drugs and varieties of seeds. Environmental uses of rainforests, particularly as carbon stores, are now being given more prominence, with suggestions that countries such as Brazil should be paid by rich developed countries for not clearing their forests, thereby helping to reduce further rises in global carbon dioxide emissions.

The themes of the activities on page 36 are tropical soils (Question 1) and the value of tropical rainforests (Question 2). To keep their fertility, all soils need constant mineral renewal and replacement. In the big river valleys of Asia this is done by silt deposition in floods; in the temperate grasslands it is minerals drawn up to the surface as annual evaporation exceeds precipitation. In the rainforests it is the scale and speed of nutrient recycling, but this is lost with forest clearance. When the topsoil is washed away as in Figure 3.10B, what is lost is the richest part of the soil, the part with the greatest organic content and concentration of

nutrients. This is why clearances need to be small and inefficient (as in subsistence farming) for the forest vegetation to re-invade, which seems unlikely in the area shown in Figure 3.10B.

SECTION 5: CASE STUDY OF THE TROPICAL RAINFOREST: THE AMAZON BASIN IN BRAZIL (PAGES 37–39)

The first point to make is that there is an awful lot of rainforest still remaining in Brazil. Brazil is the fifth largest country in the world by area; it covers half the land area of South America. About half the country is still covered by rainforests, most of which are in the Amazon Basin within the area demarcated in Figure 3.11. Nevertheless, rainforest losses are large; by giving an example in relation to the size of Pakistan will make it easier for pupils to visualize this. A spider diagram is used in Figure 3.13 to summarize reasons for these losses. Economic losses are colour-washed pink, social losses green, and political, blue. As is almost invariably the case, the greatest weight should be given to the losses that are economic. Money rules!

Further information about some of the recent (post-1970) developments in the Amazon Basin are given in Figure 3.14 and the accompanying text. Road building has been the key to opening up the Basin to new settlers from established areas of settlement in the east of Brazil. Road building was made feasible economically by the size of the mineral wealth. Loggers and then farmers, cattle ranchers, and soybean growers followed.

The values in Figure 3.2 allow pupils to draw a bar graph to show rainforest losses in Question 1(a) in the activities on page 39. In contrast, part 1(b) requires expression and explanation of a view about future forest losses. Explanation is what matters, not the view itself. Question 2 invites pupils to select three of the seven reasons for forest clearances in Figure 3.13; again, the quality of explanation matters more than actual choice.

SECTION 6: TUNDRA LANDS (PAGES 39–42)

The study of tundra lands provides an interesting comparison with rainforests. There are some similarities—both are natural regions covering large areas, with few indigenous settlers, and of little interest to outsiders until recently. The big difference is the climate and the problems caused for plant growth and human (and other animal) survival in the tundra. Before starting, pupils can be reminded of the world distribution of tundra lands (Figure 1.3, page 2) and the climate (page 9). The text begins

with problems for plants, animals, and people. Despite all the problems, groups of people such as Inuits in North America and Lapps in Europe made it their home; although the two groups lived in different ways, both survived by working with the environment and using nature's resources. Recent changes mirror those described for the Bedouins of Arabia.

Outsiders have had only one interest, exploiting the mineral riches. First it was gold, then a wider variety of minerals, and now it is oil. There are two main problems with this kind of development. Once commercial quantities of the mineral are exhausted, everything is abandoned to leave 'ghost towns', like those in the old gold mining areas of the Yukon. It will be no different once today's minerals run out. Secondly, the tundra is a fragile environment, where everything struggles to survive and disruption spells disaster. The Alaskan pipeline was constructed to accommodate environmental needs—but what will happen once the oil stops flowing?

Question 1 in the activities on page 42 focuses on the sustainability of traditional lifestyles of the indigenous people in tundra lands. This continues one of the main themes running through this chapter. Question 2 is about the problems for outsiders and asks why mining is the main activity for them. Pupil work or class discussion can be extended to include the role of minerals in the development of the Middle East and Amazon Basin—would these areas be changing so much without the presence of minerals?

WORKBOOK

- | | |
|------------|---|
| Activity 1 | Traditional ways of life and change in hot deserts |
| Activity 2 | Monsoon lands |
| Activity 3 | Rainforest clearances in the Amazon Basin of Brazil |
| Activity 4 | Case study—Oil in Alaska |
| Activity 5 | Further oil exploration in the Arctic—should it be allowed? |

Workbook Activity 1 contrasts old and new in the Arabian Desert. Pupils are guided through questions about traditional ways of life in 1(a) and why this way of life is under threat in 1(b). In question 2 they are asked to describe the 'American', 'Western' modern look of Dubai from Figure 3.4. Question 3 is speculation about the future, but with an obvious likely answer. **Workbook Activity 2** is about monsoon lands and what makes them among the most densely populated places on Earth. The focus of **Workbook Activity 3** is rainforest clearance in Brazil. Questions

1 and 2 are attempts to highlight the importance of roads for opening up the Amazon Basin to new settlement and economic development. Rainforest clearance is a controversial issue. Five different views about it are given in the spider diagram in Question 3. Having identified people for and against clearance, pupils are asked to explain the view they can identify with most. As in answers to some of the activities in student book, it is quality of pupil argument that matters more than the view held. On completion of the activity, individual pupil choices can be collated to give class totals, offering further opportunities for visual display and discussion.

In **Workbook Activities 4** and **5**, the location switches to the Arctic tundra. **Activity 4** makes fuller use of the content in the student book, about already existing oil exploitation in the region. **Activity 5** follows a different theme: should further, future oil exploitation be allowed? The geographical background of an area now subject to oil exploration (but not yet exploitation) is given in the Information Box and map in the Activity. Pupils are first asked to identify features that make the area a wilderness, to try to get pupils to appreciate what the area is like. Then pupils are given four views about exploration to study (similar in many ways to those for rainforest clearance in Brazil in Workbook Activity 3). This time pupils are required to do answer in a different way, by writing about their preferred view in the form of a speech, such as the type which might be used by someone at a public meeting called for discussion of the proposal. What makes a good speech? It is much the same as makes a good written account, well organized with the main points clearly stated.

SUMMARY CHECK

Teaching objectives: Knowledge of different natural regions and related economic opportunities for people

How these have been met:

- Identification of natural regions with low and high numbers of people, in different latitudes
- Differences between traditional and modern ways of life, how and why economic opportunities are changing in these regions
- Special studies of selected natural regions—hot deserts, monsoon lands, tropical rainforests, and tundra lands

Learning outcomes: Knowledge and understanding of changing life patterns in selected natural regions in the tropics and elsewhere

Check that the objectives have been met:

- Look at the accuracy and quality of pupils' answers which focus on change such as question 2(a) on page 30, Questions 2 and 3 on page 35, Question 1 on page 36, and Questions 1 and 2 on page 42.
- Check pupils' understanding of different views about change—why some individuals and groups of people are more in favour of change than others. Workbook Activities 3 and 5 are particularly useful for doing this.

Chapter 4 **World population**

National Curriculum

Target study area in NC

Pattern of Population Distribution, Population

Teaching Objectives

Awareness of basic population concepts including distribution, density, and growth; elementary knowledge of world population distribution, including identification of major areas of population density

Learning Outcomes

Ability to describe and recognize population patterns on world maps and appreciate factors of uneven distribution and the relationship between population change and economic development

Geographical skills

Skills required include interpreting a variety of maps, graphs, and diagrams including shading maps, line graphs, flow and dispersion diagrams.

Key geographical terms

- * distribution of population
- * density of population
- * birth rate
- * death rate

- * natural increase
- * natural decrease
- * population change
- * migration

SECTION 1: WORLD POPULATION DISTRIBUTION AND DENSITY (PAGES 44–46)

The section begins with an explanation of what is meant by *distribution* and *density* of population. The two terms are often used interchangeably in a loose manner, but they are quite separate, even if at the end of the day both have the same aim, i.e. identifying areas where many and few people live. Distributions are always shown on maps by using dots; one dot represents a stated number of people (or houses, animals, factories, etc.). Figure 3.2 on page 28 shows the world distribution of population, whereas density is shown on a shading (choropleth) map, as in Figure 4.2 for world population density, ideally with denser shading or stronger colours for areas of high density. The two world population maps of the same size in the student book give pupils the opportunity to discuss which of two shows better the uneven spread of population over the Earth's surface. This is one of the key learning outcomes of the National Curriculum.

The explanation of world population and density requires reference to many geographical factors, both physical and human. The most important factors are identified and elaborated upon in Figure 4.3. The text attempts to explain how the relative importance of physical and human factors varies according to location; overall, however, there is little doubt that physical factors can never be ignored. The more difficult the physical environment for human settlement, the stronger the physical influences. Areas empty or almost empty of people were identified by letters A, B, and C on Figure 3.2 and explained in the accompanying text for individual natural regions within Chapter 3.

Question 1 in the activities on page 46 is an attempt to highlight variations in population density in individual continents, beginning with the home continent of Asia. Asia is characterized by some of the world's highest and lowest population densities. In Africa and Asia, the hot desert regions stand out as areas of low density. In Australia note the coastal concentrations; in Africa note the strip of higher density following the Nile Valley in Egypt between the rest of the Saharan and Arabian deserts. Question 2 is about the factors most useful for explaining high population densities in rural and urban areas of Asia. The urban text on page 45 refers to big cities anywhere in the world; perhaps the world's greatest concentration of business skyscrapers is in Manhattan, New York (Figure 4.4). Look ahead to Figures 9.1 and 9.5 for Asian equivalents.

SECTION 2: QUESTIONS AND ANSWERS ABOUT WORLD POPULATION DISTRIBUTION (PAGES 46–49)

The text layout is in the form of ‘Questions and Answers’ in an attempt to explain the uneven spread of people across the Earth’s surface. Four key features of world population spread are identified and explained. Pupils should keep referring to Figures 3.2, 4.2, and 4.5. The text covering natural regions should allow pupils to explain why some areas of the world remain uninhabited. The flow diagram in Figure 4.6 summarizes reasons why most hot deserts are sparsely populated. A similar summary diagram could be drawn for areas that are too cold. The second feature, a majority of the world’s population living within reach of the sea, brings in human as well as physical factors and allows a reference to Pakistan. The dominance of world population living in the northern hemisphere, and in Asia and Europe in particular, are the third and fourth features explained. Their explanation allows for an increasing use of human factors, notably intensive farming and high levels of industrialization.

Questions in the activities on page 49 require pupils to adapt and apply from the content on pages 47 and 48. Question 1 is about drawing another flow diagram like the one in Figure 4.6, but this time to explain why high mountain areas are sparsely populated; pupils have the frame, but need to amend the contents. Question 2 reverses the second question asked and answered in the text. For Question 3, pupils need to understand how human factors are different between Europe and Asia for explaining high population densities. In addition to these questions, this is perhaps the best place to ask pupils about the relative merits of dot and shading maps for showing the uneven spread of people over the Earth’s surface. Using Workbook Activity 1 will help to do this.

SECTION 3: POPULATION CHANGE (PAGES 49–52)

Another major area of study in world population geography is population change, or more precisely, world population growth. This has been nothing short of phenomenal over the last 60 years as Figure 4.10 shows. The number of years needed for world population to increase by one billion fell significantly from about 1960, shown by the increased gradient on the line graph. The specialist term applied to this is ‘exponential population growth’. It is explained by studying the relationship between birth and death rates, from which the rate of natural increase can be calculated.

Examples for both continents and countries are given in Figure 4.11. This table highlights the great variations in rates of increase between the developed and developing worlds (Europe compared with Africa and Asia), as well as between different parts of the developing world (Asia compared with Africa). Death rates dropped fast in the second half of the 20th century for the reasons given on page 52. Therefore, what is most significant for explaining population growth is the size of the birth rate. As a result, the map showing the world distribution of birth rates in Figure 4.12 can be viewed almost as a map of the world distribution of population increases. The bullet points at the bottom of page 50 are intended as a guide to pupils, to try to ensure that their attention is focused on what is most significant. Teaching and examining experience has shown that most pupils have problems identifying patterns from maps. The extremes are always easiest to explain, which is why only factors for low and very high birth rates are listed in Figure 4.13.

The content on page 52 focuses on death rates. It is never easy to explain to pupils how and why death rates are so similar between countries, in such stark contrast with big birth rate differences. All the countries with death rates above 20 per 1000 are shown and listed in Figure 4.15; most are within the range of 7–20 per 1000. Remember that the death rate is a ratio—the number of deaths per 1000 of the population per year. In countries with high birth rates, a high proportion of the population is young; in some African countries over 50 per cent of the population is below 15 years old, well below the age at which they can be expected to die. This keeps the ratio for the death rate low, even in countries where life expectancy is quite low.

In the activities on page 52, pupils will find it easier to answer Question 1 if they take note of the bullet points at the bottom of page 50; by restricting the description to above 25 years and below 15 years, the world pattern is more clear-cut. Over 25 is essentially restricted to countries in Africa and South Asia, and only a few others (for example, Mexico, Bolivia, North Korea, and Mongolia). Below 15 is confined to Western Europe, Canada, Japan, Australia, and New Zealand. Question 2 reduces the area of study to the home country. Question 3 is about how health care reduces death rates. As extension work, pupils could be asked why it is always quicker and easier to reduce death rates than to reduce birth rates.

WORKBOOK

- Activity 1 World population—distribution and density
Activity 2 Why cold tundra lands are sparsely populated
Activity 3 World population growth—when did ‘take-off’ happen?

Workbook Activity 1 makes pupils think about the uneven spread of population, as well as the relative merits of the two mapping techniques for showing it. The same size of Figures 3.2 and 4.2 in the book should help them make direct comparisons. **Workbook Activity 2** focuses on two areas with great differences in population density. Pupils are required to organize the factors responsible in summary flow diagrams, as used in Figure 4.6. **Workbook Activity 3** makes use of Figure 4.10 on page 49. The practical skills exercise to draw a bar graph is followed by written explanation, which requires pupils to demonstrate a degree of judgement.

SUMMARY CHECK

Teaching objectives: Awareness and knowledge of world population distribution, density, and growth, including major areas of high population density

How these have been met:

- World maps showing variations in population density, physical factors limiting population density and birth rates
- Explanatory text and comment about factors affecting population densities
- Questions and answers about the key features of world population distribution
- Explanation for variations in population growth in relation to birth rates, death rates, and size of the natural increase

Learning outcomes: Ability to describe and recognize population patterns on world maps and to appreciate factors of uneven distribution; understanding the relationship between population change and economic development

Check that the objectives have been met:

- Look at the quality of pupils’ answers to Activity 1 on page 52 for ability to describe and recognize patterns from a world map.

- Do similar checks using world thematic maps related to population in an atlas.
- Look ahead to Figure 8.4 on page 98 (world map of variations in wealth related to economic development) and ask pupils to describe and recognize patterns in relation to what Figure 4.12 shows for the world distribution of high and low birth rates.

Chapter 5 **Population issues**

National Curriculum

Target study areas in the NC	Population
Teaching Objectives	To create awareness of the connection between population change and levels of social and economic development, both between countries, and within the same country between rural and urban areas, and also of the relationship of population with natural resources
Learning Outcomes	Understand how levels of social and economic development affect the speed of population change; appreciation of the relationship between population and natural resources
Geographical skills	Skills used are focused on the use of graphs and their interpretation; this includes line graphs, population pyramids and bar graphs. Practical skills required include calculation and drawing a pie chart. Much emphasis is placed on expressing views about issues and supporting them with evidence.

Key geographical terms

- * population structure
- * population pyramid
- * cycle of poverty
- * population policy

SECTION 1: POPULATION PROBLEMS AND ISSUES IN POOR COUNTRIES (PAGES 54–56)

Pakistan is used as the example around which to develop the text for issues associated with rapid population growth, highly relevant to many countries in Asia, Africa, and South and Central America. Population structures are dominated by high percentages of young people. A population pyramid (using either population numbers or percentages) is the technique used by geographers to show the age-sex distribution of a country's population (Figure 5.3). Bullet points in the text on page 54 guide pupils towards what is required when interpreting the population pyramid for Pakistan. An outline survey of problems resulting from rapid population growth follows; in Figure 5.4 these are separated out between rural, urban, and national for ease of study. However, there is much overlap between the headings. The most significant message from each one is highlighted by the question and answer in the bottom of each of the boxes.

Activities relating to this section are at the top of page 56. The answers to Question 1 for the population doubling times are 50, 21, and 26 years. Population increases are 16.5, 33, and 66 millions, which should indicate to pupils the fast speed of population growth. This is confirmed by the steepness of the line gradient in Figure 5.2, used in Question 2(a). The next two parts of the question isolate the key percentages for Pakistan's population structure for pupils to display in a pie chart and comment on in terms of future population growth.

SECTION 2: POPULATION DIFFERENCES BETWEEN RURAL AND URBAN AREAS (PAGES 56–58)

Population differences between the countryside and cities are highlighted in this section, particularly in relation to attitudes towards children. Poverty exists in both areas, but there always seems to be more hope of breaking out of the poverty trap in the cities, even if it takes many years of living there for hope to become reality. Urban poverty, made worse by large family sizes, is most visible in slum areas, like the one shown in Figure 5.7. Pupils could work in pairs or in small groups to assess and agree upon the relative quality of housing shown in Figure 5.7—from their own observation in Pakistan, is it the worst example of slum housing? They could perhaps work together on Questions 1 and 2 in the activities on page 58 before writing individual answers.

SECTION 3: POPULATION POLICIES IN ASIAN COUNTRIES (PAGES 58–61)

Asia is a good area of study since national population policies here range from the world's strictest in China to non-existent in some oil-rich Middle Eastern countries. This has led to wide differences in population characteristics between Asian countries, some of which are shown in Figure 5.8. The economies of Pakistan and South Korea are compared in Figure 5.9 and the accompanying text. There has been a great divergence since 1950 when the income per head was similar in the two countries. South Korea became one of the 'East Asian Tiger' economies and industrialized (look ahead to page 103 in the textbook), while Pakistan remained predominantly agricultural. Birth and fertility rates have fallen sharply in South Korea but much more slowly in Pakistan. A case study of China's 'one child' population policy follows on page 60. Certain unique conditions existed in China which at first necessitated and then allowed the implementation of the world's strongest national population policy.

In Question 1 in the activities on page 61, pupils are asked to identify some of the similarities and differences between population characteristics of the Asian countries shown in Figure 5.8. Question 2 requires pupils to show understanding of the difference between the 'carrot' and 'stick' approaches to population control. In Question 3, pupils are invited to express their own views about whether or not Pakistan needs a stronger national population policy.

SECTION 4: PEOPLE AND THE ENVIRONMENT (PAGES 61–64)

Pollution and its effects on the environment have been regularly referred to in earlier *Explore* books, most notably in *Explore 2*, Chapters 7 and 8. Hence only a brief reference is made to them here in the context of population growth: what is developed more fully is the effect of population growth on the Earth's natural resources. The reference to the views of Thomas Malthus—expressed during the early days of the Industrial Revolution in the UK—shows that the worries voiced by today's environmentalists are nothing new. An audit by environmental groups in 2000 indicated the unsustainable level of use, or overuse, of the Earth's natural resources. Figure 5.15 summarizes the value of natural ecosystems for humans, at a time when such ecosystems are under increasing pressure from growing human populations. Refer back, for example, to the three sections on tropical rainforests within Chapter 3, pages 32–38.

For answering Question 1 in the activities on page 64, pupils may be advised to look back to Chapter 3 to find information that will enhance their answers. This is almost a summary question for work covered under the heading of economic activities and issues in natural regions, which additionally takes world population growth into account. Question 2 gives plentiful opportunity for pupils to formulate, express, and support their views on the future. Evidence can be found to support the full range of views from total pessimism to great optimism.

WORKBOOK

- | | |
|------------|--|
| Activity 1 | Population problems from great population growth in developing countries |
| Activity 2 | Population growth in Ghana |
| Activity 3 | Population growth in China |

Workbook Activity 1 makes fuller use of the substantial content within Figure 5.4. It shows another way to categorize problems resulting from great population growth, perhaps the way used most often. Placing problems, factors, etc. into categories is an important geographical skill, much used particularly in higher levels of study. Question 2 brings the scale back from general and worldwide to what is most significant in Pakistan. **Workbook Activity 2** looks at population growth, population policy, and differences in viewpoints between people living in rural and urban areas in Ghana, a country with GDP and income levels per head very similar to those of Pakistan. Pakistan can be compared with Ghana for population characteristics and possibilities for future population growth. Would interviews of people in the cities and countryside of Pakistan be likely to yield similar comments to those from Ghana? **Workbook Activity 3** develops the China population policy case study from page 60 in the student book. Differences between population growth in China and Pakistan are also highlighted. Question 2(b) introduces pupils to some of the negative effects of China's policy. It is worth reminding pupils to always look for both sides of an issue, since there are positive and negative effects to most things.

SUMMARY CHECK

Teaching objectives: Awareness of how population change (both between countries and between rural and urban areas within countries) is related

to levels of social and economic development; also awareness of the relationship between population and natural resources

How these have been met:

- Study of population growth and structure in Pakistan as an example of a developing world country with a rapidly growing population
- Population differences between rural and urban areas and variations in poverty levels
- National population policies, including a case study of China's one child policy
- Comparison of income per head and population change between Pakistan and South Korea
- Population growth and consumption of the Earth's natural resources

Learning outcomes: Understanding of how population change is affected by levels of social and economic development; appreciation of the relationship between population and natural resources

Check that the objectives have been met:

- For understanding of population change and levels of social and economic development, look at the quality of responses to Question 1 on page 59, and ask further questions about what Figure 5.9 shows and why.
- For appreciation of the relationship between population growth and natural resources, look at the worth of responses to Questions 1 and 2 on page 64.
- Look ahead to Figure 8.8 on page 101, showing GDP per head for selected Asian countries; ask pupils to compare level of economic development with population characteristics in Figure 5.8, especially the birth rate and natural increase (say for Japan and Singapore, compared with China and Thailand, and with India and Pakistan).

Chapter 6 **Rural settlement and city growth in Pakistan**

National Curriculum

Target study area in the NC	Rural Settlements, Urban Settlements, World Cities with Functions
Teaching Objectives	Impart an understanding of rural settlements and the factors for their location and village patterns; provide an elementary knowledge of the structure and functions of towns and cities, including settlement hierarchy, with particular reference to Pakistan
Learning Outcomes	Ability to describe and explain locational factors for rural settlements and understand settlement patterns; recognize different types of structure, growth, and functions of towns and cities

Geographical skills

Practical skills used in activities include drawing labelled sketches, completing a table and drawing a sketch map of urban zones. Study of settlements from maps, diagrams and photographs is required throughout the chapter

Key geographical terms

- | | |
|--------------------------|------------------------------|
| * dispersed settlement | * linear settlement |
| * nucleated settlement | * planned settlement |
| * site (of a settlement) | * function (of a settlement) |
| * dry point site | * urban zone |
| * form (of a settlement) | |

SECTION 1: PATTERN OF RURAL SETTLEMENT IN PAKISTAN (PAGES 66–68)

Geographers recognize two basic patterns of rural settlement, dispersed and nucleated. Of the two, nucleated is more common both worldwide and in Pakistan. After a study of siting factors on page 67, pupils should

be in a better position to explain why nucleated settlement (focused on villages) is more common than dispersed settlement (focused on individual farms and houses) in the rural areas of Pakistan. Of the six siting factors identified in Figure 6.5, water supply and resources for food have always been the two most important, except in locations where there were other special needs. The example given in the text is for defence, but on flood plains in major river valleys where water availability and good farmland are plentiful, a dry land site free from flooding was often the key factor for siting the settlement. Whenever possible, you are recommended to use local examples to illustrate these siting factors. The section ends with a special note about water supply, vital everywhere, but particularly important in countries like Pakistan with a mainly dry climate.

Question 1 in the activities on page 68 tests pupils' comprehension of the differences between dispersed and nucleated patterns of settlement. Question 2 focuses on the key siting factor of water supply. There may be opportunities for extending the activities to an investigation of settlement location in the home region in relation to water supply availability.

SECTION 2: HOW DO VILLAGES IN PAKISTAN VARY IN FORM AND LAYOUT? (PAGES 68–71)

The focus switches from site to form. Although rural settlements come in many different sizes and shapes, certain distinguishing patterns of layout are recognizable worldwide, none more so than the linear shape following roads or even tracks. As the text explains, sometimes steep valley relief makes an additional contribution to the linear shape. Over time, some well-located villages grow and become towns. Most keep their original form because growth tends to occur first along the sides of the routes before the land between is filled in with buildings. Again, there may be opportunities to replace or supplement the examples used in the text with local examples.

In the activities on page 71, Question 1 identifies and isolates some of the key settlement terms introduced in the text, and asks for definitions. Pupils can support their definitions by sketches and diagrams for greater clarity. Question 2 requires more detailed study of the planned settlement shown in Figure 6.10. There are extension opportunities for comparing the layout of this settlement with others in the textbook, such as in

Figure 6.3, or those in the thematic maps on page 21 in the *Oxford School Atlas for Pakistan*.

SECTION 3: THE PATTERN FOR URBAN SETTLEMENT IN PAKISTAN (PAGES 71–73)

The focus here moves from rural to urban settlements. The key differences between them were outlined in *Explore* Book 1, Chapter 7. These are now taken further, with more emphasis on function. This geographical term needs careful explanation; hopefully, the Information Box will help. Reinforce the topic by asking pupils to identify the main functions of the settlement in which they live. Although the basic map in Figure 6.14 highlights the distribution of the top ten cities in Pakistan and their relative sizes, the labels indicate main functions. Notice how the number and variety of functions are greater in the two largest cities (Karachi and Lahore) than in the other smaller cities.

The activities relating to this part of the work are on page 73. Question 1 requires pupils to extend Figure 6.13 so that information is now stated separately for villages as well as towns and cities; at present, most statements are comparative with an urban bias. Part (b) introduces another element, lifestyle, which also touches on differences in quality of life between rural and urban areas. Pupils should start from their own experiences (most likely urban) in order to appreciate differences in villages where service provision and work opportunities are more limited. Question 2 gives pupils the chance to investigate and write more fully about the big city with which they are likely to be most familiar.

SECTION 4: URBAN SETTLEMENTS—LAND USES AND LAYOUT (PAGES 73–75)

Land uses in urban settlements are much more varied than in rural villages and small towns. Headings for the main uses of land in urban areas are given as an introduction to this section. Questions A–D encourage pupils to think geographically about their nearest urban area, i.e. where they live, aiming to make them look at their surroundings through geographical eyes, in a way that they have not done previously. Just as geographers use natural regions for the study of world physical geography, urban zones are used to aid the study of cities. Urban zones are areas of the city where land uses are similar, and can be used to distinguish that part of the city from other parts. The best and easiest

place to begin any urban study is the city centre, universally referred to in geographical studies as the CBD—Central Business District. With its concentration of old and high rise buildings, it is the urban zone which is always the easiest to identify.

In all urban areas, the land use which covers the greatest area is housing. Here lies the biggest difference between cities in developed and developing countries. Housing in developed world cities is mostly formal, even if some of it is old and in bad condition, whereas a significant percentage of housing in most developing world cities is informal, of the type described in the bottom half of page 74. The activities on page 75 test pupils' understanding of these key urban ideas with definitions of key terms in Question 1, focus on the CBD in Question 2, and land uses in the pupil's nearest urban area in Question 3.

SECTION 5: CITIES IN PAKISTAN—LAND USES AND LAYOUT (PAGES 75–78)

The contrast in land uses and layout between Pakistan's major cities is the theme of this section. The study begins with Islamabad, unique because it is a planned 'new' city. In the layout of its land uses shown in Figure 6.17, there are parallels with the layout of rural settlements on reclaimed land in Sindh and Punjab (Figures 6.3, 6.10, and 6.11), due to its grid and block-like layout. For pupils who do not live in Islamabad, and have never visited there, its appearance in Figures 6.1 and 6.18 would look very different from that of other cities in Pakistan. Figure 6.19 is included to highlight the differences between the regular geometric road layout of planned Islamabad and the more common irregular road pattern, which developed over centuries, in neighbouring Rawalpindi.

Likewise, the layout of Lahore with its 1000-plus years of history, shown in Figure 6.20, provides another contrast with Islamabad. Over the centuries it has grown outwards, mainly southwards, from the old walled city close to the Ravi River in the north. It looks like a 'normal city' (compare Figures 6.21 and 6.22 with Figure 6.18); land use arrangement conforms more closely with that found in cities elsewhere, with wealthier residential areas away from the old, congested city centre.

Karachi provides a further contrast; it has only 200-plus years of history and its layout was influenced by settlement from the sea, not from the land. This is why the commercial centre is close to the coast and port, with later urban growth towards the north and east (Figure 6.23). Urban

zones are easier to identify than in other cities of Pakistan. This is partly because some of the land uses, such as port and industries, naturally concentrate in certain zones, and partly because of the outside influences which affected its growth.

Question 1 in the activities on page 78 is about differences in layout between a new planned city and an old historical city that has grown gradually through time. In the UK, as well as in Cairo (look ahead to pages 89–91), planned new towns tend to be less popular places to live in than old towns and cities. Is this the view among pupils and people in Pakistan as well? Karachi is used as the example for studying urban zones in more detail in Question 2(a) because its CBD and main commercial areas, as well as the industrial zones, are easier to identify and locate. Pupils should use Figure 6.23 as the base for drawing their own sketch map, and be guided by the text on page 78. The photographs in Figures 6.24 and 6.25 help with answers to Question 2(b). Question 3 is more challenging since the urban zones in Lahore are not as clearly defined outside the CBD and surrounding low rent residential areas in the north near the Ravi River.

WORKBOOK

- | | |
|------------|--|
| Activity 1 | Rural settlement—site |
| Activity 2 | Rural settlement—shape and layout |
| Activity 3 | Urban settlement—Pakistan's top 10 cities |
| Activity 4 | Fieldwork investigation of urban zones in Lahore |

Workbook Activities 1 and 2 make use of various figures in the textbook—a mixture of photographs, maps, and diagrams—in order to develop pupil understanding of key rural settlement terms: site, shape, and layout. **Workbook Activity 3** needs Figure 6.14. The pyramid hierarchy is: two cities over 10 million (Karachi and Lahore), one over 5 million (Faisalabad), and five over 1 million (Rawalpindi, Gujranwala, Multan, Hyderabad and Peshawar). Only two of the many cities above 100,000 in Pakistan (Islamabad and Quetta) are named on the map. This study can be extended by using the atlas to find more cities with populations over 100,000, in order to add to and confirm the pyramid shape associated with the hierarchy of city size.

Workbook Activity 4 is the type of investigation which might be undertaken in the pupils' home towns and cities. This exercise is based

on the map, photographs, and text about Lahore in the textbook on pages 76 and 77. However, it is less satisfactory than doing it through personal investigation and observation. Certain alternative answers may need to be accepted depending upon individual pupil interpretation of the resources. The area marked A is the CBD, the main commercial area shown in yellow on Figure 6.20; B is the up-market residential area in the suburb of Gulberg, mixed with modern commercial areas, as referred to in the text; C is simply residential areas (of varying standards); D is more industrial and less residential. More space and access to transport routes are the most likely factors to explain why the industrial area and Lahore Race Club cover large areas of land in zone D.

SUMMARY CHECK

Teaching objectives: To impart an understanding of rural settlements including factors for location and village patterns; to provide an elementary knowledge of the structure and functions of towns and cities, including settlement hierarchy, with particular reference to Pakistan.

How these have been met:

- Study of patterns of rural settlement and siting factors for villages in Pakistan
- How villages in Pakistan vary in form and layout, explained with examples
- Settlement hierarchy and functions of the top ten cities in Pakistan
- Urban land uses and layout in cities of Pakistan, with examples of Islamabad, Lahore, and Karachi

Learning outcomes: Ability to describe and explain locational factors for rural settlements and appreciate settlement patterns; recognition of different types of structure, growth, and functions of towns and cities.

Check that the objectives have been met:

- For rural settlements, look at the quality of responses to questions in the Activities on pages 68 and 71.
- For urban settlements, look at the quality of pupils' work in the Activities on pages 75 and 78.
- Pupils study maps or street plans of cities in Pakistan in the atlas or from elsewhere to check their ability to recognize land uses, layout (including urban zones), and functions (i.e. to interpret what they show in a geographical manner).

Chapter 7 **World urbanization**

National Curriculum

Target study area in the NC	World Cities with Functions, Urban Settlements
Teaching Objectives	To impart understanding of city growth as a worldwide phenomenon, supported by references to examples of selected cities; to illustrate a range of different functions
Learning Outcomes	Ability to locate some of the world's big cities and explain the growth of selected examples in terms of their functions and importance

Geographical skills

Practical skills used are drawing bar and other types of graphs. A wide variety of source materials is included, requiring interpretation of different types of graphs, sketches, tables, photographs, maps, flow diagrams, and speech bubbles

Key geographical terms

- | | |
|----------------------------------|---------------------|
| * urbanization | * secondary sector |
| * millionaire city | * tertiary sector |
| * megacity | * quaternary sector |
| * primary sector (of employment) | * conurbation |

SECTION 1: WORLD CITY GROWTH (PAGES 80–83)

One of the most important global changes of the last 50 years has been urbanization and the growth of big cities. Towards the end of 2008 the UN pronounced that, for the first time in human history, more people were now living in urban than in rural areas, and that the world's population was predominantly urban. Early in the last century, a city of a million people—a millionaire city—was something that was truly exceptional. Now as Figure 7.3 shows, they are almost 'two a penny'. We have witnessed the rise of the megacity (Figure 7.4) and the changing distribution of big cities from developed to developing countries (Figure

7.5). The final part of this section shows how, and explains why, urban growth and economic growth go together.

In the activities on page 83, Question 1 requires pupils to define urbanization before giving evidence for it from Figure 7.3 (notably the steepening of the line gradient between 1950 and 1990 showing the number of millionaire cities). An extension task would be to compare Figure 7.3 with Figure 4.10 page 49 showing world population growth. Answering Question 2(a) should reveal eleven cities (more than half) are in Asia, compared with only one in Europe (Moscow) in 2005. Question 3 requires pupils to use Figure 7.5 and compare 1950 with 2005. Answering Question E in the text, which is based on Figure 7.6, could be an additional task. In 1970 more people were still living in towns and cities in developed countries, but the ratio between developed and developing was narrowing until, by 1990, a clear majority of urban dwellers was living in developing countries.

SECTION 2: BIG CITY GROWTH IN ASIA AND ITS PROBLEMS (PAGES 83–85)

This is a relatively short section outlining the causes and problems of ‘hyperurbanization’. The causes of recent and current urban growth in the developing world have already been discussed in previous chapters. For higher rates of natural increase, refer pupils to Chapter 4, pages 50–51; for rural to urban migration, refer back to Chapter 5, pages 56–57, about differences and disparities between rural and urban areas; problems such as poverty, slum housing and pollution have also been mentioned.

Within the activities on page 85, Question 1 is about urban growth. The percentages stated emphasize the size of the differences in urban growth between Europe and the continents predominantly made up of developing countries. Question 2 aims to increase pupils’ awareness of work in the informal sector, while Question 3 focuses on slum housing.

SECTION 3: WHAT IS GOOD ABOUT BIG CITY GROWTH IN ASIA? (PAGES 85–86)

The previous section presented a negative picture of urban growth, but this section attempts to redress the balance and look for positives. Hopefully, the photographs in Figure 7.13 will trigger pupils into identifying signs of better quality of life and the possibilities for improvement in urban areas. The text continues this theme. Question 1

in the activities on page 86 gives values which put a figure on the size of the differences between the capital city Cairo and the countryside where most Egyptians still live. It involves a practical task followed by written explanation. Question 2 allows more pupil judgement; quality of explanation matters more than choices made.

SECTION 4: WHAT CAN BE DONE TO REDUCE URBAN PROBLEMS? (PAGES 86–89)

The logical next stage is to look at ways of reducing problems in developing world cities. The section begins with some indication of the scale of the problem, and why it is not going to go away quickly. The main focus is then upon slum housing: are they slums of hope or slums of despair? Both views are elaborated upon, but with more emphasis on actual examples of achievement and possibilities. Since the text was written, the Dharavi slum in Mumbai has become known in the West after it featured in the successful movie ‘Slumdog Millionaire’. Plentiful further information about Dharavi slum is available on the Internet. Question 2 in the activities on page 89 suggests a possible local investigation.

SECTION 5: MEGACITIES (PAGES 89–94)

Cairo and New York are used as contrasting examples of megacities between developing and developed worlds. Cairo is a typical developing world megacity in that it has grown a lot, continues to grow fast, and has the typical urban problems that result. It is also a dynamic city, the economic powerhouse of Egypt. Egypt itself is one of the leading African countries and a dominant force in the Muslim and Arab worlds. The other reason for its choice is that the authorities are making genuine attempts to solve some of the problems, even if they are facing an uphill struggle. The questions in the activities on page 91 relate to these problems and their attempted solutions. An extension activity for housing is given in the Workbook, Activity 5.

New York is the most international of megacities; people everywhere know one or more images of New York. Indeed, a quick class survey of New York images could be a useful introduction to this topic (with or without the use of Figure 7.22). The port was responsible for the rapid early growth of New York (as for Karachi), from which most of the city’s business and industrial functions developed. The working heart of the city is concentrated on Manhattan Island; here certain well-defined

functional zones are easy to identify, notably the Midtown and Downtown business districts (Figure 7.26). The final part of text confirms the existence of urban problems, many of them similar to those in developing world cities, but not as overbearing because the funding and organization exist to keep them manageable, particularly in times of economic prosperity. Questions 1 and 2 in the activities on page 94 focus on the distinctive characteristics of New York, and the reasons for its growth into a major international centre. Question 3 checks pupils' understanding of how and why urban problems in a developed world city are easier to tackle than those in developing world cities. Remind pupils that the authorities in Cairo have done more for the disadvantaged in their city than in most other developing world cities.

WORKBOOK

Activity 1	Location of the world's top 10 cities in 1950 and 2005
Activity 2	Urban growth in developing countries
Activity 3	Poverty trap in urban areas
Activity 4	How slums change over time
Activity 5	Are new settlements in the desert the answer to Cairo's housing problems?

Workbook Activity 1 is about world urbanization and the recent rapid growth of cities in the developing world. After plotting the distribution of the world's top 10 cities in 2005 in Question 1, pupils are in a stronger position to answer Question 2 which guides them towards commenting on changes in distribution since 1950, with the headings continents, latitude, and developed and developing worlds. In **Workbook Activity 2**, pupils are required to plot the ratios that are given below the vertical divided bar graph in Figure 7.6 in pie graphs. Past experience from teaching and examining has suggested that pupils find interpretation of relative sizes easier from pie charts than from divided bar graphs; these two graphical techniques can always be used interchangeably and it is often the availability of space which controls which one is used. Question 2 is about the range and availability of work in cities as compared with the countryside.

Workbook Activity 3 starts in Question 1 with the completion of flow diagram for a poverty trap in urban areas, so that it reads: Poverty → unable to find work → little income → forced to live in slum housing → diseases common → less energy to seek informal work → poverty.

Question 2 focuses, in particular, upon informal work, an important income source for many (if not the majority) in all developing world cities. Question 3 rounds off the activity by asking pupils to explain why it is so difficult for newcomers to the city to break out of the poverty trap. The main reason is that they are less well educated than the people already in the city, with a lower range of skills because of the limited educational opportunities in rural areas (this itself is often one of the prime causes of rural to urban migration). In **Workbook Activity 4** pupils are asked to describe the changes shown in slum housing as improvements are made with time, by adding labels to the three sketches. Question 2 asks for an explanation for the main changes. Question 3 is more of an assessment of the various methods used for tackling slum housing in developing world cities. **Workbook Activity 5** is about a fourth method for tackling slum housing and overcrowding as done in Cairo—new settlements outside the city. Questions 1 and 2 are about the background to this situation while Question 3 is about peoples' responses to living in new settlements. Activities 4 and 5 highlight that there is no single solution to housing which fits all.

SUMMARY CHECK

Teaching objectives: Understanding of city growth as a worldwide phenomenon, with reference to examples of selected cities in terms of their functions and importance

How these have been met:

- World urbanization, growth in numbers of millionaire cities, and rise of the megacity
- Why urbanization is now greater in developing world countries
- The bad and good points about big city growth in developing countries
- Cairo and New York as contrasting examples of megacities

Learning outcomes: Ability to locate some of the world's big cities and explain the growth of selected examples, in terms of their functions and importance

Check that the objectives have been met:

- Look at the accuracy of pupils' answers to questions related to global locations of big cities, such as Activities 2 and 3 on page 83 in the textbook and Activities 1 and 2 in the workbook.

- Check pupils' understanding of wider work opportunities, and therefore functions, in urban areas from their answers to Activity 2 on page 85 in the textbook.
- Show pupils pictures of some of the world's big cities and ask them to identify functions shown and why they are important.

Chapter 8 **World development and globalization**

National Curriculum

Target area of study in the NC General world geography included in Natural Regions III and Population

Teaching Objectives To impart an understanding of factors used to measure differences in levels of economic development between countries; to appreciate variations in rates of economic growth between Asian countries

Learning Outcomes Knowledge and understanding of the divide between rich and poor countries of the world; knowledge and understanding of the factors for some Asian countries having progressed higher up the ladder of economic development than others

Geographical skills

Pupils are required to interpret from a wide variety of geographical source materials including world maps, several types of graphs, sketches, diagrams, tables, and photographs. Questions in the student book activities typically involve description and interpretation from one or more of these, followed by written explanation. Practical tasks such as drawing a shading map and divided bar graph are included in the workbook activities

Key geographical terms

- | | |
|--------------------------------|---------------------------------------|
| * development | * life expectancy |
| * economic development | * literacy rate |
| * GDP (Gross Domestic Product) | * NIC (newly industrializing country) |

- * quality of life
- * standard of living
- * socio-economic

- * market
- * globalization
- * multinational company

SECTION 1: WHAT IS DEVELOPMENT AND HOW IS IT MEASURED? (PAGES 96–99)

The terms ‘developed’ and ‘developing’ have been used throughout the *Explore* series as general terms in everyday use when examining human aspects of world geography. An interesting introduction to this chapter could be to ask each pupil to write down what they understand by ‘developed’ and ‘developing’, and use their responses as a starting point for this geographical study. The starting point in the book is the North-South dividing line shown in Figure 8.2, and the shifts of its course which put some of the Southern hemisphere countries in the North. From earlier studies, how good and appropriate is the line as a two-fold division of the world?

The term ‘income per head’ has often been used in this series as a replacement for GDP in simple terms. GDP per head, the main international measure used to show variations in wealth between countries, is explained on page 97. Explain that it is just a ‘best estimate’ of the wealth of a country; often it is more likely to underestimate the wealth of poor countries than of rich countries. Explain that the contributing factors to wealth in farming communities do not always have a monetary value attached to them, and are not included in data collected by the authorities. Figure 8.4 shows the world distribution of countries with low, medium, and high GDPs.

As with world maps used earlier, such as Figure 4.12 on page 51, the advice for identifying the world pattern of wealth is to begin with the extremes of high and low, and observe intermediate values later. High GDPs above US\$10,000 per head are largely confined to countries in Europe and North America, plus a few in Asia (oil-rich countries around the Gulf, Japan, South Korea, and Singapore), as well as Australia and New Zealand in Oceania. Low GDPs below US\$1000 per head are predominantly associated with countries in Africa and South Asia. The questions lettered A to E in the text guide pupils’ study of Figure 8.4, and how well it supports the North-South dividing line in Figure 8.2. Both maps have been drawn to the same scale, deliberately, to make comparison easier. How a general economic indicator of development relates to

individual standards of living and the quality of life is the theme of the remaining text. Pupils are introduced to one of the regularly used international indicators of poverty on page 99, the number of people living on less than a-dollar-a-day (\$US).

Question 1 in the activities on page 99 is all about GDP—what it means, how it is calculated, how useful and reliable it is. Question 2 makes use of the guide questions in the text to study Figure 8.4 and assess how well it supports the two-fold world division in Figure 8.2. Question 3 requires the study of Figure 8.5 One part of it, for sub-Saharan Africa and South Asia, supports what Figure 8.4 shows; what is new is the amount of poverty in Russia and neighbouring republics which is masked by the big extent of medium GDP in Asia as shown in Figure 8.4.

SECTION 2: DEVELOPMENT AND ECONOMIC GROWTH IN ASIA (PAGES 100–102)

Figure 8.4 shows Asia as being the continent with the greatest range in wealth between member countries. This is illustrated in a different way in Figure 8.6, which has the advantage of identifying GDPs of individual countries. A ladder of economic development can be recognized (Figure 8.7) as countries progress from having overwhelmingly agricultural economies to ones dominated by industry and services. Figure 8.8 shows the negative relationship that undoubtedly exists between wealth per head and percentage of people employed in agriculture. Figure 8.9 is included to show how little the farmer, as the producer of the raw materials, gets from the final sale price of manufactured products to consumers. Ten per cent raw material costs is a typical figure for food products originating in the developing world and sold in processed form in developed countries. Notice how much more is gained by operators in the manufacturing and service sectors. Economic development in the Gulf States is directly related to their oil wealth, which makes them different from industry-driven economic growth in the rest of Asia.

To answer Question 1 in the activities on page 102, pupils are expected to use Figure 8.7 as the basis for answering; based on the evidence given, the best answers would be Japan in T4, Singapore in T3, Malaysia in T2, and Nepal in T1. Pakistan could perhaps be placed on the border rung between T1 and T2. Explanation in part (b) is all important to justify the positions shown in part (a). In Question 2, the farmer gets 10 per cent compared with 45 per cent for manufacturing and 45 per cent for

services. This essentially means that 90 per cent of the final sale price goes to companies and organizations based in the developed world, since most of the world's international transport and shipping is in the hands of multinational companies. Question 3 is about oil-rich Middle Eastern countries, such as the UAE.

SECTION 3: GROWTH OF MANUFACTURING INDUSTRY IN ASIA (PAGES 103–105)

Manufacturing growth in East Asia and in China, in particular, has been nothing short of staggering during the last 20 years. Figure 8.11 shows how this region has outperformed all other regions of the developing world. Other regions including South Asia have stagnated in comparison and have been left behind. The terms Newly Industrializing Countries was coined in the 1970s to describe more advanced developing countries in East Asia and Latin America which were industrializing fast. The four 'East Asian Tigers' were singled out for the speed with which they developed. Singapore and Hong Kong have since become more important as centres of trade and commerce than manufacturing; wage rates here are no longer competitive with those of their neighbours. The reasons why East Asia outstripped all other regions for manufacturing growth are given on pages 104 and 105, essentially in order of importance. With the full range of manufacturing represented (Figure 8.12) and consumer demand for manufactured goods increasing (Figure 8.15) there seem few opportunities for other regions of the developing world, such as South Asia, to catch up. This is all part of globalization (Section 5).

Question 1 in the activities on page 104 requires pupils to think of reasons for relative industrial decline in the UK in the face of East Asian competition. Direct evidence comes from the graph of relative labour costs in Figure 8.14, with labour rates in many East and South Asian countries being less than a quarter of those in the UK. International companies have a big cushion for absorbing the extra transport costs back to the UK. Question 2 arises from the idea shown in Figure 8.15 and switches the focus to domestic consumption, in the home, with an increasing array of consumer goods, many of them electrical and electronic. To answer Question 3 well, pupils need to look at the advantages stated for East Asia and to think about the attractiveness of Pakistan for investment from overseas manufacturing companies. There will be another chance to come back to this during study of Chapter 9.

SECTION 4: INDUSTRIAL GROWTH IN CHINA (PAGES 105–108)

The spectacular rise of manufacturing industry in China to become the industrial giant of Asia deserves a section of explanation by itself. Once the government policy changed regarding investment from overseas companies, multinational companies piled in because all the general advantages for East Asia were stronger, and had more pulling power, in China. So dominant has China become that other Asian countries are feeling the backlash. Figure 8.18 attempts to show why. No Asian country can be unaffected by the growth of China, but some are more badly affected than others. You may wish to update pupils in the light of now prevailing world and Asian economic circumstances; since the text in the student book was written, the world recession in late 2008 has had a big effect on commodity prices and the demand for new consumer goods in the West. Factories in the south of China around Guangzhou, which are almost entirely export orientated, were reducing output and closing, leading to job losses. This was the first time for many years that the bubble of economic growth had been burst.

Question 1 in the activities on page 108 focuses on the vital role of government in allowing and promoting manufacturing growth. Pupils can be asked to extend their answers to other factors for a fuller explanation of growth. Question 2 focuses on the so-called ‘China effect’ on other Asian countries. The questions are given as a guide for the longer written answer expected.

SECTION 5: GLOBALIZATION (PAGES 108–112)

Globalization is the current buzz word for explaining everything economic. It always seems to get the blame when things go wrong; but only sometimes is it given credit for things that are good. Globalization has always existed in some form: people and countries have always traded; but what it is different now are the massively improved transport and communications links between countries, which have made the world a smaller place. The sketches in Figure 8.19 are an attempt to illustrate the difference between slow links in the past and fast (sometimes instant) connections today, about which the pupils are likely to know more than you! There has been a staggering growth in the global companies, most frequently referred to as multinationals.

A health warning needs to be added to the company names in Figure 8.20. The 2008 and 2009 lists, when published, will look a lot different

due to the effects of the global downturn in the second half of 2008. However, there is likely to be little change in the locations of company headquarters—they are going to come from the same world regions and countries, but perhaps with an increased representation of Chinese companies. The banking sector has declined, but the other sectors named there remain strong. The list of big companies in Figure 8.21 is likely to mean more to pupils because these are providers of products and services consumed by individuals. To say that multinationals are controversial is something of an understatement; Figure 8.22 is a collation of comments made about them, both good and bad.

Question 1 in the activities on page 112 tries to tap into likely pupils' experiences of multinational companies; this is an attempt to increase their awareness of these companies by working from the known and familiar. Part (c) is a follow-up to Question 3 on page 105. Question 2 is about the modern communications revolution which underpins globalization and the operation of multinational companies.

WORKBOOK

Activity 1	Developed and developing worlds
Activity 2	Growth of manufacturing industry in East Asia
Activity 3	Advantages and disadvantages of multinational companies for developing countries

In **Workbook Activity 1**, pupils are first required to draw a shading (choropleth) map which should highlight the big gap between North America, Oceania, and Europe and the other continents. Countries in Asia are placed on both sides of the world divide between developed and developing. Although justified for Japan, the line is something of a 'political' divide placing all of Russia and the former Soviet Republics in Asia within the developed world. This cannot be justified on purely economic grounds, particularly for the recently independent republics.

Workbook Activity 2 is about the growth of manufacturing industry in East Asia, which mainly explains the big percentage rise in the share of manufacturing industry in the developing world between 1970 and 2010. Pupils will show this in the divided bar graph to be drawn in part (a). A pie chart can always be used as an alternative to a divided bar graph, although a pictograph is another acceptable answer in part (b). The answer to part (c) rests on personal opinion; in general, people are more

familiar with interpreting pie charts, which give a good visual display. However, actual values plotted are easier to read off from divided bar graphs and pictographs. Question 2 requires pupils to read off and rank values from Figure 8.11, to show the striking differences in speed of growth between East Asia and the rest of the developing world. In Question 3, pupils are expected to write about the evidence for this.

Workbook Activity 3 deals separately with multinational companies. Question 1 requires pupils to organize the contents of Figure 8.22, first into advantages and disadvantages, and then according to who or what is affected. In Question 2, pupils are invited to select the two advantages and two disadvantages considered by them to be strongest. Again, explanation of choices is more important than actual choices made; good choices are always easier to justify convincingly.

SUMMARY CHECK

Teaching objectives: Understanding of factors used to measure differences in levels of economic development between countries; appreciation of variations in rates of economic growth between Asian countries

How these have been met:

- Study of GDP as the main indicator for measuring differences in wealth between countries
- Variations in levels of wealth and economic development between Asian countries of high, medium, and low incomes
- How and why industrial growth in East Asia has been greater than in other regions of the developing world
- Special studies of industrial growth in China and the role of multinational companies in promoting economic growth in Asia

Learning outcomes: Knowledge and understanding of the world economic divide between developed and developing countries, and the factors for some Asian countries having progressed higher up the ladder of economic development than others

Check that the objectives have been met:

- For pupil knowledge and understanding of the dividing line between rich and poor worlds, evaluate the quality of pupil answers to Activity 2 on page 99 in the textbook and to Workbook Activity 1.

- Refer pupils to world maps in atlases showing other development indicators such as life expectancy and literacy rates, and ask them to comment on the validity of the north-south dividing line. Figure 4.12 on page 51 can also be used in the same way.
- Look at the worth of pupils' answers to Activity 1 on page 102 and Activity 1 on page 112 to assess levels of understanding for the lower levels of economic development in some Asian countries than in others.

Chapter 9 **Exploring Asia and the rest of the world**

National Curriculum

Target area of study in the NC General world geography included in Natural Regions III and Population

Teaching Objectives To impart an appreciation of the wide differences in economic geography between countries, and in levels of resource development between different parts of the world

Learning Outcomes Understanding, through regional examples, of some of the wide variations in economic development and resource use in different natural regions of the world

Geographical skills

Mainly use of, and interpretation from, a variety of source materials including maps, photographs, a time line, tables, and graphs. Practical skills involve labelling sketches and drawing graphs.

Key geographical terms

- * IT (Information Technology)
- * wilderness

SECTION 1: JAPAN, THE INDUSTRIAL SUPERPOWER OF ASIA (PAGES 114–116)

Although its industrial dominance in Asia, in terms of total manufacturing output, is now under threat from China, Japan showed the way forward—how a country with few natural resources and limited infrastructure

could become one of the world's industrial giants. The text gives reasons for growth, examples of Japanese companies and brand names, and brief details of the industrial and economic core centred on Tokyo. Questions in the activities on page 116 relate to the themes of industrial growth and wealth.

SECTION 2: INDIA—THE GIANT BEGINS TO STIR (PAGES 116–119)

Although second in population size to China (and closing the gap), India did not share in the great industrial growth of Asia between 1970 and 1990. Reasons why are suggested. However, there are signs of change, but not in the same direction as China for producing consumer goods for the world market. Instead, economic growth in India has been more IT-led; the reasons for this are explored, as also are the country's future prospects. Obstacles to economic development remain. The section includes comparisons between India and its South Asian neighbours. These are followed up in the questions set in the activities on page 119, as also is the growth of India's IT sector.

SECTION 3: SAUDI ARABIA, THE OIL-RICH KINGDOM (PAGES 119–122)

The study of Saudi Arabia, as the most important Middle Eastern/Gulf State, is based around the three elements that summarize its physical and human geography—desert, Islam, and oil. Information about the hot desert extends and exemplifies earlier references to hot deserts in the natural regions sections (Chapter 1, page 7; Chapter 2, pages 24–26; Chapter 3, pages 28–30). Saudi Arabia is the guardian of the holy places for Islam; oil wealth has allowed the country to build an infrastructure which can accommodate millions of Muslims visiting every year. As for oil, the table in Figure 9.12 shows the country's high production and low consumption, allowing Saudi Arabia to be the world's major oil exporter, a situation which is going to persist for some time because of the size of its proved oil reserves. Questions A–E in the text are used to guide pupils towards recognizing these significant points. Question 1 focuses on the importance of Saudi Arabia for world oil supplies. Question 2 is about changes from traditional to modern ways of life; this was the underlying theme of the hot desert section in Chapter 3. There is the opportunity, should you wish to ask a third question about reasons for the country's international religious importance.

SECTION 4: SUB-SAHARAN AFRICA—THE WORLD’S POOREST REGION (PAGES 122–125)

A good way to introduce this section would be to get pupils to look at an atlas map of Africa in order to isolate the five North African countries which border the Mediterranean Sea and do not form part of the world region known as sub-Saharan Africa. In effect, outside North Africa, most Africans live on the southern side of the Sahara desert. Studying poorest (or richest) regions means that statistics showing differences from other regions (Figure 9.14) and their causes (Figures 9.15 and 9.16) convey strong messages. Figure 9.14 shows how sub-Saharan Africa compares with other developing regions: as shown in 9.14C the situation has not improved since 1990. Figures 9.15 and 9.16 show the natural and human factors for poverty in this region. The final sub-section looks at the possibilities of a better future, considering the natural resources in Africa. The questions in the activities on page 125 explore evidence from the text and figures for the low level of development in Africa and the amount of control African people have in this context.

SECTION 5: SOUTH AMERICA—SLOW PROGRESS ALONG THE ROAD TO DEVELOPMENT (PAGES 125–128)

South America is possibly the most remote continent, both physically and psychologically, for pupils in Pakistan. It is a continent of physical extremes, even if it cannot rival the Himalayas for the extreme height of ranges and peaks. Economically, it is a continent of middle income countries, without the poverty of Africa or the impressive economic growth rates of East Asia. Life is most difficult for people living high in the Andes of Bolivia and Peru—more people live at extreme heights above 3000 metres in South America than in any other continent. The most economically advanced region is in the south-east of Brazil, the main source of manufactured goods throughout the continent. Size (both area and population) and resources make Brazil one of the developing world’s major economies. There is more to Brazil than just the Amazon rainforest (Chapter 3, pages 37–38) which is often the focus of international media attention. Questions 1 and 2 in the activities on page 128 focus on differences in wealth and development between the Andean countries and Brazil, and between South America and other world regions. Question 3 will help pupils to get to know South America better, should time and interest allow.

SECTION 6: UNITED STATES OF AMERICA—THE WORLD'S ECONOMIC SUPERPOWER (PAGES 128–131)

People throughout the world know much more about North America than South America; to most, a mention of America means the USA. This is because no other country can match the economic dominance of the USA, as Figure 9.21 tries to show. It is a resource-rich country (Figure 9.22); notice that while many of its mineral resources and most productive farming areas are in the centre and west, most of its big industries and cities are in the east. This is partly because it was first settled from across the Atlantic from Europe and then from Africa, and over the Pacific from East Asia, mainly China and Japan; only in the last 30 years has immigration from Central and South America come to dominate. Special attention is given to the economic core of the North East, based on New York (see also pages 91–94), and coastal California. Question 1 in the activities on page 131 is to improve pupils' awareness with the geography of the USA. Questions 2 and 3 focus on the role of immigrants, very important to past and present economic growth; the great variety of nationalities and their numbers distinguish the USA from the majority of other countries.

SECTION 7: WILDERNESS AREAS OF THE WORLD—WILL THEY SURVIVE? (PAGES 131–133)

This brief world survey ends with a section on the world's remaining empty areas or wildernesses. As world population increases and technology improves, more and more of these areas are under the threat of development. Antarctica is a special case and provides a contrast with tundra lands in the Arctic (Chapter 3, pages 39–42). It is a polar region of ice and snow, colder than the tundra. Despite its remoteness and the impossibility of permanent human settlement, not all of Antarctica is untouched wilderness, especially the more accessible north coast (Figure 9.28). Immediate pressures come from increasing tourist numbers; longer term pressures may be for mineral exploitation since fossil fuels are known to be present. Question 1 in the activities on page 133 focuses on Antarctica as the only wilderness without permanent human settlement. Question 2 is about human pressures. Question 3 broadens out the study area to the whole Earth. Two views at opposite extremes are given about the future of the Earth and its natural resources, for pupils to decide which, in their opinion, is the more credible one.

WORKBOOK

- Activity 1 The Asian giants (China, India, and Japan)
Activity 2 What holds back and what helps economic development
Activity 3 Will tourism save or ruin Antarctica?

Workbook Activity 1 takes the three Asian giants and compares them for population size, wealth, employment structure, and industrial output. Related questions are set requiring pupils to identify and explain the key differences between them. In **Workbook Activity 2**, twenty factors, both favourable and unfavourable, are given for pupils to sort out as holding back or helping economic development. Next, they are required to identify which factors are physical (largely out of human control) and which are human. Following this in Question 2, they need to isolate those factors that apply in sub-Saharan Africa, with the help of what is included in the textbook on pages 122–125. Finally pupils are expected to make an assessment of how strong these factors are for restricting or encouraging new economic growth. **Workbook Activity 3** is about Antarctica. Practical skills of labelling a photograph and drawing a graph are included in Questions 1 and 2, before pupils are required to describe the trend and state possible consequences. Questions 3 and 4 encourage pupil comment about the effects of human activities in wilderness areas like this.

SUMMARY CHECK

Teaching objectives: Appreciation of the wide differences in economic geography between countries, and in levels of resource development between different parts of the world

How these have been met:

- Special studies of countries: Japan (for a long time the industrial superpower of Asia), Saudi Arabia (the oil-rich Gulf kingdom), and the USA (the world's economic superpower)
- Special studies of world regions: South America as middle income and sub-Saharan Africa as low income regions, stressing contrasting economic geographies and levels of resource development between them

Learning outcomes: Understanding of some of the wide variations in economic development and resource use in different natural regions of the world, through regional examples

Check that the objectives have been met:

- Check pupils' comprehension of high levels of development and reasons for it from their answers to Activities 1 and 2 on page 116 and Activity 1 on page 122.
- Likewise, check pupil understanding of low levels of development and the causes from their answers to Activities 1 and 2 on page 125 and Activity 1 on page 128.
- Assess pupils' understanding about differences in levels of resource development from their responses to Workbook Activities 2 and 3.