Scheme of work

Cambridge IGCSE®
Geography
0460
For examination from 2016

Cambridge IGCSE

Cambridge Secondary 2

CAMBRIDGE
International Examinations

Contents

Overview

This scheme of work provides ideas about how to construct and deliver a course. The syllabus for Cambridge IGCSE Geography has been broken down into teaching units with suggested teaching activities and learning resources to use in the classroom. Please consult the Appendix of this scheme of work for teacher guidance and some ideas for classroom activities. This scheme of work is meant to be a guideline, offering advice, tips and ideas. It can never provide everything a teacher needs but hopefully provides teachers with a basis to plan their lessons. It covers the minimum required for the Cambridge IGCSE course but also adds enhancement and development ideas on topics. It does not take into account that different schools take different amounts of time to cover the Cambridge IGCSE course.

Timings for activities and feedback are left to the judgement of the teacher, according to the level of the learners and size of the class. Length of time allocated to a task is another possible area for differentiation

Recommended prior knowledge
It is recognised that learners will have different starting points. However, suggested recommended prior knowledge has been included for each unit of work.

Outline
Whole class **(W)**, groupwork **(G)** and individual activities **(I)** are indicated throughout this scheme of work. The activities in the scheme of work are only suggestions and there are many other useful activities to be found in the materials referred to in the learning resource list.

Opportunities for differentiation are indicated as **basic**, **challenging** and **extension/extended activities**. There is the potential for differentiation by resource, length, grouping, expected level of outcome, and degree of support by teacher, throughout the scheme of work. Timings for activities and feedback are left to the judgement of the teacher, according to the level of the learners and size of the class. Length of time allocated to a task is another possible area for differentiation.

The units within the scheme of work are:
Unit 1: Population dynamics
Unit 2: Settlement
Unit 3: Earthquakes and volcanoes
Unit 4: Rivers and coasts
Unit 5: Weather and climate
Unit 6: Development
Unit 7: Food production and industry
Unit 8: Tourism
Unit 9: Energy and water
Unit 10: Environmental risks of economic development
Appendix

Key word glossary

It is helpful for learners to identify key words for each unit and add a definition for each word to compile a key word glossary as they complete the course. An online glossary of key words for geography can be found at: www.sln.org.uk/geography/Literacy.htm

Suggested teaching order

The recommended teaching order for delivering these units is at is appears in the syllabus. However, there are aspects of Unit 10 can that be incorporated into the other units of work. Whilst a discrete scheme of work has been written for this Unit 10, signposts have also been placed within the whole scheme of work to provide a guide for teachers about where and how the content could be delivered through the other units of work.

Teacher support

Cambridge Teacher Support is a secure online resource bank and community forum for Cambridge teachers. Go to http://teachers.cie.org.uk for access to past and specimen examination papers, mark schemes and other resources. We also offer online and face-to-face training; details of forthcoming training opportunities are posted online.

An editable version of this scheme of work is available on Teacher Support. Go to http://teachers.cie.org.uk. The scheme of work is in Word format and will open in most word processors in most operating systems. If your word processor or operating system cannot open it, you can download Open Office for free at www.openoffice.org

Resource list

The resource list for this syllabus, including textbooks endorsed by Cambridge, can be found at www.cie.org.uk and Teacher Support http://teachers.cie.org.uk.

Textbooks

The most commonly used textbooks referenced in this scheme of work include:

Belfield, J et al	*Cambridge IGCSE Geography Student Book* (Collins, 2012)
Cambers, G and Sibley, S	*Cambridge IGCSE Geography Course book with CD-ROM* (Cambridge University Press, 2010)
Davies, D	*Cambridge IGCSE Geography Revision Guide (*Cambridge University Press, 2014)
Fretwell, M and Kelly, D	*Geography for Cambridge IGCSE Revision Guide* (Oxford University Press, 2012)
Guinness, P and Nagle, G	*Cambridge IGCSE Geography 2nd Edition (*Hodder Education, 2014)
Kelly, D and Fretwell, M	*Complete Geography for Cambridge IGCSE* (Oxford University Press, 2012)
Phillipson, O	*Heinemann IGCSE Geography* (Heinemann, 2011*)*
Sibley, S	*Teaching and Assessing Skills in Geography* (Cambridge University Press, 2003)
Wiegand, P	*Oxford International Student Atlas* (Oxford University Press, 2007)

Cambridge IGCSE Student World Atlas (Cambridge University Press, 2012)

Websites and videos

This scheme of work includes website links providing direct access to internet resources including videos. Cambridge International Examinations is not responsible for the accuracy or content of information contained in these sites. The inclusion of a link to an external website should not be understood to be an endorsement of that website or the site's owners (or their products/services).

The particular website pages in the learning resource column were selected when the Geography scheme of work was produced. Other aspects of the sites, including advertisements, were not checked and only the particular resources are recommended.

Teaching time

This scheme of work is for Geographical Themes which represents 45% of the total assessment for IGCSE Geography. However, there are suggestions in the scheme of work on how to incorporate content for Paper 2 and Paper 4. If preparation for Paper 2 and Paper 4 are incorporated then more time should be made available for this scheme of work. Some schools may choose to deliver these discretely.

It is recognised that schools organise their timetables in different ways so no individual allocation of time has been given for each unit of work. It should be noted that each unit of the scheme of work is not the same length: the divisions are topic-based rather than anything to do with teaching time.

Scheme of work – Cambridge IGCSE® Geography (0460)

Unit 1: Population dynamics

Recommended prior knowledge
An understanding of population change, the interrelationship between population and resources, population distribution and density and migration. A good general knowledge including places in the world is necessary.

Context
It is recommended that this is the first of the units to be studied. Due to the fact that population distribution is dependent upon the full range of physical, economic and human factors, the knowledge and understanding gained in this unit will be a useful foundation for other units. The skills gained will also have applications throughout the course.

Outline
The unit provides the opportunity to develop a range of graphical and cartographical techniques. It allows learners to present, interpret and explain a wide range of data. Learners are also encouraged to compare countries at different stages of development as well as describe patterns and explain the processes responsible for them. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions as opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
1.1 Population dynamics	Describe and give reasons for the rapid increase in the world's population	Learners should define 'population', 'population growth rate' and 'population explosion'. 'Key word anagrams' activity – learners solve anagrams and discuss the meaning of key words in pairs. Learners to build up a key word glossary with precise definitions of key words for each unit of work. This should also include command words as learners complete past examination questions. **(I/W)** **Extension activity:** learners devise their own key word puzzle/game. Provide learners with key facts and figures about world population growth to illustrate the concept of 'population explosion'. **(Basic)** Using evidence, learners describe a line graph to show world	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) page 4 *Cambridge IGCSE Geography* (Belfield et al) pages 2 and 3 *Complete Geography for IGCSE* (Kelly and Fretwell) pages 7 and 8 Cambridge IGCSE Geography (Guinness and Nagle) pages 1 and 2

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		population growth. **(I)** Learners could also draw part of the graph themselves. This should include projections for future population growth. **(I)(Challenging)** Learners consider what the graph shows and write a question that they want to answer during the unit. Keep the questions in a list or on a question wall (See Appendix: Question wall) that can be answered as the unit progresses. **(I/W)(Basic)** Learners work in small groups to analyse graphs or a choropleth map to show population growth in different continents. Each group considers a different continent. Present findings back to the class. Learners record main findings during presentations on a note taking grid to understand differences in population growth in different parts of the world. **(G)(W)(Challenging)** Once learners have learned about reasons for population growth over a period of time, they should revisit their world population growth graph and think of reasons to explain the population explosion.	*New Wider World* (Waugh) pages 10 and 11. *IGCSE Student World Atlas p*age 22 *Oxford International Student Atlas* page 21 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/population/ www.worldometers.info/world-population/ – current world population statistics http://populationaction.org/ – Population Action International (healthy families, healthy planet) www.s-cool.co.uk/gcse/geography/population www.geography.learnontheinternet.co.uk/topics/popn1.html#growth www.sln.org.uk/geography/population_and_migration.htm – ideas, strategies and resources for the whole unit www.bbc.co.uk/education/topics/zbjhfg8/resources/1 – clips to consider for the whole unit http://handygeography.wordpress.com/tag/population/ – useful geographical resources for schools

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
			0460 past examination paper: Jun 2012 Paper 11 Q1bi
1.1 Population dynamics	Understand the causes and consequences of over-population and under-population	Learners define the term 'carrying capacity' and add to their key word glossary. Introduce the concept of 'optimum population' by showing a drawing of scales in balance with population on one side and resources on the other – learners define and add to their glossary. **(Basic)** Learners work in pairs to draw what they think the scales would look like for under-population and over-population. Show on mini whiteboards if available (see Appendix: Mini whiteboards). Discuss and define key words and emphasise the link between 'population' and 'resources'. Show learners photographs to illustrate the concepts. Learners update the key word glossary. **(P/W)(Challenging)** Whole class discussion of the causes of over-population and under-population in relation to resources and population growth – show as two mind maps (see Appendix: Mind maps) and reinforce through case studies later. **(W)** Learners complete a card sorting activity (see Appendix: Card sorting activity) to classify causes and consequences into under-population and over-population. Record consequences in a table and self-assess as the answers are discussed as a whole class. **(P/W)** Sort consequences into those that affect people and those that affect the environment. **Extended writing activity:** Consider the consequences of under-population and over-population. Learners develop ideas to produce an individual piece of writing.	**Textbooks:** *Complete Geography for Cambridge IGCSE* **(**Kelly and Fretwell) pages 11, 12 and 14 *Cambridge IGCSE Geography* (Belfield et al) pages 8 and 9 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 10–15 *IGCSE Geography* (Phillipson) pages 9 and 10 **Online:** www.overpopulation.org/ **0460 past examination papers:** Jun 2011 Paper 12 Q1c Nov 2012 Paper 11 Q1c Nov 2012 Paper 13 Q1aiv
1.1 Case study	Know a country which is over-populated and a country which is under-populated	**Learners should know a case study of:** A country which is over-populated A country which is under-populated For each case study, the learners need to know the **causes and consequences** of under-population and over-population. Learners could use internet and textbook resources to research both of the	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		case studies and present as articles for a geographical journal. The article could also include sketch maps to show location and description, population and other relevant data tables, population pyramids, graphs and annotated photographs to illustrate the key ideas and provide appropriate place specific detail. **(I)** Link to 3.7 – causes of soil erosion and desertification.	
1.1 Population dynamics	Understand the main causes of a change in population size	Learners define key words 'birth rate', 'death rate', 'natural increase' and 'natural decrease'. Add to key word glossary. **(W/I)** Revise key words so far with either a game of 'Taboo' where learners have to describe a key word using key words on a card to a partner (http://en.wikipedia.org/wiki/Taboo_(game)) and a 'heads and tails' game (see Appendix) where learners match key words and definitions. **(P)(Basic)** Use birth and death rates for selected countries to *calculate* natural increase and decrease and to understand the difference between different parts of the world and record in a table. **(I)(Basic)** Learners describe what they notice about rates of natural increase in different parts of the world – Less Economically Developed Countries (LEDCs) and More Economically Developed Countries (MEDCs). Learners draw and label Demographic Transition Model diagram (DTM) to understand how population changes over time. Add an example of a country to each stage. Learners complete a card sorting activity to match key characteristics to the appropriate stage of the model. This would work as a kinesthetic activity also – each learner has a card and has to move to bases in the room appropriate to the stage of the DTM. **(I/G)(Challenging)** Define 'migration', 'immigration' and 'emigration' and add to key word glossary. Introduce and define the concept of 'net migration' balance and illustrate by asking learners to calculate for selected countries. **(Basic)** Explain actual increase and decrease and add key words to	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 4–7 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 14–15 *Oxford International Student Atlas* page 22 **Online:** www.s-cool.co.uk/gcse/geography/populations www.bbc.co.uk/schools/gcsebitesize/geography/population/ www.geography.learnontheinternet.co.uk/topics/popn1.html#growth http://esa.un.org/unpd/wpp/index.htm. – world population prospects www.bbc.co.uk/schools/gcsebitesize/geography/population/population_change_video.shtml **0460 past examination papers:** Jun 2011 Paper 13 Q1ai and ii

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		glossary. Calculate using examples of birth rate, death rate and net migration balance for selected countries. Learners could also describe various graphs such as birth rate, death rate, natural increase, etc., for selected countries. **(W/I)** Use atlas map to discuss in pairs the differences in total population change in different parts of the world – choropleth maps **(P)** and emphasis again the key differences between More Economically Developed Countries (MEDCs) and Less Economically Developed Countries (LEDCs). **(Basic)** Learners could also have a blank Demographic Transition Model diagram (DTM) outline and place labels in pairs on the appropriate place on the graph to check understanding or work in groups to reproduce an accurate copy of the Demographic Transition Model diagram (DTM) from memory.	Nov 2011 Paper 12 Q1ai and ii Nov 2011 Paper 13 Q1ai, ii and ii **0460 Specimen Paper:** Paper 1 Q1bi
1.1 Population dynamics	Give reasons for contrasting rates of natural population change	Learners work in groups to list the factors which explain why birth rates may be high in some parts of the world and low in others. Discuss as a group and record ideas into a table. **(G)** Then classify the ideas into social, economic, political or other factors using colour coding or a key. **(I)** Have textbook or ICT resources available for learners to refer to. **(Challenging)** Learners work in groups. They have ten minutes to discuss the reasons for high deaths rates in certain parts of the world. They record their ideas on a large sheet of paper. Each group then moves round to the next group to add any ideas that they had not thought of and continue until they are back to their original place. **(G)** Class discussion to confirm. **(W)** Learners record reasons for high death rates. Repeat activity for low death rates. **(G)** Classify into social, economic, political and other factors using colour coding or a key. **(I)(Challenging)** **Extension activity:** explain why birth and death rates vary between countries at different levels of development.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 18–21 and 24–25 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 6–9 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 10–12, 18–21 *IGCSE Geography* (Phillipson) pages 16–17 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 3–10 *Oxford International Student Atlas* page 23 *IGCSE Student World Atlas* page 26

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Revisit the DTM and add reasons to explain each stage. Group work – learners discuss limitations and relevance of the model and write up ideas. **(I/G)(Challenging)** Briefly describe distribution of HIV from an atlas choropleth map. Learners write a short report to explain the impact on death rates and life expectancy in selected countries of the world. **(I)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/population/ www.geography.learnontheinternet.co.uk/topics/popn1.html#growth – population change
1.1 Case study	Know a case study of a country with high population growth and a country with low rate of population growth (or decline)	**Learners should know a case study of:** A country with a high rate of natural population growth A country with a low rate of population growth (or population decline). For each case study: Provide learners with location map and population data tables. Learners use data to graph and describe the population growth of the selected country over time. Group work activity – provide resource material about the **causes** of the growth and the measures taken as part of relevant **policies** that have been put in place to control or population growth. Learners highlight text. Produce a short presentation to the class and use presentation notes as revision tool. Ensure appropriate place specific reference for each case study. **(I)(Challenging)** Repeat the activities for the case study of population decline and the policies used to promote population growth. Learners also evaluate the success of each policy via a class debate – reasons to support the policy/successes, reasons against the policy/problems and an overall judgement about how successful the policy has been – provide data and evidence to support. **(W/G)(Challenging)**	www.sln.org.uk/geography/Documents/Thinking/Mystery%20%20Xiao%20Ling.pdf – 'One Child Policy' mystery **0460 past examination papers:** Jun 2011 Paper 13 Q1bi Nov 2011 Paper 12 Q1aiii, iv and 1b Nov 2011 Paper 13 Q1c Nov 2011 Paper 12 Q1c Jun 2013 Paper 11 Q1c **0460 Specimen Paper:** Paper 1 Q1bii
1.1 Population dynamics	Describe and evaluate population policies	Learners have already described and evaluated two population policies as part of the case studies above – one ante-natalist and one pro-natalist. To reinforce and built on this, learners describe and explain the impact of measures on population growth through small group discussion and report writing. **(G/I)** Ideas such as: • Reducing poverty • Improved healthcare	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 18–21 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 20–25

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		• Improved education • Women's rights • Family planning, etc. To reinforce the ideas, learners draw scatter graphs to deduce the relationship between birth rates and key indicators for selected countries such as GNP per capita, access to healthcare, female literacy rate, access to contraception, etc. – describe and explain the relationship shown by the scatter graphs. Learners could also use atlas maps of key indicators to reinforce the spatial relationship. **(I)(Challenging)** Link to 3.7 – strategies to reduce desertification – reducing population pressure.	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/population/ www.s-cool.co.uk/gcse/geography/populations/revise-it/population-growth www.geography.learnontheinternet.co.uk/topics/popn2.html#india
1.2 Migration	Explain and give reasons for population migration	Recap key words 'migration', 'emigration', 'immigration' and 'net migration balance' – learners describe a key word and the other learner has to define it. Learners define 'international migration'. Introduce a classification of migration and complete appropriate definitions with examples to illustrate. **(W/P)(Basic)** Learners describe a world flow line map of recent migrations – describe what the map shows and categorise into those that are forced and those that are voluntary. Show a photograph that might prompt a forced migration such as a scene following a natural disaster and discuss. **(W)** Learners explain the difference between the two key words. **(I)(Challenging)** Introduce a simple example of an international migration (not a case study) and ask learners to think of reasons for leaving a destination and reasons for wanting to go to a destination. Use this to reinforce voluntary migration and define 'push and pull factors' with some simple examples. Define 'internal migration' and give examples with push and pull factors. Update key word glossary. **(G/I)(Basic)** Link to Case Study for 1.7 to describe the impacts of the migration on the destination and origin on the migrants as well as the migrants themselves.	**Textbooks:** *Cambridge IGCSE Geography (Guinness and Nagle)* pages 22–26 *IGCSE Geography* (Phillipson) pages 24–25 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 32–35 *Cambridge IGCSE Geography* (Belfield et al) pages 32–33 *IGCSE Student World Atlas* page 21 **Online:** www.s-cool.co.uk/gcse/geography/populations/revise-it/migration www.bbc.co.uk/schools/gcsebitesize/geography/migration/migration_trends_video.shtml

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
			  0460 past examination paper: Nov 2011 Paper 13 Q1a and b
1.2 Case study	Know a case study of an international migration	**Learners should know a case study of:** An international migration Learners produce a sketch map and locate the migration. Provide some background information/statistics/photographs to highlight/annotate to identify the push and pull factors – show as a table. **(Basic)** Learners work in pairs to research and note take the positive and negative impacts of the migration on the receiving and losing country and the migrants themselves. Present ideas as a table. Ensure appropriate reference to population structure. **(G/I)** Learners imagine they are an international migrant and write a letter home to include their reasons for the migration (push and pull) and what conditions are like for them in the host country. Another learner then writes the reply to the letter explaining what benefits/problems migrations such as these are causing back at home – opportunity for peer assessment. **(I/P)** Read letters and replies out and discuss at whole class level. Ensure appropriate place specific reference for case study. **(W)(Challenging)**	**Textbooks:** *IGCSE Geography* (Phillipson) pages 22–29 *Complete Geography for Cambridge IGCSE* pages 36–37 *Cambridge IGCSE Geography* (Belfield et al) pages 34–35 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 28–31 **Online:** www.geography.learnontheinternet.co.uk/topics/migration.html **0460 Specimen Paper:** Paper 1 Question 1c **0460 past examination papers:** Jun 2011 Paper 13 Q1c Jun 2012 Paper 11 Q1c Nov 2012 Paper 11 Q1a and b
1.3 Population structure	Identify and give reasons and implications of different types of population structure	Learners define 'infant mortality' and 'life expectancy' and add to key word glossary. Learners draw and annotate a population pyramid for a typical MEDC – describe what the pyramid shows and answer questions to interpret the pyramid. Define 'population structure'. **(Basic)** Learners have example pyramids for the countries that they studied	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 22–23 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 16–17

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		earlier as part of the DTM – compare the pyramids and link to DTM to explain the differences – to show examples of population structure from countries at different levels of economic development. Ensure learners understand the implications for each population structure in the future as well as the present. **(I)(Challenging)** Define 'dependent population', 'old dependents', 'young dependents' and 'economically active' and add to key word glossary. Introduce 'dependency ratio' – learners calculate examples based on population data. Learners research using ICT or textbook resources the problems of a high number of old and young dependents and the implications for governments in providing for them and display as two mind maps. Use the points on the mind map to explain and develop ideas in a short report. **(I)** **Learners should know a case study of:** A country with a high dependent population This can either be young or old dependents. Learners use resource materials and own research to produce a newspaper article – background about the country, fully annotated population pyramid, recap reasons for age structure, problems and solutions including any link back to relevant population policies studied earlier. Could include relevant sketch maps, photos and statistics. Ensure appropriate place specific reference. **(I)**	*Complete Geography for Cambridge IGCSE* pages 16–19 and 26–27 *IGCSE Geography* (Phillipson) pages 11–15, 20–21 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 10–16 Oxford International Student Atlas page 21 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/population/ www.s-cool/co.uk/geography http://populationpyramid.net/ – population pyramids of the world www.bbc.co.uk/schools/gcsebitesize/audio/geography/ **0460 past examination papers:** Nov 2011 Paper 11 Q1 Jun 2012 Paper 13 Q1 Nov 2012 Paper 12 Q1a and b Jun 2013 Paper 11 Q1a and b
1.4 Population density and distribution	Describe the factors influencing the density and distribution of population	Learners define 'population distribution', 'density', 'dense' and 'sparse' and add to key word glossary. Learners write out a method for calculating population density. **(I)(Basic)** Learners use choropleth atlas map to describe the world distribution of population using key words. **(I)** Show photographs of places around the world with different population density and discuss in groups. Learners annotate to contrasting photographs or sketches to show the factors that have affected the population density in	**Textbooks:** *Oxford International Student Atlas* page 21 *Cambridge IGCSE Student World Atlas* pages 20 and 21 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 22–27

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		each area. Feedback and categorise factors into densely and sparsely populated area. **(G)(Basic)** Factors can then be further classified into physical, economic, social and political factors. Reinforce ideas by comparing world distribution map with satellite image and/or other global atlas maps such as annual rainfall, vegetation, relief, climate, land use, etc. Can also use the opportunity to discuss other methods of presenting population distribution such as dot maps. Discuss and take feedback. **(W/I)(Challenging)** Take the opportunity to build on existing knowledge of world map – continents, oceans, lines of latitude and longitude – revisit and revise as appropriate. Could do this as a quiz also – show outlines of continents and learners have to name them. **Learners need to know a case study of:** A densely populated country or area at any scale from local to regional A sparsely populated country or area at any scale from local to regional Learners produce a written presentation to include: location sketchmap, choropleth map of density, reasons to explain the density – both dense and sparse supported with relevant images and statistics. Ensure appropriate place specific detail. **(I)** Factors to include physical, economic, social and political factors.	*Cambridge IGCSE Geography* (Belfield et al) pages 26–29 *Complete Geography for Cambridge IGCSE (Kelly and Fretwell)* pages 29–31 *IGCSE Geography (Phillipson)* pages 2–5 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 19–22 **Online:** www.s-cool/co.uk/geography www.geography.learnontheinternet.co.uk/topics/popn1.html#distribution www.sln.org.uk/geography/visual.htm – photograph presentation – learners identify whether dense or sparse www.bbc.co.uk/schools/gcsebitesize/geography/population/population_distribution_rev1.shtml **0460 Specimen Paper:** Paper 1 Q1a (i) (ii) (iii) **0460 past examination papers:** Jun 2012 Paper 12 Q1a and b Nov 2012 Paper 13 Q1bi and bii

Unit 2: Settlement

Recommended prior knowledge
An understanding of the factors that affect the location, patterns, structure and growth of settlements. A good general knowledge, particularly of places around the world.

Context
It is recommended that this is the second unit of work to be studied. The unit examines concentrations of people living in settlements so naturally progresses from the knowledge gained in the previous unit. The reasons why people move to cities and also links with the work on migration.

Outline
Learners will have opportunities to describe patterns of settlement and offer explanations for their growth. They will identify change, consider the impact of change and learn how urban environments can be managed to reduce the negative impacts of urbanisation and urban growth. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions as opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
1.5 Settlements and service provision	Explain patterns of settlement	Learners define 'settlement' and 'settlement pattern' and add to a key word glossary. **(I)** Define 'rural' and 'urban' and use photographs/map extracts to draw two spider diagrams to show the characteristics and uses of each type of area. **(W)(Basic)** Show learners photographs of a nucleated, dispersed and linear settlement pattern and ask them to describe what the photograph shows. **(G)** Learners identify examples of each on suitable map extracts and produce simple sketches from the map to illustrate each with appropriate annotation and key word definitions. Please ensure the scale of the maps used is appropriate. **(P/I)(Basic)** Learners use map evidence and photographic evidence to begin a	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 38–39 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 33, 36, 37 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 43 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 27–28 *IGCSE Geography* (Phillipson) page 38

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		discussion of the factors that might influence the settlement pattern in an area – interpreting map evidence. Consolidate this with a card sorting activity of factors which learners classify into nucleated, dispersed and linear – can record in a table or add detail to previous sketches to explain settlement patterns. **(P/I)**(**Challenging).** Link to case study region for 1.5 Whole class discussion to confirm. **(W)**	*New Wider World* (Waugh) pages 36–54 **Online:** www.slideshare.net/xksinz/settlement-patterns www.sln.org.uk/geography/settlement.htm – resources and ideas for whole unit **0460 past examination paper:** Nov 2011 Paper 13 Q2a and b
1.5 Settlements and service provision	Describe and explain the factors which may influence the sites, growth and functions of settlements	Learners define 'site' and add to key word glossary. In pairs, discuss the factors that would influence the site of early settlements and produce a list – for example, water, which could be obtained from a stream, river, spring or lake. Learners can show as a mind map or table. **(P)(Basic)** List of factors is in syllabus. Provide learners with a simple sketch map of an area with different sites for a settlement marked on – learners have to complete a decision making activity to decide which site they would choose. They rank each site for each factor and come up with a total score. A scale could be included to practise measuring distance. **(G)** Learners follow this up with a description of the site and explain any advantages and also problems in a short report. **(I)** This can be consolidated with photographs and map extracts – learners use the resources to describe and explain the site of settlements. They can locate map evidence using grid references and using appropriate symbols from the key to explain the site by interpreting evidence from the map extract. Learners can follow this up by drawing a simple annotated sketch map to show the site of a settlement and conduct reasons to find out about the reasons for the site of their own settlement or one nearby. **(P/I)(Challenging)** Link to case study 1.5.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 36–37 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 33 and 39 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 44–46 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 28–29 *IGCSE Geography* (Phillipson) pages 39–40 *New Wider World* (Waugh) pages 34, 35, 37, 54 **Online:** www.s-cool.co.uk/gcse/geography/settlements/revise-it/site-and-situation – site and

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Define 'function' and add to key word glossary. Learners have photographs of settlements work in pairs identify the main function. Labels could be provided to match to each photograph to support if required. **(P)(Basic)** Learners define and describe each function and link to an explanation of how the settlement would grow over time. Write up ideas. Learner could also design a key to help them to classify settlements into different functions. **(I)(Challenging)** Functions of settlements such as market town, mining town, industrial, port, route centre, commercial, cultural, administrative, residential and tourist resorts, etc. Learners research examples of a settlement with each type of function. Learners should be aware that the function of a settlement can also change over time. **(I)(Challenging)**	situation www.s-cool.co.uk/gcse/geography/settlements/revise-it/settlement-functions – settlement functions www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/settlement_characteristics_rev1.shtml – settlement characteristics
1.5 Settlements and service provision	Give reason for the hierarchy of settlements and services.	Introduce the concept of 'a hierarchy' by talking about the structure within a school – to convey the idea of putting things in order of importance. Learners define 'hierarchy' and draw a diagram to show a simple settlement hierarchy. **(I/W)(Basic)** Explain the three principles of a hierarchy – population size, number of services and number of settlements. Learners describe changes as you move up the hierarchy. **(I)(Basic)** Introduce and define 'sphere of influence'. Define 'range' and 'threshold population' and add to key word glossary – and illustrate with examples of different services from each of the settlement types. Learners match examples of services to the type of settlement using mini whiteboards as whole class assessment for learning or card sort. Learners write short explanation to demonstrate their understanding of the key ideas – how does the nature/type and number of services vary between different types of settlements and why. **(W/I)(Challenging)** Learners have examples of settlements (names/population size) or types of services, etc. and have to place them in order of importance on a washing line – learners place into order or into a sequence. (See Appendix: Washing line) **(G)** Learners complete a	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) page 44 *Cambridge IGCSE Geography* (Sibley and Cambers) page 38 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 39–42 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 29–30, 30–32 *IGCSE Geography* (Phillipson) page 38 *New Wider World (*Waugh) pages 38, 39 and 55 **Online:** www.bbc.co.uk/schools/gcsebitesize/a

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		scatter graph to show the relationship between population size and number of services in selected settlements – describe and explain the relationship. **(I)(Challenging)** *Fieldwork opportunity: to investigate the sphere of influence of a local town or service.* *Mapwork opportunity: locate settlements on a map which are at different stages in the hierarchy. Use scale to measure the distance between each one and calculate an average for each type of settlement. Use a key to identify the services found in each and compare.* Learners draw and label a shopping hierarchy. Introduce 'low, medium and high order goods' and define. Learners explain the differences between them. Discuss terms such as 'specialist, convenience' and 'comparison goods' and update key word glossary. **(I)(Basic)** Learners complete a card sorting activity of goods into low, medium and high order depending upon frequency of purchase, cost of item, distance that a shopper would be prepared to travel for the good – show results in a table. **(P)(Basic)** Recap range, threshold and sphere of influence in relation to different types of shops and illustrate with examples. Consider the different types of shops and their locations and link back to shopping hierarchy diagram. Learners take notes from audio activity. **(I)(Challenging)** *Fieldwork opportunity: compare the sphere of influence of different types of shops in the hierarchy and explain.*	udio/geography/ – various geography topics www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/settlement_characteristics_rev1.shtml – settlement characteristics www.s-cool.co.uk/gcse/geography/settlements/revise-it/urban-hierarchies – urban hierarchies **0460 past examination papers:** Jun 2011 Paper 13 Q2a, 2bi and ii Jun 2011 Paper 11 Q2a and b **0460 Specimen Paper:** Paper 1 Q2b
1.5 Case study	Know a case study of settlement and service provision in an area	**Learners should know a case study of:** Settlement and service provision in an area (Please ensure that the scale of the case study is appropriate – the case study area should reflect high, middle and low order settlements.) Suggested activities: Introduce a map of the area to show the chosen settlements –	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		learners produce annotated sketch map to show the main features of the chosen case study area including named settlements and place specific information. **(W/I)** Describe and explain the settlement pattern and the site of settlements in the case study region. Select an example of a high, medium and low order settlement in the area and for each: • learners research population data (and change over time to indicate growth) • they identify evidence from the map to suggest the function of each settlement • research how each settlement has grown over time and the reasons why • research and use map evidence to describe the service provision in each settlement (include sphere of influence and threshold populations) • explain the differences using key terminology. Use all of the information to place the settlements into a hierarchy and write a report to explain the settlement and service provision of the chosen area. **(I)** The case study could be reinforced using fieldwork to compare the spheres of influence of the three chosen settlements using questionnaires or by land use mapping in each to discover the types of services present – are they mainly high, low or medium order services?	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
1.6 Urban settlements	Describe and give reasons for the characteristics of land use in urban areas	Introduce Burgess model (or concentric zone model) www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/urban_models_medcs_rev1.shtml – learners label diagram to show different zones. Add definitions of each zone to key word glossary. **(Basic)** Introduce Central Business District (CBD) and show photographs and land use maps to learners. Mind map characteristics of the zone and explain each one – for example, high rise buildings due to high cost of land/competition for land. **(W)** Learners use photographs of each housing zone, selected census data and land use map/OS map extracts of each housing zone to discuss the characteristics (land use and housing characteristics such as type, age, characteristics, quality, etc.) of each zone in groups.–whole class discussion to confirm. **(G/W)** Learners record ideas in a table and add annotation to previous diagram. Opportunity also for learners to complete *labelled field sketch* from selected photograph and also annotate *photographs* of each zone. **(I)(Basic)** Learners draw a sketch of a land use transect through a typical MEDC – describe the changes with distance from the central business district (CBD). This can be used as a basis to discuss inequalities in a city and housing problems as an introduction to urban problems. **(I)** Introduce the principles to explain the different patterns of land use in a MEDC city such as cost of land, space, age of buildings, accessibility, wealth, changes in demand, etc. – set key questions for learners to respond to as a check of understanding. **(Challenging)** Learners write a description of each zone and reasons to explain the land use found there. **(I)(Challenging)** Also include rural-urban fringe – use a map extract (*finding features using a key) to* describe land uses - learners make a list and can	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 59–64 *Cambridge IGCSE Geography* (Sibley and Cambers) page 43 *Cambridge IGCSE Geography* (Belfield et al) pages 48–51 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 29–30, 30–32, 34–38 *IGCSE Geography* (Phillipson) pages 43–44 *New Wider World* (Waugh) pages 42–49 **Online:** www.s-cool.co.uk/gcse/geography/settlements/revise-it/urban-morphology www.geography.learnontheinternet.co.uk/topics/landuse.html www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/urban_models_medcs_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/urban_models_ledcs_rev1.shtml **0460 past examination paper:**

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		locate using *grid references.* **(P)** Learners explain the advantages of the rural–urban fringe location and resulting competition for land. **(I)(Challenging)** – display ideas as an advert to attract new land uses to this area of the city. Introduce Hoyt model of urban land use – learners label diagram and explain the key differences between the Hoyt and Burgess model and the reasons for them. **(I)(Basic)** Learners use this as a basis to work in pairs to discuss where industrial zones are found in cities and the reasons why. **(P)** Introduce model of urban land use in a LEDC – learners label diagram and describe and suggest reasons for the key differences between the zones in a MEDC and LEDC. **(I)(Basic)** Can be revisited in 1.7. Learners describe the key characteristics of land use zones. **(I)** *Fieldwork Opportunity – to what extent does a local town or city (transect) match the urban models? Suggestions include: land use transect, housing type transect, age of housing, quality of housing survey, environmental quality survey, cost of houses (secondary research).* *This could also be investigated using census data to explore the socio-economic characteristics of each zone – graph results/show as choropleth maps/identify and explain trends.* *How can the central business district (CBD) be delimited – this could be investigated with ideas such as traffic counts, pedestrian counts, environmental quality surveys, building height index and cost of land (secondary data).*	Jun 2012 Paper 11 Q2ai and b
1.6 Urban settlements	Describe and give reasons for changes in land use in urban areas	Learners use before and after *photographs* of a central business district (CBD) to start to identify reasons for and the changes that have taken place in CBDs. Changes could include improvements such as pedestrian zones, shopping malls, new leisure activities, improved security, use of brown field sites, etc. **(P)(Basic)** For each, learners write a description of the changes, explain why the change took place and explain the advantages and disadvantages they will bring – could be prompted by a card sorting activity	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 65–66, 78 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 56– 59

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		(learners have to place cards into categories). **(I)(Challenging)**	*Cambridge IGCSE Geography* (Belfield et al) pages 52–53
		Learners work in pairs to mind map all of the problems of old inner city areas and share as a class to confirm. Show examples (photographs, video clips, land use maps, text) of comprehensive redevelopment and modern regeneration schemes to include: the changes that took place, why the change happened and the advantages and possible limitations of the schemes. **(P)(Basic)** Learners complete independent research to complement lesson information and write a newspaper article to describe and explain inner city changes. **(I)(Challenging)**	*IGCSE Geography* (Phillipson) pages 65–66, 60–64

New Wider World (Waugh) pages 42–49, 58–65

Online:
www.s-cool.co.uk/gcse/geography/settlements/revise-it/the-rural-urban-fringe

www.s-cool.co.uk/gcse/geography/settlements/revise-it/urbanisation |
		Recap the rural–urban fringe and the advantages that it offers as a whole class discussion. Learners work in groups to identify the types of new development that might take place in this zone based on the advantages of the zone such as airports, motorways, ring roads, business parks, science parks, industrial estates, out of town shopping centres and examples from previous mapwork activity. Discuss the costs and benefits of each – both for the rural urban fringe and other parts of the city too. **(G)(Basic)**	
		Learners write up as headlines with short notes and photographs found from research for selected developments.	
		Learners complete a decision making activity to decide the best location for a new out of town shopping centre or other rural-urban fringe land use–provide a map with several sites to choose from. Once a site is chosen, learners conduct a role play activity to investigate the impact of the chosen site. **(G)(Challenging)** Learners write up viewpoints.	
		Fieldwork opportunity: investigate the sphere of influence and impact of an out of town shopping centre (questionnaires, land use mapping, pedestrian counts).	
		Learners define 'suburbanised village'. Work in pairs to give push and pull factors to explain why people move to a suburbanised village. Analyse land use maps to show change in the village over	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		time and write up viewpoints of different groups of people to show the impact of this change. **(P)** Define the key word 'urban sprawl' and update key word glossary. Learners compare maps of a city over time to describe the extent of urban sprawl. Discuss the problems that urban sprawl creates such as loss of farmland, loss of space for recreation, impact on ecosystems, creation of impermeable surfaces, division, etc. and show as a mind map. **(W/I)**	
1.6 Urban settlements	Explain the problems of urban areas, their causes and possible solutions	Learners produce a mind map in pairs to record their initial ideas for the causes of urban problems – pollution (air, noise, water and visual), inequality, housing issues, traffic congestion and conflicts over land use change. **(P)(Basic)** For each one, learners should explain the problems that they cause. Link to 3.7 – describe how economic activities may pose threats to the natural environment (water, air, noise and visual pollution) For each one, learners independently research some general solutions and present results in a table. **(I)** Confirm through whole class discussion and add ideas in. Table – description of problem, causes and solutions. This section will mainly be delivered through the case study for 1.6. It will be appropriate to teach the case study first and then come back to this section to cover causes and solutions of urban problems not addressed through the case study. Links to 3.7 – demonstrate the need for sustainable development and management – sustainable living and sustainable transport. Learners use web page references and take notes on each. Use to produce a leaflet to show what sustainable living is like. Think about where they live and make suggestions about how their village/town/city could become more sustainable. Produce a poster to show the features of sustainable living. Write a short letter to their local MP/council to explain the changes that could be made in their village/town/city to make transport more sustainable.	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/urbanisation_medcs_rev1.shtml www.geography.learnontheinternet.co.uk/topics/urbanisation.html#probs1 www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_living_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_living_rev2.shtml **0460 past examination paper:** Jun 2012 Paper 13 Q2a and b

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
1.6 Case study	Know a case study of an urban area (including changing land use and urban sprawl)	**Learners should know a case study of:** an urban area (including land use and urban sprawl) Ensure appropriate place specific information – such as names of areas and examples/details of specific schemes. It is appropriate to use more than one case if required. Suggested activities: Locate urban area – learners produce fully annotated sketch map and describe location. **(I)** Use map extract and photographs to describe the characteristics of land use and housing in each zone including the rural urban fringe. **(I)** Learners research and identify change in each zone – produce a short presentation for peers. Peer evaluation of presentation. **(P)** Provide census data for learners – produce choropleth maps to describe patterns of inequality. Use scatter graphs to identify relationships between data and explain. **(I)** Learners analyse photographs to identify traffic problems. Card sorting activity – matching characteristics and benefits to named traffic management schemes. **(P)** Learners identify recent change in the city that may cause conflict – write up viewpoints of different groups of people about selected developments – for example, a named out of town shopping centre, inner city redevelopment, traffic scheme or bypass development, etc. **(I)** Teacher to provide appropriate stimulus material. Include urban sprawl and the impacts on people and the environment such as loss of farmland, recreation land, air pollution, habitat loss, etc. Learners research and write a leaflet for local residents to explain the housing problems they are facing and the proposed solutions (of a named scheme) – learners may work in small groups but each learner should have a copy of the leaflet for revision. **(G)** **(Challenging)**	**0460 Specimen Paper:** Paper 1 Q2c

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners research causes of air, noise, water and visual pollution in the city and solutions to each. Write up as a newspaper article. *Fieldwork: some of this case study could be investigated by local fieldwork and also by using appropriate secondary data about the case study urban area.*	
1.7 Urbanisation	Identify and suggest reasons for rapid urban growth	Define the key word 'urbanisation' and add to key word glossary. Learners describe graphs to show urbanisation in selected countries – describe MEDCs and LEDCs trends and explain the differences between the rates of growth in each. Learners are provided with a map (or plot cities onto a map using an *atlas)* to locate the top ten cities in the world today. Define 'millionaire city', describe 'distribution' and how the distribution has changed over time (compare with previous map). **(I)** Whole class discussion – reasons for urbanisation in MEDCs and LEDCs – learners take notes and use to introduce rural to urban migration. **(W)** Recap internal migration and rural to urban migration and check understanding of key words. Introduce case study rural area – learner produces sketch map and describes location. Provide statistics about population change and migration – learners draw graphs and describe. **(I)(Basic)** Learners complete a mystery to understand why a migrant has left their home in a rural area and moved to a city – use this as part of the case study for this section by naming areas and making information place specific. Learners solve the mystery and explain the push and pull factors involved. **(P)** Classify into physical, economic and social factors and write up as a table. **(P)** Learners can consolidate by writing short diary entries for the migrants explaining their reasons for leaving. Provide *photographs* or video clips to reinforce. **(I)(Challenging)**	**Textbook:** *Cambridge IGCSE International Atlas* page 41 **Online:** www.geography.learnontheinternet.co.uk/topics/urbanisation.html#cause **0460 past examination paper:** Jun 2012 Paper 13 Q2a
1.7 Urbanisation	Describe the impacts of urban growth on both rural and urban areas, along with possible solutions to reduce the negative	Learners start with a focus on the rural area – this can be taught through the case study. Provide a population pyramid – learners label and analyse to describe and explain the impact of migration on the population structure. Provide learners with statements from	**Online:** www.s-cool.co.uk/gcse/geography/settlements/revise-it/urbanisation

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
	impacts	different groups of people affected by the migration – learners read, text highlight (see Appendix: Text highlighting) and discuss in pairs and use to write up a short report. Learners research possible solutions to reduce migration from the case study area and add to their notes. **(P)(I)** Introduce the urban area – learners locate (taught through case study). Provide population growth statistics and migration rates – draw graphs and identify trends. Provide population pyramid – learners annotate to show the impact of the migration on the population structure and answer questions to explain. **(I)(Challenging)** Learners define 'squatter settlement' and add to key word glossary. Recap land use model of LEDC to describe the location of squatter settlements and the reasons for their location. Whole class discussion – why do people live in squatter settlements – learners record and write up results. Provide video clips and photographs to show main features of squatter settlements from the case study region – learners can annotate photographs, draw sketches and write up an account of daily life in a squatter settlement. Possibly include an annotated sketch to show what typical housing is like. **(I)** Provide example schemes of solutions to problems in squatter settlements in the case study region – for each, learners record the action that has been taken and the impact that it has had. Complete a decision making activity – Which is the best solution based on a cost benefit analysis? **(G)(Challenging)** **Extension activity:** learners can complete additional research on problems and solutions if required to gain the full range of approaches. **(G)(Challenging)** Whole class discussion – problems created by rapid growth of case study city for people and the environment – learners produce mind map. **(W/I)(Basic)** Recap previous learning about urban problems and research strategies to manage the problems in the case study region – write	www.bbc.co.uk/schools/gcsebitesize/geography/urban_environments/urbanisation_ledcs_rev1.shtml www.geography.learnontheinternet.co.uk/topics/urbanproblsledcs.html#rio **0460 past examination papers:** Jun 2012 Paper 13 Q2b Jun 2012 Paper 13 Q2c

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		up as a newspaper article. **(I)(Challenging)** General discussion of other problems in LEDC and solutions in addition to case study region – show as a table of problems and suggested solutions. **Extended writing activity:** to explain the strategies taken to reduce the negative impacts of urbanisation.	
1.7 Case study	Know a case study of a rapidly growing urban area in a developing country and migration to it	**Learner should know a case study of:** A rapidly growing urban area in a developing country (LEDC) and migration to it. This should have been covered in the previous section by adopting a case study approach to delivering the content of 1.7. Checklist: • locate rural area and urban area • discuss reasons for migration (push and pull) • impact of migration on the rural and urban area • urban problems (people and environment focus) • squatter settlements • solutions in urban and rural area	**0460 past examination paper:** Jun 2012 Paper 11 Q2c

Unit 3: Earthquakes and volcanoes

Recommended prior knowledge
Learners may have some previous knowledge of tectonic processes and the factors that cause volcanic eruptions and earthquakes. They may also appreciate that natural environments present challenges and opportunities. It is helpful for learners to have a good general knowledge particularly of events in the news such as earthquakes and volcanic eruptions. Recent events provide good opportunities for case study material.

Context
It is recommended that this is the third unit to be studied. It is the first of the units to be studied for Theme 2 – The Natural Environment. Case studies of volcanoes and earthquakes are incorporated as appropriate. The skills gained in this unit will have useful applications throughout the course,

Outline
This scheme of work allows learners to explain the causes and consequences of volcanic eruptions and earthquakes. It also encourages them to appreciate that natural environments offer challenges as well as opportunities. They are introduced to ways in which we can attempt to manage the natural environment and reduce the impact of hazards. The use of topical events shows learners that Geography is a current, real and dynamic subject. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
2.1 Earthquakes and volcanoes	Describe the main types and features of volcanoes and earthquakes	Learners define word 'volcano'. Describe the difference between an 'active', 'dormant' and 'extinct' volcanoes – research examples of each using the internet. **(I)(Basic)** Learners define 'composite volcano' and add to key word glossary. Learners work in small groups to reproduce a *fully annotated diagram* of a composite volcano – are shown a diagram to work from for a short period of time and then work as a team to draw the diagram from memory with as much information as they can remember. **(G)** Follow up by asking learners to annotate a diagram of a composite volcano and write a description of the key features. Learners	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 97–98, 102, 106–107 *IGCSE Geography* (Phillipson) pages 65–66, 84–85 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 58–59 **Online:** www.bbc.co.uk/schools/gcsebitesize/g

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		describe features of a composite volcano from a *photograph* – produce a *sketch* and label. Learners construct a model of a composite volcano. **(I)(Challenging)**	eography/natural_hazards/
		Introduce the key word 'shield volcano' and add to key word glossary. **(Basic)** Provide a *photograph* of a shield volcano – learners produce a *labelled sketch* and describe how the shield volcano is different from the composite volcano. Explain the key reasons for this. Learners can research examples of shield and composite volcanoes and their locations. **(I)(Challenging)**	www.s-cool.co.uk/gcse/geography/tectonics/revise-it/volcanoes www.s-cool.co.uk/gcse/geography/tectonics/revise-it/earthquakes
		Introduce the term 'earthquake' and add to key word glossary. Learners produce a simple diagram with labels to show the key features – 'focus' and 'epicentre'. Define 'intensity' and other appropriate key words. Update glossary with new key words. **(I/W)(Basic)**	www.revisionworld.com/gcse-revision/geography/tectonic-activity/earthquakes www.revisionworld.com/gcse-revision/geography/tectonic-activity/volcanoes
		Provide a copy of the Richter scale and an earthquake trace from a seismograph – learners work in pairs to place cards describing earthquake events at appropriate points on the earthquake trace according to the Richter scale – learners explain and justify their decisions. **(P)(Challenging)**	www.bbc.co.uk/news/world-12717980 http://volcanoes.usgs.gov/
		Learners independently research the Mercalli Scale and describe the difference between the two scales. Learners can independently research examples of earthquakes at different intensities and their location.	http://pubs.usgs.gov/gip/earthq1/ http://earthquake.usgs.gov/
			0460 past examination papers: Nov 2013 Paper 12 Q3ai and ii Jun 2011 Paper 12 Q4bi

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.1 Earthquakes and volcanoes	Describe and explain the distribution of earthquakes and volcanoes.	Provide learners with a map of volcanoes and earthquakes – they can mark some of the volcanoes and earthquakes that they have previously researched onto the map using an atlas. **(I)(Basic)** Learners describe the distribution of volcanoes and earthquake zones – what do they notice about the distribution of the two? Learners can use atlases to provide appropriate place references. **(I/W)(Challenging)** Introduce a structure of the earth diagram – learners label each layer **(I)** and complete a card sorting activity to match names to descriptions of each layer. **(P)(Basic)** Explain the two types of crust, the differences between them and how the crust is broken into plates. Introduce a map of plate boundaries. Define 'tectonic activity', 'plate' and 'plate boundary' and add to key word glossary. Learners label the map to show the names of plates and add arrows to show the direction of movement. **(I)(Basic)** Discuss rate of movement and how plates move – link to convection currents. Ask learners to discuss and note down what they notice about the plate boundaries and volcano and earthquake zones. Can they suggest any reasons for their observations? **(P)(Challenging)** Learners identify examples of places where plates are moving together, moving apart and moving side to side. Record in a table. Build on this information to introduce different types of plate boundaries – constructive/divergent, destructive/convergent and conservative plate boundaries. Show animations for each type of plate boundary – learners annotate a diagram of each and write an explanation of what happens at each type of boundary. **(W/I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 66–69 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 62–63 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 91–96 *IGCSE Geography* (Phillipson) pages 65–66 and pages 74–78 *New Wider World* (Waugh) pages 262–265 *Oxford International Student Atlas* pages 10 and 11 *Cambridge IGCSE Student World Atlas* pages 18 and 19 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/natural_hazards/tectonic_plates_rev1.shtml http://news.bbc.co.uk/1/hi/sci/tech/7533964.stm www.s-cool.co.uk/gcse/geography/tectonics/revise-it/tectonic-plates www.revisionworld.com/gcse-revision/geography/tectonic-activity/earthquakes

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
			www.bbc.co.uk/schools/gcsebitesize/geography/video/natural_hazards/ www.sln.org.uk/geography/Tectonic%20processes.htm – ideas and teaching strategies for whole unit) www.classzone.com/books/earth_science/terc/content/visualizations/es0804/es0804page01.cfm?chapter_no=visualization **0460 past examination papers:** Jun 2013 Paper 13 Q4a Nov 2013 Paper 12 Q3aiii Nov 2011 Paper 11 Q4aiv Jun 2011 Paper 12 Q4a Jun 2011 Paper 13 Q3aiv
2.1 Earthquakes and volcanoes	Describe the causes of earthquakes and volcanic eruptions and their effects on people and the environment	Recap learning from previous section – causes of earthquakes and volcanoes at the different types of plate boundary – learners show as a table to consolidate. Introduce volcanoes at hot spots and give a couple of examples. **(W/I) (Basic)** Provide photographs of volcanic eruptions and show some video clips or newspaper articles as stimulus material (not case study) – learners work in groups to discuss and mind map the general effects that volcanic eruptions can have on people and the environment. Repeat the activity for earthquakes. Learners then work to classify the different effects – short and long term – and explain the difference between the two. This will be consolidated in more detail through the case study later. **(G) (Challenging)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/natural_hazards/ www.s-cool.co.uk/gcse/geography/tectonics/revise-it/earthquakes www.revisionworld.com/gcse-revision/geography/tectonic-activity/earthquakes **0460 past examination papers:** Jun 2013 Paper 13 Q4bi Jun 2013 Paper 11 Q3ai, ii and iii Jun 2011 Paper 13 Q3aii
2.1 Earthquakes and volcanoes	Demonstrate an understanding that volcanoes present hazards and offer opportunities for people	Effects has been covered in the previous section but can be recapped by a 'Give me five' activity (plenary activity where learners ask for five things about a topic – see Appendix: Give me five) – for example, "give me five…short term effects of a volcanic eruption on	**Textbook:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 99 and 101

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		people or…five long term effects of a volcanic eruption on the environment." Learners can draw round their hand and record their ideas on the fingers on their hand. **(Basic)(W/I)** Develop this further by using information from the previous activity to decide the type of volcanic hazard involved – for example, was it as a result of ash, lava, lahars, volcanic bombs, pyroclastic flows, etc. Learners record different volcanic hazards such as lava, ash, pyroclastic flows, mudflows, etc. and a description in a table to include the likely hazards of each for people. (**(W/I)(Challenging)** 'Think, Pair, Share' activity (See Appendix: Think, Pair, Share) – learners have one minute to try to think of any benefits of volcanic activity and record on a mind map. Then they work with a partner and are provided with some facts cards as a stimulus to try to add some more ideas to their mind map in a different colour. Finally, share ideas – take feedback from the pairs and discuss. Confirm with a whole class discussion that using photographs to illustrate the benefits of volcanic activity in different parts of the world – learners add further detail to their mind maps in a different colour to record ideas and examples. **(I/P/W)** **Extended writing activity:** Explain the benefits of living in volcanic regions. Try to encourage learners to develop their answers and include examples to support their ideas. **(I)(Challenging/I)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/natural_hazards/ www.revisionworld.com/gcse-revision/geography/tectonic-activity/volcanoes **0460 past examination papers:** Jun 2013 Paper 11 Q3aiv Nov 2013 Paper 12 Q3b Jun 2011 Paper 12 Q4bii Nov 2013 Paper 13 Q3bi and iii
2.1 Earthquakes and volcanoes	Explain what can be done to reduce the impacts of earthquakes and volcanoes	Volcanoes – learners can act as volcano detectives. Provide information (facts/photos/clips) about a particular volcano (choose one that gave lots of warning signs) – learners have to identify the warning signs that the volcano displayed that it was going to erupt and put them in time order – can show as a story board. **(P)(Basic)** Use this to introduce the value of prediction and how volcanoes can be predicted along with any equipment that is used – learners complete a card sorting matching activity – for example – magma moves up the volcano and can produce a magma bulge – measured by tiltmeters. **(P)(Challenging)** Discuss the importance of evacuation and warning systems.	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 100 *IGCSE Geography* (Phillipson) pages 65–66, 88–89 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 59–60 and 62–63 *New Wider World* (Waugh) page 274

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Provide photographs and examples of measures taken to reduce the impact of volcanoes – learners record all ideas on a mind map. Can add further ideas and example from independent research. Learners explain why volcanic eruptions do not often cause a large number of deaths. **(W/I)** Earthquakes – learners work in pairs to discuss what they would put in an earthquake survival pack – show an example if you have one or research examples from the internet. **(P)(Basic)** Learners explain why they have included each item. **(Challenging)** Learners devise a safety poster or leaflet giving and explaining advice to people about what they should do in the event of an earthquake – can discuss ideas as a whole class first or complete independent research. The class can practise an earthquake drill if this is not a usual routine for your learners. Show photographs of examples of how buildings and structures have been adapted in different parts of the world to withstand earthquakes – learners write up ideas as a short report for a geographical journal – can include *labelled sketches* and photographs to illustrate. **(W/I) (Challenging)** Learners draw scatter graph*s* to show examples of earthquakes at different intensities in different parts of the world and number of deaths. Discuss what the graphs show. Use this as a stimulus to discuss why there may be more deaths from natural hazards in LEDC and discuss the reasons why – learners write up their ideas. Include volcanic eruptions at this point too. Discuss how confidence in prediction and safety measures mean that people continue to live in hazard zones, and other reasons for this (link to volcanic benefits). **Extended writing activity:** Why do many people live in earthquake zones? And what opportunities are offered by volcanic regions? **(I)(Challenging)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/natural_hazards/managing_hazards_rev1.shtml www.s-cool.co.uk/gcse/geography/tectonics/revise-it/the-impact-of-natural-hazards www.bbc.co.uk/schools/gcsebitesize/geography/video/natural_hazards/ www.geographyalltheway.com/ http://handygeography.wordpress.com/tag/earthquake/ **0460 past examination papers:** Nov 2013 Paper 12 Q4aiii and iv Jun 2013 Paper 13 Q4bii Nov 2011 Paper 11 Q4bi and ii Jun 2011 Paper 13 Q3b Jun 2012 Paper 11 Q4aii
2.1 Case study	Know a case study of an earthquake and a volcano	**Learners should know a case study of:** A volcano	**Textbooks:** *Cambridge IGCSE Geography*

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		An earthquake For each case study, learners produce a newspaper article to include: • a map to show location of the event and description • a fact file – key facts about the event or volcano (e.g. type) – provide place specific detail • a plate boundary map – ensure plates are identified and named • a plate boundary diagram and explanation • a write-up of the effects on people (short and long term) • a write-up of the effects on the environment (short and long term) • any benefits or opportunities (volcano case study) • the immediate response to the event – include relief from other countries • longer term responses to the event including measures taken to reduce the risk in the future. Whilst there is no cutoff date for natural disaster case studies, it is helpful to use recent examples where possible.	(Belfield et al) pages 70–71, 72–73 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 64–65, 66–67 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 103–104, 107–109 *IGCSE Geography* (Phillipson) pages 65–66, 79–83, 86–87 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 60–61, 64–65 *New Wider World* (Waugh) pages 266–273 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/natural_hazards/ www.s-cool.co.uk/gcse/geography/tectonics/revise-it/volcanoes www.s-cool.co.uk/gcse/geography/tectonics/revise-it/earthquakes www.revisionworld.com/gcse-revision/geography/tectonic-activity/earthquakes www.bbc.co.uk/learningzone/clips/ **0460 past examination papers:** Jun 2013 Paper 13 Q4c

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
			Jun 2013 Paper 11 Q3c Nov 2013 Paper 12 Q3c Jun 2012 Paper 11 Q4c Nov 2011 Paper 11 Q4c Jun 2011 Paper 12 Q4c

Unit 4: Rivers and coasts

Recommended prior knowledge
Learners may have some previous knowledge of river and coastal processes and the factors that cause flooding and coastal erosion. They may also appreciate that natural environments present challenges and opportunities. It is helpful for learners to have a good general knowledge particularly of events in the news such as floods. This can provide invaluable material for up to date case studies.

Context
It is recommended that this is the fourth unit to be studied. Case studies of the opportunities and hazards presented by a river and a stretch of coastline and how these are managed are incorporated as appropriate. The skills gained in this unit will have useful applications throughout the course and there are lots of opportunities to address the skills required for Paper 2 as well as provide opportunities for practical fieldwork.

Outline
This scheme of work allows learners to explain river/coastal processes and landforms. It also helps learners to appreciate that natural environments offer challenges as well as opportunities. Learners continue to understand ways in which we can attempt to manage the natural environment to reduce the impact of hazards such as flooding and erosion. The use of topical events shows learners that Geography is a current, real and dynamic subject. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
2.2 Rivers	Explain the main hydrological characteristics and processes which operate within rivers and drainage basins	Learners draw a pie chart to show the sources of water on earth to introduce the hydrological cycle. What do they notice about fresh water? (Link to 3.6.) Provide learners with a diagram on the global hydrological system and discuss. **(I)(Basic)** Focus on the drainage basin part of this diagram and introduce the concept of 'a system'. Could exemplify with reference to a simple and familiar system like the human body. Learners define key words 'input', 'output', 'store' and 'transfer', and add to key word glossary. **(W/I)(Basic)** Learners label a diagram to show the drainage basins system with	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) page 80 *Cambridge IGCSE Geography* (Sibley and Cambers) page 70 *IGCSE Geography* (Phillipson) pages 100–102 *New Wider World* (Waugh) pages 278–279

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		key characteristics and inputs, stores, transfers and outputs. Colour code the labels to show which are 'inputs', 'flows', 'stores' and 'outputs'. **(I)** Complete card sorting activity to define each one. **(P)** Whole class discussion on the factors affecting processes within a drainage basin – can be revisited when discussing the causes of flooding later – learners record factors and description in a table. Learners can use drainage basin diagram to show information in a new format – produce a systems diagram for a drainage basin. **(W/I)(Challenging)** Illustrate key features of the drainage basin such as watershed, confluence and tributary with photographs and locate examples on a map using grid references. Learners also sketch and label a drainage basin features from a photograph. Update key word glossary with new terms. *Opportunity for skills activity: describing the relief and drainage of an area.* **(W/I)** *This could incorporate how height is shown on a map also.* Learners label diagram to show the long profile of a river and label each section. Define 'source' and 'mouth' and add to key word glossary. Provide a diagram of the Bradshaw model – learners work in pairs to describe the main changes that occur with distance downstream – width, depth, and speed of flow/velocity, etc. **(P)(Basic)** Explanations for these changes will be studied as part of the next section. Begin to annotate the long profile diagram to show characteristics of each stage. **(I)** *Opportunity for mapwork activity: looking at stream patterns, drainage density and gradients or sizes of streams.*	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/background_rivers_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_profiles_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/audio/geography/ www.geography.learnontheinternet.co.uk/topics/river.html www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_profiles_video.shtml www.geography-fieldwork.org/riverfieldwork/downstream_changes/stage1.htm www.bbc.co.uk/scotland/education/int/geog/rivers/drainage/index.shtml www.sln.org.uk/geography/rivers_and_coasts.htm – ideas for whole unit **0460 past examination papers:** Nov 2012 Paper 13 Q3ai and ii Nov 2011 Paper 12 Q3ai, ii and iii **0460 Specimen Paper:** Paper 1 Q4ai and ii
2.2 Rivers	Demonstrate an understanding of the work of a river in eroding,	Introduce the key words 'erosion', 'transport' and 'deposition' and add to key word glossary. Learners can illustrate these by drawing	**Textbooks:** *Cambridge IGCSE Geography*

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
	transporting and depositing	a simple cartoon to show the processes in a familiar context. **(I)(Basic)** Learners complete card sorting activity to define the four processes of erosion – 'corrosion', 'corrasion','hydraulic action' and 'attrition'. **(P)** Discuss the difference between 'vertical' and 'lateral erosion' and define key words. **(W)** Draw and fully annotate a diagram to show the four types of transportation and the link to the size of the material – 'traction', 'saltation', 'suspension' and 'solution'. **(I)** Define 'load' and show photographs to show how the size and shape of load will change downstream – learners describe changes and work in pairs to suggest reasons for this. **(W/P)(Challenging)** In pairs, discuss why and under what conditions a river might deposit material and note down ideas – discuss and confirm in whole class discussion. Learners annotate previous long profile diagram to show where erosion, transport and deposition take place in a river. **(P/I)** Revisit Bradshaw model diagram and whole class discussion as to why width, depth and speed change with distance downstream – learners answer questions to explain the changes. **(W/I)(Challenging)** Learners could also be provided with data to show changes downstream – draw graphs, river and valley cross sections, describe and explain changes, produce scatter graphs to show the relationship between data sets – write up as a mini investigation. Alternatively, this information could be collected through fieldwork – see note below. *Fieldwork opportunity: investigate changes in a river downstream to include measurements of channel width, depth, velocity, size and shape of bed load.*	(Belfield et al) pages 80–81 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 70–71 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 122–123 *Cambridge IGCSE Geography (Guinness and Nagle)* page 72 **Online:** www.geography.learnontheinternet.co.uk/topics/river.html www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_processes_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_processes_video.shtml **0460 past examination papers:** Nov 2012 Paper 13 Q3aii and iv Nov 2011 Paper 13 Q4a Jun 2011 Paper 11 Q3a and 3b **0460 Specimen Paper:** Paper 1 Q4bi

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.2 Rivers	Describe and explain the formation of the landforms associated with these processes	Recap long profile diagram and the three stages of a river. Learners analyse photographs to show the shape of the river valley in cross section at each of these stages – annotate to show main characteristics or produce appropriately labelled sketches. **(P/I)(Basic)** Learners identify and describe river valleys from a map extract using key terminology as suggested in the syllabus. **(W/I)(Challenging)** Provide learners with diagrams to show the formation of a river valley – they work in pairs to sequence the diagrams and then match explanations to each diagram to explain the formation of a river valley. Learners repeat these activities to describe the features of and explain the formation of a waterfall. **(P)(Challenging)** Learners independently research the formation of potholes, write up and feedback to the whole class. **(I/W)** *Fieldwork opportunity: measuring valley profiles with varying distance downstream.* *Mapwork opportunity: learners identify and describe valleys on a map extract.* Provide some data to show the varying depths across a meander. Learners draw a cross section. Label key characteristics – fastest flow, outside, erosion, river cliff, inside, slow flow, river beach, shallow, etc. In pairs, discuss the reasons for the variation in river depth across a meander. Learners draw fully annotated sketches to show a river cliff and a river beach – describe and explain their formation. Learners produce a presentation to describe and explain the formation of an oxbow lake, delta, levees and flood plain – for each there should be a fully labelled photograph, named example, annotated diagrams and an explanation of how the feature is formed. **(I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 82–84 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 71–75 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 124–130 *IGCSE Geography* (Phillipson) pages 103–108 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 70–71, 73–74 *New Wider World* (Waugh) pages 282–285 **Online:** www.geography.learnontheinternet.co.uk/topics/river.html www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_landforms_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_landforms_video.shtml www.bbc.co.uk/education/topics/zncqxnb **0460 past examination papers:** Nov 2012 Paper 13 Q3bi and ii Nov 2011 Paper 12 Q3b

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		All diagrams should be well annotated and appropriate reference made to examples (not case studies) for river landforms. *Mapwork exercise: learners identify and locate features on a map extract(s). They could also measure river gradients at different stages. Learners describe the form of a river at different stages and how it changes with distance downstream.* **(W/I)(Challenging)** *Fieldwork opportunity: measuring a cross section through a meander, field sketches and photographs of river features.*	Nov 2011 Paper 11 Q3a Nov 2013 Paper 11 Q3a and 3b **0**Nov 2011 Paper 13 Q4b **0460 Specimen Papers:** Paper 1 Q4aiii Paper 1 Q4bii and 4c
2.2 Rivers	Demonstrate an understanding that rivers present hazards and offer opportunities for people	Learners define 'flood' and add to key word glossary. Learners draw a flood hydrograph, add labels, define key words and answer questions to interpret what it shows. **(I)(Challenging)** Link back to previous work – contrasting drainage basins – discuss the characteristics of a drainage basin that is more likely to flood – show contrasts between the two as a table. Learners plot and describe a flood hydrograph for a river that has flooded – use this to introduce causes. **(W/I)(Challenging)** Learners brainstorm the causes of flooding and show as a mind map – colour code into physical and human factors. **(G)(Basic)** Choose two physical and two human factors and explain how they cause flooding in more detail – focus on development of ideas. Whole class discussion of the causes of flooding and river erosion. **(W/I)(Challenging)** Show photographs of the effects of various river floods – discuss in pairs the hazards that this presents for people. **(W)(Basic)** Learners write headlines and short newspaper articles to show the range of effects. Repeat for river erosion. **(I)(Challenging)** Provide cards showing the advantages offered by a river, delta and floodplain – learners sort them into categories – some may go into more than one category. Reinforce with photographs. Write up as a short report – advantages of each ensuring that ideas are fully developed. **(I)(Challenging)**	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 131–132 *IGCSE Geography* (Phillipson) pages 109–110 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_flooding_management_rev1.shtml www.bbc.co.uk/scotland/education/int/geog/rivers/hydrographs/ **0460 Specimen Paper:** Paper 1 Q4aiv

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.2 Rivers	Explain what can be done to manage the impacts of river flooding	Select a type of river management and show a photograph – learners ask questions that they want to be answered – what, where, when, why, who is affected, etc. Whole class discussion. **(W)(Basic)** Introduce ways in which rivers can be managed – could be a card sorting activity – categorise into soft and hard engineering. For each, learners write a short description of how each reduces the flooding hazard with possible advantages and disadvantages. Learners could be provided with a scenario – a river that has flooded and a budget - they have to decide how the river hazard is going to be managed. Decision making activity in groups followed up by a justification of their choice of scheme. This could also be followed up by a role play – different viewpoints on the chosen scheme. **(G)(Challenging)** **Extended writing activity:** Should rivers be allowed to flood? Learners present and explain their ideas. **(I)**	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 137 *New Wider World* (Waugh) page 291 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_flooding_management_rev1.shtml www.bbc.co.uk/education/topics/zncqxnb

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.2 Case study	Know a case study of the opportunities presented by a river, the hazards associated with it and their management	**Learners should know a case study of:** The opportunities presented by a river, the hazards associated with it and their management. (Named river – can be LEDCs or MEDCs context). Name and locate river – learners draw labelled sketch map with appropriate named places. Provide stimulus information about the benefits provided by the river (and floodplain/delta if appropriate) – learners write up as an advertisement – reasons to live in this location. Photos and video clips of flood events and erosion – learners write up as newspaper article with appropriate development of ideas and place specific information. Can use more than one case to illustrate hazards. Named examples of how the flood is managed (short term aid and longer term responses) with a description of the scheme and an explanation of how it has managed the hazard – short presentation to the class.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 84–87 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 104–105 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 133–137 *IGCSE Geography* (Phillipson) pages 111–114 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 99–101 *New Wider World* (Waugh) pages 286–289, 293–295 **Online:** www.geography.learnontheinternet.co.uk/topics/river.html www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/river_flooding_management_rev1.shtml **0460 past examination papers:** Nov 2012 Paper 13 Q3c Nov 2011 Paper 11 Q3c Nov 2011 Paper 13 Q4c

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.3 Coasts	Demonstrate an understanding of the work of the sea and wind in eroding, transporting and depositing	Show learners photographs of different coastlines to set the scene – define the term 'coast' and add to key word glossary. Introduce the concept of 'waves' – explain how waves are formed and the factors that affect the strength of a wave – learners note take from whole class presentation. **(Basic)(W/I)** Learners work in pairs to complete a card sorting activity to understand the difference between constructive and destructive waves and use this information to complete annotated diagrams of each. They should link these to beach profiles and answer questions to explain the impact of the type of wave on the profile of the beach – describe and explain. **(P)(Challenging)** Recap erosion and the four types of wave erosion – link back to work from rivers and place in the context of the coast. **(Basic)** Introduce transport and define the term 'longshore drift' – learners sequence diagrams to show how the process operates. Add descriptions to each stage and write their own short explanation of the process. **(W/I)** Discuss deposition on the coast. Introduce the role of the wind erosion on the coast, transport and deposition and link to the formation of sand dunes. **(W)** *Fieldwork opportunity: measuring beach profiles, measuring the size and shape of pebbles and tracking movement of pebbles along a coastline (longshore drift investigation).*	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 88–89 and 92 *Complete Geography for Cambridge IGCSE (*Kelly and Fretwell) pages 139–144 *IGCSE Geography* (Phillipson) pages 118–120 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 75 and 77 *New Wider World* (Waugh) page 300 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/coasts/coastal_processes_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/audio/geography/ www.bbc.co.uk/schools/gcsebitesize/geography/coasts/coastal_processes_video.shtml www.s–cool.co.uk/gcse/geography/coasts www.revisionworld.com/gcse–revision/geography/coastal–landscapes **0460 past examination papers:** Nov 2011 Paper 13 Q3bi and ii Jun 2013 Paper 12 Q3aiii

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.3 Coasts	Describe and explain the formation of the landforms identified with these processes	Shows photographs of examples of features of erosion – cliffs, wave–cut platforms, caves, arches, stacks, bay and headland coastline. For each, share appropriate named examples. Learners should complete fully annotated diagrams and explanations to show the formation of each type of landform. **(W/I)(Challenging)** Introduce the features of deposition (beaches, spits and sand dunes) again using photographs and named examples – learners produce fully annotated diagrams and explanations to show the formation of each type of landform. Link beach profiles to earlier work on types of waves. **(W/I) (Challenging)** Learners can also use sequence diagrams to show formation – include a transect through a sand dune system also. *Mapwork opportunity: learners identify coastal features from a map. Learners describe a stretch of coastline from a map. Could make a link to later unit on tourism – the human and physical attractions of a stretch of coastline and tourist facilities.*	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 90–93 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 78–81 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 144–149, 151–153, 159–161 *IGCSE Geography* (Phillipson) pages 120–125 *Cambridge IGCSE Geography* (Guinness and Nagle) pages 77–81 *New Wider World* (Waugh) pages 300–303 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/coasts/erosional_landforms_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/coasts/erosional_landforms_video.shtml www.bbc.co.uk/schools/gcsebitesize/geography/coasts/depositional_landforms_video.shtml www.bbc.co.uk/learningzone/clips/topics/primary/geography/seaside_and_coast.shtml www.s–cool.co.uk/gcse/geography/coasts

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
			  0460 past examination papers: Jun 2012 Paper 13 Q3a Nov 2012 Paper 11 Q3aii, iii, iv and 3bii Jun 2013 Paper 12 Q3aiv Jun 2013 Paper 11 Q3a and 3bi
2.3 Coasts	Describe coral reefs and mangrove swamps and the conditions required for their development	Learners analyse maps to describe the distribution of coral reefs and mangrove swamps. **(Basic)(I/W)** Use this to introduce the conditions needed for each through whole class presentation or provide data tables and statistics for learners to analyse and draw conclusions from. Learners annotate a photograph of each to describe a coral reef and mangrove swamp and also the conditions that are required for their development. For coral reefs, learners should sketch the different types of reef and describe – atoll, fringing and barrier. Make use of appropriate examples throughout. **(W/I)(Challenging)** Illustrate with reference to a named example for each.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 96–97 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 82–83 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 162–163 *IGCSE Geography* (Phillipson) pages 130–132 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 82–83 **0460 past examination papers:** Jun 2012 Paper 13 Q3b Nov 2012 Paper 11 Q3bi Jun 2013 Paper 12 Q3b
2.3 Coasts	Demonstrate an understanding that coasts present hazards and offer opportunities	Revisit the photographs that were shown to learners at the start of the unit and also the map extract. Learners work in groups to list all of the different opportunities that the coast might offer and then develop these to explain the benefits of each – for example, sandy beaches encourage tourism such as water sports, sunbathing and this encourages tourism which provides jobs, income, etc.	**Textbook:** *New Wider World* (Waugh) page 304

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		(G)(Basic) **Extended writing activity:** Explain what opportunities are offered by the coast. Develop each idea and use evidence from photographs and maps. **(I)(Challenging)** Using photographs or visual clips or headlines from newspaper articles, learners work in small groups again to identify the hazards found on the coast. Present as a mind map. **(G)(Basic)** Focus on coastal erosion and tropical storms but discussion may also generate other valid ideas. Extend each branch of the mind map with suggested impacts of each. **(I)(Challenging)**	
2.3 Coasts	Explain what can be done to manage the impacts of coastal erosion	Provide learners with information about different types of coastal protection (including photographs or diagrams). Learners discuss the information in pairs and complete a table to show how each works and the advantages and disadvantages of each. **(P)(Basic)** Provide a scenario about a stretch of coastline and a budget to work with and learners work in small groups to complete a decision making activity – which stretch of coastline should be protected and why? How shall we protect that stretch of coastline and why? Present their ideas to the class – other learners take notes of ideas about different schemes and peer assess the presentations. Follow up with role play – overall class vote for a scheme and then how different groups of people would feel about this scheme and why. **(G)(Challenging)** Set up a whole class debate – should we protect the coastline? Write up as an extended piece of writing presenting both viewpoints. **(G/I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) page 81 *IGCSE Geography* (Phillipson) pages 126–127 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/coasts/coastal_management_rev1.shtml www.s–cool.co.uk/gcse/geography/coasts www.revisionworld.com/gcse–revision/geography/coastal–landscapes

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.3 Case study	Know a case study of the opportunities presented by an area of coastline, the hazards associated with it and their management	**Learners should know a case study of:** The opportunities presented by an area of coastline, the hazards associated with it and their management Name and locate a stretch of coastline – identify on a map extract and can use satellite images/Google earth too. Learners produce an annotated sketch map to name places and identify key features – place specific reference. Provide background information about the coastline – for example on geology – learners complete a factfile. Analyse information to show how the coastline is used – show as a mind map with photographs, sketches, examples and annotation. Discuss the opportunities created by each. Learners research hazards along the coast – write up as TV broadcasts or newspaper reports (causes and effects). Need to include erosion and tropical storms. More than case study can be used to illustrate hazards. Learners produce a presentation about how this stretch of coastline is managed – to include named examples of coastal management schemes. The scale of case study is important. The area needs to be of a sufficient size to demonstrate an awareness of opportunities, hazards and management. It should be less than the size of a country unless it is a very small country or the whole country is affected by one of the hazards.	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) pages 78–79 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 150 *New Wider World* (Waugh) pages 306–313 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/coasts/coastal_flooding_rev1.shtml

Unit 5: Weather and climate

Recommended prior knowledge
Learners will have some knowledge of weather elements. They will also have experience of some of the graphical techniques suggested in the scheme. It is useful to have a good general knowledge, particularly of environmental issues such as rainforest destruction.

Context
It is recommended that this is the fifth unit to be studied. Case studies of an area of desert and rainforest are included. There are several opportunities to address the skills required for Paper 2 as well conduct practical fieldwork/investigations.

Outline
This unit introduces learners to aspects of the weather – how these can be recorded and how we can show the data in diagrammatic and graphical form. It allows learners to explore the relationships between climate, soils, vegetation and wildlife in two contrasting environments – a hot desert and a tropical rainforest. It also focuses upon the impact of human activity on the natural environment through the study of tropical rainforest destruction. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidate should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
2.4 Weather	Describe how weather data is collected	Learners define the term 'weather' and draw a mind map of weather elements from observation and using clips of weather forecasts or photographs. **(P)(Basic)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 102–107
		Learners to understand how the weather is measured – draw a fully labelled diagram and description of the weather instruments shown in the syllabus and how they are used to measure each aspect of the weather. Include siting factors as appropriate and the optimum site for each instrument – learners should be able to explain the site for each instrument. Illustrate a method for identifying cloud types and the amount of cloud – use practical observation skills to practise the method and identify cloud type. Learners conduct independent research to draw sketches or print photographs of different cloud types and write a description for each one. Learners	*Cambridge IGCSE Geography* (Sibley and Cambers) page 86 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 168–184 *IGCSE Geography* (Phillipson) pages 142–146

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		could also keep a daily record of cloud type and cover from observations. **(I)** Show examples of instruments if available and provide opportunities for learners to record elements of the weather using them – for example, keeping a daily weather diary. **(I)** *Fieldwork opportunity: observing the weather, using simple instruments to measure and record weather over a period of time.* Introduce the idea of a Stevenson Screen – show if you have one in school – or show photographs/sketches. Learners annotate a diagram to show a Stevenson Screen, its characteristics and their purpose and how it is used. Learners describe and explain the siting of a Stevenson Screen and how this helps to ensure accurate readings. **(I)(Challenging)** Follow up with a decision making exercise – provide a sketch map of various sites around school. Learners work in pairs to decide where to site the Stevenson Screen – mark location on the map and write up notes to explain their choice. **(P)(Challenging)** Could be done as a practical activity with learners observing characteristics of each site in the field. **(G)** Provide examples of simple digital instruments that can be also used to measure the weather – learners complete a card sorting activity to show the advantages and disadvantages of using digital instruments for weather observations. **(P)(Basic)** Record ideas in a table.	Cambridge IGCSE Geography (Guinness and Nagle) pages 84–87 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/weather_climate/climate_rev1.shtml www.bbc.co.uk/weather/ www.geography.learnontheinternet.co.uk/topics/weather.html www.weatherwizkids.com/index.htm http://en.wikipedia.org/wiki/Stevenson_screen www.bbc.co.uk/bitesize/ks3/geography/physical_processes/ **0460 past examination papers:** Jun 2013 Paper 13 Q3a Nov 2013 Paper 12 Q3a Jun 2011 Paper 12 Q3aiii and iv Jun 2011 Paper 11 Q3a and 3b

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
2.4 Weather	Make calculations using information from weather instruments	Learners either use data that they have collected themselves or secondary data provided by the teacher about elements of the weather. Work in pairs to analyse the data (describe trends) and make calculations such as annual total, daily total, mean, median, mode, range, maximum, minimum, etc. **(P)(Challenging)**	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 176 *Cambridge IGCSE Geography (Guinness and Nagle)* page 88 **0460 past examination paper:** Jun 2011 Paper 12 Q3ai and ii
2.4 Weather	To use and interpret graphs and other diagrams showing weather and climate data	Learners use either their own data or secondary data to draw graphs and diagrams of weather data. Describe what each graph shows – looking for trends, giving evidence, identifying anomalies. Include graphs/diagrams such as bar graphs, line graphs, scattergraphs, wind rose, dispersion graph, isolines maps, radial graphs, etc. **(I)(Challenging)** Scattergraphs can be used to show relationships between different types of weather – for example, precipitation and air pressure – learners describe the relationship. Introduce the term 'climate' and update key word glossary – ensure learners can state the difference between weather and climate. Introduce the skill of constructing a climate graph – learners produce an accurate climate graph using climate data for the place where they live. **(W/I)(Basic)** Follow up with questions to analyse – for example, minimum and maximum, annual total, range, annual distribution of rainfall and temperature, etc. **(I)(Challenging)** – this could be done as a true/false activity (see Appendix: True/False) for assessment for learning. Living graph activity – learners place labels at points on the climate graph to test their understanding.	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) page 87 *Cambridge IGCSE Geography (Guinness and Nagle)* page 88 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/weather_climate/climate_rev1.shtml www.s–cool.co.uk/gcse/geography/weather–and–climate
2.5 Climate and natural vegetation	Describe and explain the characteristics of two climates: equatorial and hot desert. Describe and explain the characteristics of tropical	Learners name hot deserts on a map using an atlas. **(I)(Basic)** Describe the distribution of hot deserts from the map. **(P)(Challenging)** Provide climate data – learners use this to draw and analyse a	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 108–111, 114–119 *Cambridge IGCSE Geography* (Sibley

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
	rainforest and hot desert ecosystems.	climate graph for a case study area of hot desert. **(I)(Basic)** Whole class presentation to explain the factors affecting the hot desert climate (i) in general (ii) highlight those specific to case study region – learners write up as a report with appropriate labelled diagrams. **(W)(Challenging)** Introduce the term 'ecosystem' and associated key words. Learners label a food web for a hot desert – answer questions to explain the links between different parts of the food web. **(I)(Challenging)** Link to case study region. Provide a simple soil profile – learners explain the link between the soil type and the ecosystem. Learners work in pairs to analyse photographs to identity how vegetation and animals have adapted to the hot desert climate and produce annotated sketches to explain how the adaptation helps them to survive. Explain the limitations of desert soil for plant growth as part of this. **(P)(Challenging)** Link to case study region. **Extension activity:** learners design their own plant or animal and explain how it is adapted to desert conditions.	and Cambers) pages 88–89, 92–93, 94–95 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 205–214, 223–224 *IGCSE Geography* (Phillipson) pages 162–171 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 89–94 *New Wider World* (Waugh) pages 212, 215, 232, 234 *Cambridge IGCSE Student World Atlas* pages 14 and 15 *Oxford International Student Atlas* pages 14–15, 32.
2.5 Case study	Know a case study of an area of hot desert and a tropical rainforest	**Learners should know a case study of:** An area of hot desert – this can be covered through this section by naming and locating (sketch map) a specific area, ensuring that the climate data matches this area and that learners can identify the specific factors that have influenced the hot desert climate for their case study area. Food web – named species of plants and animals, soils and adaptations. Ensure place specific reference. Learners mark areas of tropical rainforest onto a world map using an atlas **(Basic)** and describe the distribution. **(Challenging)** Learners produce and analyse a climate graph and research the factors that have affected the climate. Show as a short presentation to their peers – include labelled diagrams to support. **(I/W)(Challenging)** Climate graph for named area to match case study.	**Online:** www.geography.learnontheinternet.co.uk/topics/weather.html www.geography.learnontheinternet.co.uk/topics/ecosystem.html www.s–cool.co.uk/gcse/geography/weather–and–climate www.s–cool.co.uk/gcse/geography/ecosystems www.bbc.co.uk/schools/gcsebitesize/audio/geography/

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners match cards to layers of the rainforest to name each layer and describe – annotate a diagram to show the layers of the rainforest – name and describe each layer. Learners can include photographs to illustrate. **(G)(Basic)**	www.bbc.co.uk/schools/gcsebitesize/geography/ecosystems/
		Learners answer questions to explain the structure of the rainforest. **(Challenging)**	www.bbc.co.uk/schools/gcsebitesize/geography/video/ecosystems/
		Annotate a diagram in pairs to show nutrient cycling in the rainforest to explain the relationships between vegetation and the soil. Introduce a simple soil profile for learners to label and make the link to the ecosystem. **(P)(Basic)** Learners use photographs to identify how the vegetation has adapted to the climate. Link to case study region.	**0460 past examination papers:** Jun 2013 Paper 13 Q3b Jun 2013 Paper 12 Q3a and 3b Jun 2011 Paper 12 Q3ai and ii Jun 2011 Paper 11 Q4a and c Nov 2011 Paper 13 Q4a and 4bi Nov 2012 Paper 11 Q4 Nov 2012 Paper 13 Q3a and 3b
		Write up as a short report with labelled sketches as appropriate to describe and explain each adaptation. **(I)(Challenging)**	
		Learners independently find an example of a typical food chain or food web in the rainforest and answer questions to explain the links between each level. Introduce the concept of 'biodiversity' and update key word glossary. **(I)** Link to case study.	
		Learners should know a case study of: An area of tropical rainforest – use the climate data appropriate to the area being studied for the case study. Locate case study area – sketch map and description. Food web example – named species of plants and animals, soils and adaptations. Ensure place specific reference.	
		For each case study: analysis of both climates to include: mean temperature of hottest month, mean temperature of coolest month, annual range and the amount and seasonal distribution of rainfall. Ensure the link is made between vegetation and the type of climate and soil in each ecosystem.	
2.5 Climate and natural vegetation	Describe the causes and effects of deforestation of the tropical rainforest.	Learners analyse headlines and other resources such as photographs, statistics, clips and other sources to mind map the causes of rainforest destruction in case study area. **(G)(Basic)**	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) pages 90–91

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Write a short newspaper report which includes maps, clearance rates, photographs and reasons for clearance in the case study area. Provide place specific reference. Discuss the reasons why the deforestation continues. **(I)(Challenging)** Whole class discussion on any other reasons for clearance not covered by the case study. **(W)** Learners revisit the nutrient cycling diagram that they produced in the previous section and work in pairs to redraw the diagram after rainforest clearance. Learners work in small groups to analyse each other's diagrams and add details/ideas. **(G)(Challenging)** Provide a card sorting activity on the effects of clearance which learners first need to sort into local and global effects and then into those that affect people and those that affect the environment. **(P)(Basic)** Follow up: learners write a letter to explain why rainforest clearance should stop in their case study area. **(I)(Challenging)** Rainforest role play: viewpoints of how the clearance will affect different groups of people. Could also follow up with a whole class debate. **(G/W)** Link to 3.7 – how deforestation causes soil erosion. Deforestation as a cause of enhanced global warming. Link to 3.7 – solutions to enhance global warming – reducing deforestation and afforestation. It is helpful to select a case study that includes the full range of local and global effects as this section is predominantly taught through the case study. Please ensure stimulus material provides appropriate place specific reference. Links to 3.7 – demonstrate the need for sustainable development and management. Learners research and mind map ways to manage rainforests and write up as a report for a geographical	*Cambridge IGCSE Geography* (Belfield et al) pages 112–113 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 215–222 *IGCSE Geography* (Phillipson) pages 165–166 *New Wider World* (Waugh) pages 236–237, 240 **Online:** www.geography.learnontheinternet.co.uk/topics/ecosystem.html www.s–cool.co.uk/gcse/geography/ecosystems www.bbc.co.uk/schools/gcsebitesize/geography/ecosystems/ www.bbc.co.uk/schools/gcsebitesize/geography/video/ecosystems/ http://kids.mongabay.com/lesson_plans/lisa_algee/deforestation.html www.bbc.co.uk/schools/gcsebitesize/geography/rural_environments/using_tropical_rural_areas_rev1.shtml http://news.bbc.co.uk/1/hi/in_depth/sci_tech/green_room/ www.bbc.co.uk/schools/gcsebitesize/g

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		journal. Include examples and photographs to illustrate.	eography/sustainability/sustainable_uses_environments_rev1.shtml www.wwf.org.uk/what_we_do/forests/ **0460 past examination papers:** Jun 2011 Paper 11 Q4b Nov 2011 Paper 13 Q4a Nov 2012 Paper 13 Q4ai, ii, iii, 4b Nov 2012 Paper 13 Q3c
2.5 Case study	Know a case study of an area of tropical rainforest and an area of hot desert	**Learners should know a case study of:** A an area of tropical rainforest An area of hot desert This has been covered in the previous section. Please ensure case study area is named and located and at an appropriate scale. Specific information needs to be available to learners to provide place specific reference.	**Online:** http://handygeography.wordpress.com/tag/rainforest/ **0460 past examination paper:** Nov 2012 Paper 13 Q4c

Unit 6: Development

Recommended prior knowledge
Learners may have some prior knowledge of countries at different levels of development. They will also have experience of some of the graphical techniques suggested in the scheme. It is helpful to have a good general knowledge of places around the world.

Context
It is recommended that this is the sixth unit to be studied. It is the first of the topics to be studied for Theme 3 – Economic Development. A case study of a transnational corporation is included in the scheme. There are opportunities to use data to measure development and present and interpret a variety of graphs and maps.

Outline
This unit introduces learners to development–how the level of development varies both within and between countries. It encourages learners to make decisions about a country's level of development by presenting and analysing data to draw conclusions. It also introduces learners to the concept of 'globalisation' and the impacts that this can have at a local, national and global scale. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
3.1 Development	Use a variety of indicators to assess the level of development of a country	Introduce the term 'development' and add to key word glossary. Define 'More Economically Developing Country' (MEDC) and 'Less Economically Developing Country' (LEDC) followed by a whole class discussion and mind map for each to show the characteristics – learners can add to and update these diagrams as the unit progresses. **(W)(Basic)** Provide learners with a map showing the North-South divide – learners work in pairs to (i) describe the distribution of MEDCs and LEDCs and (ii) use an atlas to name and locate examples of each on the map. **(I)(Challenging)** Introduce and define 'indicators' and how each is measured – card sorting activity, e.g. wealth – measured by GNP per capita – US	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/development/contrasts_development_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/video/ www.oxfam.org.uk/education http://practicalaction.org/ www.s–cool.co.uk/a–

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		dollars. Include 'literacy', 'life expectancy' and 'composite measures' such as the 'Human Development Index'. Learners write up as a table. **(Basic)(P/I)**	level/geography/world–development/revise–it/measuring–differences–in–development
3.1 Development	Identify and explain inequalities within and between countries	Introduce learners to how gross national product (GNP) can be used to rank countries using a simple game of 'Play Your Cards Right' (see Appendix: Play Your Cards Right) – provide GNP for a starting country and then learners have to decide whether the next country shown is higher or lower than the first. **(W)** Follow this up by placing a list of countries in rank order for GNP. **(I)(Basic)** Repeat the activity for 'literacy' and 'life expectancy' – learners discuss in pairs what they notice about the rank order each time and use this to explain why it is important to use more than one indicator to measure development. This is a good route into the Human Development Index (HDI) – explain what this is and how it can be used to measure development – define key words and learners order examples of countries based on the data provided. Use an atlas and choropleth maps to support this activity. **(W/I) (Challenging)** **Extended writing activity:** Explain why HDI might be a fairer way to measure development. Learners produce scatter graphs to show the relationships between different indicators of development – for example, literacy and GNP. Describe and explain the relationship shown. **(I)** Use this as a basis for a whole class discussion of the factors that affect each measure of development – for example, how variations in trade and employment structure will influence GNP or how the level of GNP in a country affects literacy rates. Revisit population at this point to explain life expectancy. Include explanations for the measures within the HDI. **(W)** **Extended writing activity:** Why does development vary between countries? Discuss as a whole class – such as climate, resources, natural hazards, location, historical factors, etc. Learners then independently research development indicators for two contrasting	**Textbooks:** *Oxford International Student Atlas* pages 24–25 *Cambridge Student International Atlas* page 37 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/development/contrasts_development_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/development/factors_influencing_development_rev2.shtml www.bbc.co.uk/schools/gcsebitesize/geography/development/uneven_development_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/video/ **0460 past examination paper:** Nov 2012 Paper 13 Q6ai and ii **0460 Specimen Paper:** Paper 1 Q6ai and ii

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		countries to produce country fact files – data tables, graphs of results, describe and offer explanations for the differences. **(W)(I) (Challenging)** Introduce the concept of 'core-periphery' and learners show as a simple annotated diagram to include the characteristics of each. Exemplify with reference to an example country – graph or map indicators to illustrate and offer reasons for the differences noted. **(W)**	
3.1 Development	Classify production into different sectors and give illustrations of each	Learners complete a 'heads and tails' game (matching key words and definitions) activity to define the 'primary', 'secondary', 'tertiary' and 'quaternary sectors'. Sort and classify example jobs into each and show as a table. **(P)(Basic)** **Extension activity:** by taking a product – for example, a piece of furniture – and drawing labelled cartoons/diagrams to illustrate each stage of production. **(I)(Challenging)** Or collect examples of advertisements and classify into the different sectors.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 146–149 *Cambridge IGCSE Geography* (Sibley and Cambers) page 120 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 255 Cambridge IGCSE Geography (Guinness and Nagle) page 121 *New Wider World* (Waugh) page 92 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/characteristics_industry_rev1.shtml – characteristics of industry **0460 past examination paper:** Jun 2013 Paper 12 Q5bi

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.1 Development	Describe and explain how the proportions employed in each sector vary according to the level of development	Introduce the term 'employment structure' and update key word glossary. **(I)(Basic)** Select an example MEDC and provide the current employment structure – display as a triangular graph. **(W/I)(Challenging)** Provide learners with data tables and pie charts or divided bar charts for this same country over time – learners have to describe the changes and explain the changes. **(I)(Challenging)** Use indicators of development also to illustrate. Select a LEDC example and provide the current employment structure – learners can choose how to display this from the skills modelled earlier. Provide information over time – learners describe and explain the changes. **(I)(Challenging)** Make the link to globalisation – will be covered later in the unit. Could do a couple of examples to include a Newly Industrialised Country (NIC). Use indicators of development also to illustrate. Learners work in pairs to compare the current employment structure for the MEDC and LEDC that they have been given and independently research other examples – describe the differences and explain based on knowledge of development gained so far. Write up as a short presentation for their peers. **(P)** **Extension activity:** learners produce a scattergraph of countries at different levels of development – employment vs GNP – describe the relationship and explain. **(I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 150–151 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 120–125 *IGCSE Geography* (Phillipson) pages 198–199 *New Wider World* (Waugh) pages 92–94 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/characteristics_industry_rev1.shtml www.geography.learnontheinternet.co.uk/topics/empstruct.html **0460 past examination papers:** Nov 2012 Paper 13 Q6aiii and iv Jun 2011 Paper 13 Q6ai, ii, iii and 6b Jun 2011 Paper 13 Q5a Jun 2011 Paper 11 Q6ai, ii and iii Jun 2013 Paper 12 Q5a
3.1 Development	Describe and explain the process of globalisation and consider its impacts	Learners define the key word 'globalisation'. **(I)(Basic)** Provide information that learners understand the reasons for globalisation such as improved technology, improved transport links, freedom of trade, labour availability and skills, growth of transnational corporations (TNC), etc. **(W)** Learners write up as an explanation. Learners draw the positive multiplier effect to show the impact of new industry in a local area and explain – make the link to a new factory opening up in an area within LEDC. **(I)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 158–159 *IGCSE Geography* (Phillipson) page 205 *New Wider World* (Waugh) pages 144–145, 324–325 **Online:**

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners complete a mystery activity to find out why a person working in a MEDC factory has been made redundant. **(P)(Basic)** Use the results of this for a whole class discussion of the growth of transnational corporations and the impacts on both MEDCs and LEDCs. **(W)** Learners follow this up with a definition of a TNC, a list of their characteristics and a table to show the advantages and disadvantages for both the host countries and elsewhere. **(I)** Include deindustrialization as part of this and the impact upon industrial regions in MEDCs – negative multiplier effect. Learners produce their own version of the negative multiplier effect diagram in pairs based on previous knowledge and explain. **(I)(Challenging)** Ensure that discussions include a consideration of the impact of globalisation at a local, national and global level. Provide a location map of a selected TNC – could be the case study you plan to use later – learners try to work out the reasons in pairs why TNCs locate in LEDCs – whole class discussion to confirm and write up as a mind map – the factor on each branch with development of the reason. Factors such as reduced transport costs, wider market, avoidance of quotas and tariffs, cheaper labour, work ethic, health and safety, lack of unions, less environmental control, etc. **(W/P)(Challenging)** Follow up with a decision making activity – provide information about possible locations for a new TNC branch plant – work in groups to choose the best location, justify decision and then discuss impact at different levels.	www.bbc.co.uk/schools/gcsebitesize/geography/globalisation/globalisation_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/industrial_change_medcs_rev1.shtm www.s–cool.co.uk/gcse/geography/industry/revise–it/industry–in–the–developing–world www.bbc.co.uk/schools/gcsebitesize/geography/globalisation/globalisation_video.shtml www.sln.org.uk/geography/Economic%20activity.htm – economic activity and development **0460 past examination paper:** Jun 2011 Paper 13 Q6aiv

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.1 Case study	Know a case study of a transnational corporation (TNC) and its global links	**Learners should know a case study of:** A transnational corporation and its global links Activities: Sketch map to show the worldwide location of the transnational corporation (TNC) – describe the distribution of HQ and branch plants with named examples for place specific reference. Show the global links that the TNC has on a world map. Create a fact file on the transnational corporation (TNC) – growth over time and key facts. Write a newspaper article to include reasons for location of the TNC and the impacts it has had locally, nationally and globally. Include *statistics* for place specific reference and examples – illustrate with photographs. Focus on a specific country included. In groups or whole class, learners have a debate to consider the different viewpoints – Are the transnational corporations (TNC) good or bad for the economies of LEDCs?	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 261–264 *IGCSE Geography* (Phillipson) pages 206–207 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/globalisation/globalisation_rev1.shtml

Unit 7: Food production and industry

Recommended prior knowledge
Knowledge of the factors affecting agricultural and industrial location. Good general knowledge of topical events in the news such as food shortages.

Context
It is recommended that this is the seventh unit to be studied. It includes second and third topics for Theme 3 – Economic Development. Case studies of an area of a farm/agricultural system, a country/region suffering from food shortages and an industrial zone or factory are included in the scheme. There are opportunities to address the skills required for Paper 2 as well conduct practical fieldwork/investigations.

Outline
This unit introduces learners to agricultural and industrial systems. It encourages them to consider the factors that have affected their location. It also encourages them to consider the causes and impacts of food shortages and how this is linked to food aid and attempts to increase agricultural production. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
3.2 Food production	Describe and explain the main features of an agricultural system: inputs, processes and outputs	Define 'agriculture' and 'farming' and add to the key word glossary. Recap agriculture as a type of primary industry. Introduce how we classify agriculture and define the different farming types – 'commercial', 'subsistence', 'arable', 'pastoral', 'intensive' and 'extensive'. **(W/I)(Basic)** Learners update glossary with appropriate key words. Provide headlines or photographs about different farming systems for learners to analyse and classify into the different farming types. **(P)** Learners add an example of each farming type to their definitions. Complete an 'odd one out' activity to consolidate understanding of the key characteristics of each type of farming. Discuss the factors affecting farming and show as a mind map. **(W)** Sort into natural and human. Learners can then further divide the	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 132–135 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 110–111 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 232–234 I*GCSE Geography* (Phillipson) pages 174–177 *Cambridge IGCSE Geography*

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		human factors into economic and social. **(P)** Learners show results in a table and then explain in detail how each one will influence farming – including the scale of production, methods and products of agricultural systems. Illustrate with reference of examples. **(I)(Challenging)** Introduce farming as a system and define key words 'system'; 'inputs', 'processes' and 'outputs'. Provide a systems diagram for the type of farming that you plan to use for your case study later in the unit – learners colour code and annotate to understand the concept of 'a system'. **(I)(Basic)** In pairs learners answer questions to analyse and understand the diagram. Learners sort cards to produce another systems diagram for a contrasting type of farming and compare the inputs and how this has influenced the scale of production, methods and products of the agricultural systems. **(P)** Write up ideas. **(I)(Challenging)** (Alternatively two case studies can be done later in the unit.) *Mapwork opportunity: describe the agricultural patterns in an area shown on a map extract and use map evidence to identify the factors that have influenced its location.* *Fieldwork opportunity: examine the land use/agricultural patterns in an area and give explanations for the patterns.* Link to 3.7 – describe how economic activities may pose threats to the natural environment locally and globally – discussion of how agriculture can cause noise, air, water and visual pollution – learners mind map ideas for each and then write up to develop/explain. Suggest solutions for each.	*(Guinness and Nagle)* pages 107–109 *New Wider World* (Waugh) pages 97–98 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/rural_environments/farming_rural_areas_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/video/agriculture/characteristics_farming_video.shtml www.bbc.co.uk/schools/gcsebitesize/geography/video/agriculture/types_farming_video.shtml www.bbc.co.uk/schools/gcsebitesize/audio/geography/ www.sln.org.uk/geography/Economic%20activity.htm – ideas for whole unit www.s–cool.co.uk/gcse/geography/agriculture **0460 past examination papers:** Nov 2012 Paper 12 Q5a and b Jun 2011 Paper 12 Q5a and 5bi Jun 2012 Paper 11 Q5a Jun 2012 Paper 13 Q6a and b **0460 Specimen Paper:** Paper 1 Q5a and b
3.2 Case study	Know a case study of a farm or agricultural system	**Learners should know a case study of:** A farm or agricultural system	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 136–139

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners produce sketch map to show the location of the farm or system and describe it. Classify the farming type. Produce a systems diagram for the farm or system. Write a short report to explain all of the factors that have influenced the location of the farm or system. Include place specific information and diagrams as appropriate – for example, climate data and a climate graph. Describe the methods used in production and the scale of the operation. Present as a case study booklet. Please ensure appropriate place specific information through the case study.	*New Wider World* (Waugh) pages 102–103 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 109–116 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 112–115 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 235–237, 250 *IGCSE Geography* (Phillipson) pages 178–184
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment, locally and globally	Suggested opportunity to deliver the content for soil erosion and desertification from 3.7 here. See later scheme for content.	
3.2 Food production	Recognise causes of food shortages and describe possible solutions to this problem	Learners define the key word 'food shortage' and add to key word glossary. World map of countries that suffer from food shortage (*choropleth map of kcal/per person per day or % population suffering from malnutrition or alternative*) – learners describe the distribution. Research key facts about food shortages using websites. **(I)** Investigation – what is the cause of food shortages? Provide appropriate resources to each pair of learners such as climate data, photographs, extracts from newspaper reports, visual clips for them to analyse. **(P)** Learners also conduct independent internet research. **(I)** Write a report to explain why food shortages occur around the world **(Challenging)** – make the link to natural factors as well as economic and political factors as shown in the syllabus. Discuss the impacts of food shortages – both positive and negative.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 140–144 *New Wider World* (Waugh) pages 110–111, 190–191 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 117, 119–120 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 116–117 *Complete Geography for Cambridge*

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners complete card sorting activity to classify effects in these two categories and record in a table. **(P)**	*IGCSE* (Kelly and Fretwell) pages 250–252
		Show how food shortages can cause a cycle of poverty and learners display in an annotated diagram. Learners also research the impact of food shortages upon health (including malnutrition and diseases as a result of under–nutrition) and the knock on effects such as migration/refugees, loss of productivity etc – write up their ideas as a letter to a president of a country expressing concern. **(I)(Challenging)**	*IGCSE Geography* (Phillipson) pages 187–190, 193–194

Cambridge IGCSE Student Atlas page 26

Oxford IGCSE Student Atlas page 25 |
| | | Introduce aid and different types of aid. Learners complete heads and tails activity to understand the different types of aid. **(P)** Learners are split into two – half the class researches the benefits of giving aid whilst the others research the problems of giving aid. **(G)** Present their views and conduct short whole class debate about the benefits and problems of giving aid **(W)** – write up as two viewpoints and then give their own, justifying their decision. **(I)(Challenging)** Discuss ways in which food aid can address the problem of food shortages but also how other approaches may be more sustainable in the long term. | **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/development/aid_video.shtml

www.bbc.co.uk/schools/gcsebitesize/geography/development/aid_rev1.shtml

0460 past examination papers: Jun 2011 Paper 11 Q5a Nov 2011 Paper 13 Q5a and b |
| | | Discuss how food shortages can lead to measures to increase output – learners write a description of measures such as irrigation, fertilisers, mechanisation, pesticides, GM crops, education farmers, etc. and explain how each increases output. Can illustrate with photographs and diagrams. **(I)** | |
| 3.2 Case study | Know a case study of a country or region suffering from food shortages | **Learners should know a case study of:** A country or regions suffering from food shortages

Learners produce annotated sketch map to locate the country or region and describe the distribution of areas suffering from a food shortage.

Research background of the food shortage – dates/extent, etc.

Discuss causes and categorise. | **Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 144–145

Cambridge IGCSE Geography (Guinness and Nagle) pages 117–119

Cambridge IGCSE Geography (Sibley and Cambers) pages 118–119

Complete Geography for Cambridge |

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Describe and explain the effects. Positive response to the problem including aid and measures to increase output. Learners research using internet and teacher resources and write up as a webpage or article for a geographical journal. Please ensure appropriate place specific information through the case study.	*IGCSE* (Kelly and Fretwell) page 253
3.3 Industry	Demonstrate an understanding of an industrial system: inputs, processes and outputs (products and waste)	Define 'industry' and reinforce as a type of secondary activity. Revisit the key words of a 'system' – recap using a quick 'heads and tails' activity. **(P)** Learners understand that outputs can include both products and waste. **(Basic)** Learners define the key industry types as shown in the syllabus and briefly write up to describe the characteristics of each following whole class discussion with an example to illustrate. **(W/I)** Learners to produce a systems diagram for a chosen industry – link to later case study – and answer questions to interpret the diagram. Could be drawn from information provided as text or a card sorting activity. **(I) (Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) page 154 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 126–127 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 256 *IGCSE Geography* (Phillipson) pages 200–201 *New Wider World* (Waugh) page 136 *Cambridge IGCSE Geography (Guinness and Nagle)* pages 123–124 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/characteristics_industry_video.shtml www.s–cool.co.uk/gcse/geography/industry/revise–it/an–introduction–to–industry www.revisionworld.com/gcse–

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.3 Industry	Describe and explain the factors influencing the distribution and location of factories and industrial zones	Show learners photographs of different types of factories and industrial zones and ask them to identify the factors that they think might have influenced the location of each. **(P)** Build up a mind map of key factors following paired discussion as a whole class. **(W)(Basic)** These can then be further classified. For each one, learners explain how the factor might influence industrial location. For each, link to not only the location but also scale of production, methods of organisation and products of the system. Link to previous work on transnational companies (3.1) and advantages of rural/urban fringe locations (1.2). **(I)(Challenging)** Decision making exercise: provide learners with a sketch map and factors marked on. Learners have to decide which is the best location for a particular type of industry, and then justify and explain their choice. Present ideas in a table – advantages and disadvantages of each site. **(G/I)(Challenging)** *Mapwork: provide map extract with either a factory or industrial zone marked on – learners identify the factors that may have led to its location and support with map evidence.* Learners work in pairs to complete a card sorting activity – raw material oriented industry and market oriented industry – includes some examples. **(P)** Write up the card sorting activity to explain the factors that encourage industries to locate near to their raw materials and those which locate near to their market. **(I)(Challenging)** Follow up with individual research of some appropriate examples. Could follow up with an 'odd one out' activity based on systems diagrams and industrial location factors. Define the term 'footloose' add to key word glossary and give an example. Link to 3.7 – describe how economic activities may pose threats to the natural environment locally and globally – discussion of how industry can cause noise, air, water and visual pollution – learners mind map ideas for each and then write up to develop/explain. Suggest solutions for each.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 154–155 *Complete Geography for Cambridge IGCSE (*Kelly and Fretwell) pages 257–261 *IGCSE Geography* (Phillipson) pages 202–203 *New Wider World* (Waugh) page 136 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/characteristics_industry_rev4.shtml www.s–cool.co.uk/gcse/geography/industry/revise–it/the–location–of–industry www.revisionworld.com/gcse–revision/geography/industry www.bbc.co.uk/schools/gcsebitesize/geography/economic_change/industry_medcs_video.shtml **0460 past examination papers:** Jun 2013 Paper 13 Q5a Nov 2013 Paper 12 Q5ai, ii and iii Jun 2012 Paper 12 Q5bi and ii

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.3 Case study	Know a case study of an industrial zone or factory	**Learners should know a case study of:** An industrial zone or factory Annotated sketch map and description to locate industrial zone or factory. Systems diagram for the factory or industry (within a zone). Write-up of the factors that have influenced the location of the industry. Include influence on location, scale of production, methods of organisation and the products of the system. The case study could be a factory, a region with a particular type of industry or a zone where there are a variety of industries. Please ensure appropriate place specific information through the case study.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 155–160 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 128–133 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 261–270 *IGCSE Geography* (Phillipson) pages 206–212 *Cambridge IGCSE Geography* (Guinness and Nagle) pages 124–129 **Online:** www.s–cool.co.uk/gcse/geography/industry/revise–it/case–studies www.revisionworld.com/gcse–revision/geography/industry **0460 examination paper:** Jun 2013 Paper 11 Q6c

Unit 8: Tourism

Recommended prior knowledge
A good general knowledge of places around the world and their attractions for tourists. Learners may also have some understanding of sustainable development.

Context
It is recommended that this is the eighth unit to be studied. It includes the fourth topic for Theme 3 – Economic Development. A case study of an area of an area where tourism is important is included in the scheme.

Outline
This unit introduces learners to an example of a tertiary activity – tourism. The unit presents opportunities to understand how the physical and human attractions of different places can influence human activities. It also allows learners to analyse the costs and benefits of economic activities and appreciate the values and attitudes of the different groups involved. There are opportunities to develop environmental education, particularly an awareness of the need for sustainable development. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
3.4 Tourism	Describe and explain the growth of tourism in relation to the main attractions of the physical and human landscape	Define 'tourist' and 'tourism 'and link to tertiary activities. Update key word glossary. Provide statistics to show the growth of world tourism over time – learners produce a line graph to show the trend. **(I)(Basic)** Learners describe the growth in tourism from the graph using years and figures to support. **(I)** Learners have diagram to show how tourism grows – describe each stage and work in pairs to try to suggest reasons for the changes. Whole class discussion and model – learners complete annotations on their own model. **(W/I)** Provide cards to explain the growth of tourism – learners discuss in	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 162–163 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 134–135 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 272–274 *IGCSE Geography* (Phillipson) pages 218–220

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		pairs how these relate to the graph and annotate accordingly. **(P)** Discuss the reasons in pairs, then share ideas in a small group then discuss as a whole class. **(P/G/W)** Write up ideas as an extended piece of writing. Include long haul tourism, how it is different and its recent growth. **(I)(Challenging)** Show the learners photographs of key tourist destinations – include a range. For each, learners should write the physical and human attractions of the areas shown in the photograph and explain what sort of tourist activities will take place there. **(P)(Basic)** For example, alpine scenery and winter sports or savanna ecosystem and safari holidays. Learners should write up each example. Card sorting activity – learners sort attractions and examples into physical and human and independently research some examples of their own. Use an atlas map to investigate tourist locations around the world and their different attractions **(P)** – write up some examples.	*Cambridge IGCSE Geography (Guinness and Nagle)* pages 130–132 *New Wider World* (Waugh) page 160 *Cambridge IGCSE Student Atlas* pages 38–39 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/tourism/tourism_trends_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/tourism/attractions_tourists_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/tourism/attractions_tourists_video.shtml www.s–cool.co.uk/a–level/geography/tourism/revise–it/growth–in–tourism www.sln.org.uk/geography/Economic%20activity.htm – ideas for whole unit **0460 past examination papers:** Nov 2011 Paper 12 Q5a and b Jun 2011 Paper 12 Q5a and 5b Jun 2012 Paper 11 Q5a Nov 2012 Paper 11 Q5a Jun 2012 Paper 13 Q5a
3.4 Tourism	Evaluate the benefits and disadvantages of tourism to receiving areas	Learners brainstorm all the benefits of tourism and mind map. **(W)(Basic)** Classify into those that benefit people (social) and those that benefit the economy (economic). **(I)(Challenging)** Repeat the activity for disadvantages and include environmental as a category	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) page 164

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		for classification. **(P/I)** Learners develop idea to explain how it impacts on people or the environment. Learners conduct a role play where they discuss the views of different groups of people in a newly developed tourist resort – for example, tourist, local farmers, local craftsmen, hotel worker, environmental group, etc. Write up the viewpoints of each one. **(G)** **Extended writing activity:** Is tourism a good or bad thing? Learners explain and justify their own viewpoint. **(I)(Challenging)** (Link to 2.3 – how tourism can impact upon coral reefs.) Link to 3.7 – how tourism can cause soil erosion (deforestation/ increasing use of fuelwood for energy, etc.) Link to 3.7 – describe how economic activities may pose threats to the natural environment locally and globally – discussion of how tourism can cause noise, air, water and visual pollution – learners mind map ideas for each and then write up to develop/explain. Suggest solutions for each.	*Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 232–234 *IGCSE Geography* (Phillipson) page 221 *Cambridge IGCSE Geography* (Guinness and Nagle) pages 133–135 *New Wider World* (Waugh) pages 97–98 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/tourism/tourism_uk_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/tourism/tourism_ledc_rev1.shtml www.s–cool.co.uk/gcse/geography/tourism–and–resources/revise–it/tourism–development www.s–cool.co.uk/gcse/geography/tourism–and–resources/revise–it/the–impacts–of–tourism **0460 past examination papers:** Jun 2012 Paper 11 Q5b Nov 2012 Paper 11 Q5b Jun 2012 Paper 13 Q5b

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.4 Tourism	Demonstrate an understanding that careful management of tourism is required in order for it to be sustainable	Define the key words 'management', 'conservation' and 'sustainable development'. Update key word glossary. Learners recap and write up the characteristics of sustainable development. **(W/I)(Basic)** Revisit the problems of tourism and work in groups to suggest ways in which the problem can be managed to make tourism sustainable. Discuss the strategies that can be used to manage tourism in different environments (e.g. beaches, alpine environments, coral reefs, etc.) taking ideas from each group. **(G)** For each environment, learners should describe the strategies and explain how they manage tourism to make it more sustainable. **(I)(Challenging)** Include National Parks and Game reserves including what they are and what measures they put in place to manage tourism, using named examples. Learners conduct independent internet research to add ideas. Introduce and define 'ecotourism'. Learners research ecotourism and produce a short newspaper article about the features of ecotourism and how it works to protect the environment using a named example. Learners also produce a set of guidelines for Ecotourists and explain how these help tourism to become more sustainable. **(I)(Challenging)**	**Textbook:** *New Wider World* (Waugh) page 168 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/tourism/tourism_uk_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/tourism/tourism_ledc_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/tourism/ecotourism_rev1.shtml
3.4 Case study	Know a case study of an area where tourism is important	**Learner should know a case study of:** An area where tourism is important The scale of this case study should be a resort or region. Please ensure place specific detail – for example, the number of tourists each year or climate data or named attractions. Learners produce sketch map of the area and describe its location. Graph the growth of tourism over time and write a description. Annotate photographs to show the physical and human attractions of the destination to explain the growth of tourism. Learners may include climate graphs or maps of information such as tourist resorts or communication networks of the named attractions. The learners can be present the information as an entry for a holiday brochure or webpage advertising a resort or region.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 164–167 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 136–139, 106–107 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 277–282 *IGCSE Geography (*Phillipson) pages 222–228 *Cambridge IGCSE Geography*

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners describe and list the problems and benefits of tourism and write up as a newspaper article. For each problem, learners produce a short presentation to their peers on the solutions and how tourism has been managed in the case study region. **Extended writing activity:** Tourism – good or bad? For your chosen case study region. Justify. **(I)**	*(Guinness and Nagle)* pages 136–139 *New Wider World* (Waugh) pages 164–165 **0460 past examination paper:** Jun 2011 Paper 12 Q5c **0460 Specimen Paper:** Paper 1 Q6c

Unit 9: Energy and water

Recommended prior knowledge
An understanding of the different sources of water and energy. The need for resource conservation and sustainable development.

Context
It is recommended that this is the ninth unit to be studied. It includes Topic 5 and 6 for Theme 3 – Economic Development. Case studies of energy and water supply in a country are included.

Outline
The unit offers opportunities to appreciate how we depend upon water and energy resources to maintain our quality of life. It also develops an environmental awareness particularly of the need for sustainable development. Textbook references are included in the scheme of work which provide a wide range of resource materials. They also include tasks and activities to complement the suggested activities in the scheme of work. Formative assessment activities are shown as are links to past questions which provide opportunities for summative assessment.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
3.5 Energy	Describe the importance of non-renewable fossil fuels, renewable energy supplies, nuclear power and fuel wood, globally and in different countries at different levels of development	Learners define key words 'non–renewable', 'renewable' and 'fossil fuels' and update key word glossary. Learners complete a card sorting activity to include characteristics of each and examples – show as a table. **(P)(Basic)** Provide learners with figures about each energy source and how it contributes to the world energy supply. **(W)** Learners represent this information as a pie chart or divided bar graph and describe what it shows. **(I)(Basic)** **Extended thinking:** How are the figures likely to change in the future and why? **(Challenging)** Repeat this activity but for LEDCs and MEDCs – compare and contrast the two graphs. Learners can independently research and graph an example of a MEDC and LEDC to reinforce – can be used to introduce a case study later on. **(I) (Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) page168 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 140–141, 148–149 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 286 onwards *IGCSE Geography* (Phillipson) page 232 *New Wider World* (Waugh)

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners write up the similarities and difference between the graphs. Link to 3.7 – use of fuel wood as a cause of desertification and soil erosion. Learners research and take notes on how coal, oil and natural gas are obtained and write about the advantages and disadvantages of each as an energy source. **(I)(Basic)** Learners discuss how fossil fuels are used to produce energy in a thermal power station and produce a fully annotated diagram. A card sorting activity with the good and bad points of thermal power stations. **(P)** Introduce fuelwood as an energy source for LEDCs. Learners use data to produce a graph to show where fuelwood is used and how its use is increasing over time. **(I)** Link to deforestation and desertification – learners draw a traditional system in balance and out of balance – fully annotate to show the impact of the trees being removed for firewood. **(I)(Challenging)** Describe and explain the differences between the two. (Link to Unit 10 – causes of desertification.)	pages 118–119 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/energy_resources/energy_rev1.shtml www.bbc.co.uk/schools/gcsebitesize/geography/energy_resources/energy_video.shtm
3.5 Energy	Evaluate the benefits and disadvantages of nuclear power and renewable energy sources	Define 'nuclear power' and update key word glossary. Reinforce as a non-renewable resource. Learners produce a simple flow diagram to illustrate how nuclear power works. **(I)(Basic)** Learners work in small groups to read viewpoints of different groups of people about nuclear power. Extract benefits and problems of each from the view points and discuss. **(G)** Conduct whole class debate – 'The future of nuclear power'. **(W)** Write up both activities as a newspaper article – presenting the arguments for and against with relevant examples as well as justifying their own viewpoint. **(I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 174–175, 178–181 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 140–141 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 285–301 *IGCSE Geography* (Phillipson) pages 237–239, 245

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Use photographs to introduce the different types of renewable energy. For each, briefly describe how it works – learners research background information about each energy source and include labelled diagrams/annotated photographs for each. **(I)(Basic)**	*Cambridge IGCSE Geography (Guinness and Nagle)* pages 142–145
		Place learners into small groups – each group researches the benefits and disadvantages of one type of renewable energy (from the list specified in the syllabus). They produce a presentation and revision/factsheet and present to their peers. **(G)**	*New Wider World* (Waugh) pages 121–125
		Go through all presentations so all learners have a complete set of revision notes for the different types of renewable energy. **(W)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_resources_rev3.shtml
		Consolidate learning with a card sorting activity (learners have to place cards into categories). Peer evaluation – learners provide an evaluation of each presentation – what went well and anything else that needs to be added in. **(G)**	www.bbc.co.uk/schools/gcsebitesize/geography/energy_resources/energy_rev2.shtml
		Extended writing activity: To what extent is renewable energy a solution to the world energy problems? Suggest why countries are looking to develop renewable sources. **(I)(Challenging)**	
		Select one type of energy – a hydroelectric power station, for example, and present the facts about the proposal. Learners working in small groups decide whether the scheme should go ahead. Learners present the points in favour, points against, viewpoints of different groups of people and their final decision. **(G)(Challenging)**	
		Link to 3.7 – demonstrate the need for sustainable development – renewable energy and nuclear power as a solution to enhanced global warming.	
		Link to 3.7 – understand the importance of resource conservation – learners brainstorm all of the ideas that they can think of to save energy. Design a poster to encourage energy efficiency in school or home.	
		Link to 3.7 – describe how economic activities may pose threats to	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		the natural environment locally and globally – discussion of how tourism can cause noise, air, water and visual pollution – learners mind map ideas for each and then write up to develop/explain. Suggest solutions for each.	
3.5 Case study	Know a case study of energy supply in a country or area	**Learners should know a case study of:** Energy supply in a country or area Learners locate a country or area with annotated sketch map and describe the location. Produce data tables and graph to show the percentage of energy from each source – describe and explain (link to level of development to recap). Provide named examples and details of schemes – one for each energy source to show how energy is produced in case study country or area – to provide place specific reference. Could add to sketch map or show in a table. Recap benefits and disadvantages of each specific to the scheme and the country as appropriate – learners highlight the information and show in a table. Focus on each individual scheme to develop viewpoints. Learners write up as a case study.	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) pages 146–147, 150–151 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 302–305 **0460 past examination paper:** Jun 2012 Paper 12 Q6c
3.6 Water	Describe methods of water supply and the proportions of water used for agriculture, domestic and industrial purposes in countries at different levels of development	Learners recap 'global water supply' and show as a pie chart or divided bar. **(W/I)** Reinforce the small amount of available fresh water. Discuss the difference between 'surface water' and 'ground water'. Mind map all the different uses of water. **(W)** Learners graph data to show how water is used globally for different uses and describe the results. **(I)(Basic)** Discuss the key users of water – for example, domestic, industrial, agricultural, tourism – learners work in pairs to give examples of how water is used in each and confirm in whole class discussion. **(W/P)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 182–184 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 152–153 *IGCSE Geography* (Phillipson) pages 251–254 *Cambridge IGCSE Geography* (Guinness and Nagle) pages 147 onwards

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Provide data for water use in LEDCs and MEDCs (include how it is used in different sectors) or compare two countries to illustrate – one of these countries could be developed as a case study. Graph the results and compare/contrast the two sets of data/graphs. Learners could keep a diary of water usage and research another country to compare. **(I)** Show learners photographs of different water supply schemes, e.g. dams/reservoirs, wells, boreholes and desalination. Whole class discussion of how each works and a brief description. **(W)(Basic)** Discuss the appropriateness of each scheme for different geographical areas/levels of development – for example, in relation to siting factors, climate and level of technological development. Learners present ideas as a table. **(Challenging)(I)** Discuss the results as a whole class – learners add additional ideas in a new colour to show additional learning. **(W)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/water_usage_rev1.shtml **0460 past examination paper:** Nov 2012 Paper 12 Q6a
3.6 Water	Explain why there are water shortages in some areas and demonstrate that careful management is required to ensure future supplies	Learners analyse world map to show areas where there are water shortages and water surplus. Define the key word 'drought'. Describe the distribution and identify areas of shortage, surplus and what do they have in common – are there any anomalies? Look for trends and name areas – use world point of reference such as continent names and lines of latitude/longitude. **(P) (Challenging)** Learners independently research some examples of drought and their impact. **(I)** Whole class discus the factors that affect water shortages: • supply (e.g. precipitation, temperature, evaporation rates, rivers, pollution and infrastructure, etc.) and • demand (e.g. economic activities, population distribution and country's level of development, etc.) and illustrate with examples. Show as a mind map. **(W)** **Extended writing activity:** Why do water shortages occur in some parts of the world and not others? or Explain why access to safe water is better in some countries than others. **(I)(Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 185–187 *New Wider World* (Waugh) pages 224–225, 328 *Cambridge IGCSE Student Atlas* page 25 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/water_rivers/water_usage_rev1.shtml www.wateraid.org/uk www.dropinthebucket.org/?_kk=water%20saving%20facts%20for%20kids&_kt=2f6a2ff7–dc40–483d–8f70–1c3dd6dd7c51

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners then extend this discussion to why some areas may have water but it is not clean, and how water can become contaminated in both urban and rural areas (link to 3.7). Learners can research key facts about water shortages and water related diseases in different parts of the world using websites – add to notes on drought to build up some revision ideas. **(I)(Challenging)** Show learners photographs of areas suffering from a water shortage – work in pairs to discuss the impacts this is having and show ideas as a mind map. **(W)(Basic)** Learners discuss and create their own flow diagrams to show the impacts – add annotations and extra notes as required. **(I)** Link the impacts on people to ideas such as health, disease, hygiene/sanitation, travelling to collect water, conflicts and the inability to work, etc. Link impact of water shortages on economic development to agriculture, industry and the development of tourism. **Role-play activity:** Learners use their diagram to teach the concept to a peer or small group of learners. (see Appendix: Learner as a teacher (role play)) **(G)(Challenging)** **Extended writing activity:** Explain the impact of water shortages on people and economic development. Learners use website research to write diary entries for different people around the world (in countries at different stages of development) to show how water shortages has impacted upon their lives and/or how a supply of clean water has been provided and how this has changed their lives. **(I)(Challenging)** Share entries with whole class. Discuss some solutions and use this to introduce the next section. **(W)** Review methods of water supply in a MEDC and discuss how each of these can be used to provide clean water supply with named examples. Show photographs of each scheme. Discuss the advantages of each and also limitations. Include water transfer schemes from area of surplus to shortage – learners write up as a	**0460 past examination papers:** Jun 2011 Paper 13 Q5a Jun 2012 Paper 12 Q6a and 6b **0460 Specimen Paper:** Paper 1 Q6a and 6b

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		table. **(W/I)**	
		Introduce the term 'appropriate technology' and add to key word glossary. Learners make notes about different water supply schemes and also ways in which the demand for water can be reduced using website reference. **(I)**	
		Whole class discussion on the advice that can be given to make water safer to drink and also other methods of ensuring a clean water supply – write up ideas. **(W/I)**	
		Whole class discussion of how water can be managed – learners recap the term 'conservation' and update their key word glossary. The class may take the opportunity to talk about the importance of using water in a sustainable way and recap concepts. **(W)**	
		Learners research the ways in which people living in a MEDC can conserve water and produce a leaflet to provide advice to people about how to save water. Discuss steps that water companies, industry and agriculture can also take to reduce water use, e.g. repairing leaks, methods of irrigation, recycling, etc. **(I)(Challenging)**	
		Link to 3.7 – understand the importance of resource conservation – water conservation.	
3.6 Case study	Know a case study of water supply in a country or area	**Learners should know a case study of:** Water supply in a country or area Introduce the country or area – learners produce an annotated sketch map and describe the location. Produce a choropleth map to show the distribution of water shortages (and surplus if appropriate) within the country or area – describe the distribution including named places. Learners graph data to show sources of water and how water is used within the country/area. Learners produce a newspaper article to show the impact of the	**Textbooks:** *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) pages 308–309 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 154–155 **0460 past examination paper:** Nov 2011 Paper 13 Q6c

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		water shortages on people and economic development.	
		Provide examples of schemes that provide water within the country – named and located – and a description of how they work – photographs may also be used.	
		Discuss issues of water management in the future, e.g. conservation of supplies, sustainable development and future projects. Learners write up as a water management plan and present ideas to the class. **(W)**	

Unit 10: Environmental risks of economic development

Recommended prior knowledge
In studying the previous units, learners will have had several opportunities to consider how economic activities pose threats to the natural environment. They will also have knowledge of sustainable development and resource conservation.

Context
This has been written as a discrete unit of work. However, some of this unit will be best delivered through the teaching of the other themes and opportunities to do so have been signposted throughout the scheme of work.

Outline
In this unit of work, learners are asked to consider how economic activity affects the natural environment both locally and globally. They have opportunities to consider the ways in which we can manage this development to ensure that it is sustainable and resources are conserved for future generations.

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
Topic	**Candidates should be able to:**		Past/specimen examination papers are available at http://teachers.cie.org
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment both locally and globally.	**Soil erosion:** This topic could be studied as a standalone unit or delivered as part of the unit of work on food production. Learners define 'soil erosion' and update key word glossary. **(I)** Learners explain how soil erosion is caused by both wind and water. Show photographs of landscapes where soil erosion has taken place and use these as a basis for an initial discussion of the causes – show as a mind map. **(W/I)(Basic)** Learners work in small groups. Each group has a cause of soil erosion provided, e.g. deforestation. Provide articles or texts for learners to work from to text highlight and provide opportunities for learners to conduct individual research. Each group produces a short factsheet to explain their cause of erosion and gives feedback to the whole class. **(G)**	**Textbooks:** *Cambridge IGCSE Geography* (Sibley and Cambers) pages 158–159 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 238 *IGCSE Geography* (Phillipson) page 185 *New Wider World* (Waugh) page 254 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/ecosystems/human_uses_desert_rev3.shtml

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Whole class discussion of the causes of soil erosion. **(W)** Use photographs of areas suffering from soil erosion to discuss the environmental impacts. Learners research and write up local and global impacts. **(W/I)** Could present as a newspaper article.	**0460 past examination paper:** Jun 2011 Paper 11 Q5b
3.7 Environmental risks of economic development	Demonstrate the need for sustainable development and management	Recap sustainable development and draw a revision mind map to show the features of sustainable development. **(W)(Basic)** Learners role play as a teacher – explain the concept to a peer. **(P)** Learners look at photographs to show some of the different methods of soil conservation. **(W)** 'Think, Pair, Share' activity (see Appendix: Think, Pair, Share) – what are the photographs showing – followed by a whole class discussion. **(P/W)** Complete a card sorting activity that matches: (i) name of strategy (ii) description of the strategy (iii) explanation of how the strategy prevents/reduces soil erosion. **(P)** Learners use the information to write an information leaflet for farmers to explain the strategies that can be used to reduce/prevent soil erosion with photographs and annotated sketches/diagrams if appropriate. **(I) (Challenging)**	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 306–307 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 158–159 and 165 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 239 *IGCSE Geography* (Phillipson) page 186 *New Wider World* (Waugh) pages 255 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_resources_rev1.shtml
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment, locally and globally	**Desertification:** This unit could be delivered as a standalone unit or as part of the work on food production or linked to work on energy. As an introduction show learners a photograph of desertification – learners ask/answer questions to try to work out what has happened in the photograph. **(P)** Learners use an atlas map to describe the distribution of areas that are at risk of desertification. **(I)** Define 'desertification' and update key word glossary.	**Textbooks:** *Oxford International Student Atlas* page 32 *New Wider World* (Waugh) pages 256–258 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 142–143

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		Learners describe a graph of annual rainfall over time for a region suffering from desertification to understand the physical causes. **(I)**	
		Learners use resources to research how 'overgrazing', 'population growth', 'deforestation for fuelwood' and 'over-cultivation' can cause desertification and show as a series of flow diagrams. **(I)(Challenging)** Could also graph population growth for the same region over time and use to illustrate a human cause. **(I)**	
		Whole class discussion of the local and global impacts on the environment of desertification – show as two mind maps. **(W)**	
		Extended writing activity: Explain the causes of 'desertification'. **(I)**	
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment both locally and globally	Learners read short headlines about the strategies used to combat desertification. Make the link back to population growth control in the first unit of work. For each, learners explain how the strategy could be used to control desertification. **(I)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_uses_environments_rev2.shtml
		Show photographs of strategies as appropriate to illustrate. Discuss how the environment can be used in a sustainable way to prevent desertification as well as the solutions can that can be put in place to reduce desertification. **(W)**	
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment locally and globally	**Enhanced global warming:** This could be taught as a standalone topic or as part of the scheme of work for energy.	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 190–191
		Learners describe a graph showing change in global temperatures. **(I)** Mind map what they already know about enhanced global warming – causes and effects.	*Cambridge IGCSE Geography* (Sibley and Cambers) pages 160–161, 108
		Provide a diagram to show how enhanced global warming occurs – learners annotate the diagram and write a short explanation to explain the process. **(I)(Challenging)**	*IGCSE Geography* (Phillipson) pages 150–152 *New Wider World* (Waugh) pages 218–220
		Learners produce a pie chart or divided bar graph to show the greenhouse gases and their percentage contribution to enhanced global warming. **(I)** Match gases to their sources and learners	**Online:** www.bbc.co.uk/schools/gcsebitesize/g

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
		present as a table – causes of enhanced global warming. **(P)** **Extended writing activity:** Explain the causes of enhanced global warming. Make the link back to previous work on deforestation. **(I)(Challenging)** Provide learners with a world map and some labels to place in appropriate places – use this to introduce some of the effects of global warming. **(P)** Learners use resource materials and independent research to produce a newspaper article about the impact of enhanced global warming – both locally and globally. **(I)(Challenging)**	eography/climate_change/describing_climatic_trends_rev3.shtml www.bbc.co.uk/schools/gcsebitesize/geography/climate_change/greenhouse_effect_rev3.shtml www.bbc.co.uk/schools/gcsebitesize/geography/climate_change/carbon_footprints_rev1.shtml www.geography.learnontheinternet.co.uk/topics/globalwarming.html#greenhouse www.wwf.org.uk/what_we_do/tackling_climate_change/ **0460 past examination papers:** Nov 2013 Paper 13 Q5c 5a and b Nov 2011 Paper 13 Q6b Nov 2011 Paper 12 Q6b
3.7 Environmental risks of economic development	Demonstrate the need for sustainable development and management	Build upon previous learning and ask learners to work in small groups. Provide examples of ways to reduce enhanced global warming and learners mind map ideas for each one. Use as a revision opportunity. Ideas could include: • use of renewable energy and nuclear power • reducing deforestation/afforestation • energy efficiency • reduced emissions from industry • sustainable living • soft engineering schemes for rivers and coasts • sustainable transport, etc. **(G)** Learners research summits/protocols and write a short report to show the suggested measures put in place and any impact they have had. **(I)**	**Online:** www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_resources_rev3.shtml www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_resources_rev2.shtml www.bbc.co.uk/schools/gcsebitesize/geography/sustainability/sustainable_uses_environments_rev1.shtml – sustainable uses of environments

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.7 Environmental risks of economic development	Describe how economic activities may pose threats to the natural environment, locally and globally	Introduce the term 'pollution' and recap how it can be divided up into 'water', 'air', 'noise' and 'visual'. Show photographs of different types of economic activity – for example, agriculture, a factory, and ask learners to add annotations to copies of each photograph to show how the activity can cause the different types of pollution. **(W)(I)** This section should be used as a recap for learners. For example, in the study of industry, include ideas such as: • water pollution from waste into rivers • air pollution from emissions and acid rain and link to enhanced global warming • visual impact of factories • noise from factories and from delivery vehicles. Discuss the local and global effects of each type of pollution. Learners recap solutions and strategies for sustainable management for each and write up as a revision report (**W/I**)	**Textbooks:** *Cambridge IGCSE Geography* (Belfield et al) pages 188–190 *Cambridge IGCSE Geography* (Sibley and Cambers) pages 156–157 *Complete Geography for Cambridge IGCSE* (Kelly and Fretwell) page 271 *Cambridge IGCSE Geography (Guinness and Nagle)* page 152 onwards *New Wider World* (Waugh) pages 218–220 **0460 past examination paper:** Jun 2013 Paper 12 Q6a and 6b
3.7 Environmental risks of economic development	Demonstrate the need for sustainable development and management	The following opportunities to address this topic are just examples and others can also be focused on. Ideas include: • soil conservation • reducing desertification • managing pollution • population policies • sustainable living • sustainable cities • sustainable tourism • renewable energy • sustainable management of the rainforests, etc.	

Syllabus ref	Learning objectives	Suggested teaching activities	Learning resources
3.7 Environmental risks of economic development	Understand the importance of resource conservation	Learners define 'resource' and update key word glossary. **(I)** Sort examples of resources into those that are renewable and non-renewable and recap definitions of each – show as a table of examples. **(P)(Basic)** Class discussion on the importance of 'sustainable development' and 'resource conservation' – provide a definition and update key word glossary. Use examples of water and energy to revise how they can be used more efficiently. **(W)** Introduce waste as another example. Sort into examples and characteristics of 'reduce', 'reuse' and 'recycle'. Learners show how conservation can help to manage the problem of waste as well as preserve resources. **(P)** Learners discuss reasons why sustainable development and resource conservation are sometimes difficult and write up ideas. **(P)**	**Textbook:** *Cambridge IGCSE Geography* (Sibley and Cambers) page 170 **Online:** www.bbc.co.uk/schools/gcsebitesize/geography/wasting_resources/waste_pollution_rev1.shtml http://kids.niehs.nih.gov/explore/reduce/ – Reduce, Reuse, Recycle **0460 past examination paper:** Nov 2012 Paper 11 Q6a
3.7 Case study	Know a case study of an area where economic development is taking place causing the environment to be at risk	**Learners should know a case study of:** An area where economic development is taking place causing the environment to be at risk. This can be incorporated into any of the examples of economic development already studied, such as a farm, factory or tourism, or a separate example, such as, a mine or quarry could be studied. Suggested activities include: • sketch map to locate the economic activity • description of the activity • ways in which the environment is at risk – shown as a leaflet or newspaper report (local and global) • strategies/solutions to manage the risk.	

Appendix

Guidance for teachers

- Some suggested opportunities where fieldwork could be developed (in preparation for Paper 4) have been included in the scheme of work. However, it should be noted that this list is in no way exhaustive but more a guide to give examples and suggestions of how fieldwork can be incorporated into the teaching of the themes. Time needs to be devoted to the teaching of the coursework option or Paper 4. There are websites which offer virtual fieldwork and guidance on fieldwork enquiries such as www.geography-fieldwork.org/

- Opportunities to develop skills have been incorporated into the teaching and learning activities. However, this is not exhaustive and time will also need to be devoted to the discrete teaching of certain skills. Please note that maps being used should be at a 1:50 000 or 1:25 000 scale and have an appropriate grid system. Some resources to develop map skills can be found at the following website: www.bbc.co.uk/schools/gcsebitesize/geography/geographical_skills/ and there are also activities linked to map skills in the core textbooks. In completing mapwork activities specific to certain topics, opportunities should be taken to develop generic map skills such as grid references, compass points and scale, etc.

- Local examples are great for case studies. You can use more than one case study if the content of a unit cannot be covered in its entirety by one. However, please also be aware of keeping a balance of places chosen and check that the context and scale of each case study is appropriate for syllabus requirements. You should also build in reference to appropriate examples as appropriate to illustrate – for example, providing a name of a river landform.

- Suggestions for teaching and learning activities have been included which are designed to provide opportunities for individual, pair, group and whole class activities. They are not prescriptive but are there to provide a bank of ideas for the teaching of the syllabus. The recommended textbooks and internet references provide a variety of resource materials and tasks that can also be used. Some of the textbooks have activities built in as you go along whilst others have summative questions at the end of the unit.

- Past examination questions and the specimen paper have been included as assessment opportunities. It is worth looking at the suggested references in advance of teaching a unit of work – the mark schemes provide guidance on expected content for the questions which help to inform teaching and the papers are also an invaluable source of photographs, maps, diagrams, graphs, etc. can then be adapted for use in the classroom. It can save time searching for resources. Mark schemes can also be adapted for use with learners as peer and self-evaluation exercises. Please note that the specimen paper exemplifies the assessment style from 2016 onwards. Other past paper questions have been referenced but please be aware that these are from the previous examination series

- References have been made to some of the key endorsed textbooks for this subject. However, it is also appropriate to make use of other textbooks and a resource list accompanies this scheme of work for your reference. Page references are included to help as a guide towards information although it should be noted that teachers also need to select the most relevant sections of these pages appropriate to the particular point in the scheme of work. Some of the texts also have reference to skills and fieldwork investigation.

- Define key words wherever appropriate and build up a key word glossary for each topic. There are often very useful glossaries of key words at the back of textbooks. Some key word glossaries can be found at: www.sln.org.uk/geography/Literacy.htm

- Links to websites are included in the scheme of work. Some of these also include links for video clips and sound bites. ALL websites, clips, audios, etc. should be checked for suitability before use in the classroom.

- Some further guidance of suggested teaching activities which can also be used as formative assessment tasks are list below:

Ideas for classroom activities

Developing a key word glossary – it is helpful for learners to identify the key words for each unit and add a definition for each word as they complete the course. Some key word suggestions are included in the scheme although these are not exhaustive. This can also include key command words for use in examination questions. Appendix 8 in the syllabus includes a glossary of command words – the teacher could adapt this into a card sorting activity. It is helpful to ask learners to highlight key words and commands words in practice questions to focus them more precisely on what the question is asking them to do. Some key word glossaries can be found at: www.sln.org.uk/geography/Literacy.htm

Key words can be made more fun by activities such as **anagrams** (jumbled up words), **describe a word** (learners have to describe a key word using key words on a card to a partner) and **heads and tails** (matching key words and definitions). The teacher could also keep a **box of letters** – ask a learner to pull out a letter and think of a key word to match that letter. They then have to nominate a partner to define the key word for them. You can also give a list of words to a learner who sits **back to back** with a friend. They describe the key word and their friend has to guess what it is. The teacher can also provide learners with key words and ask them to think of a question that would have this key word as its answer. It is useful to display key words and their meanings around your classroom if possible.

Question wall – learners think of questions that they want to find out during a unit of work. Write them on post-it notes and place on a question wall. You can answer them (or nominate learners to answer them) as you move through the course. The teacher could use the questions as part of a **hot seating** plenary (a learner volunteers to take the hot seat and answer as many questions as they can about a topic from their peers).

Mini whiteboards – these are a great resource. The teacher can ask a question and get a response from the whole class. It allows you to see at a glance who has understood a concept and who has not. They are good fun too! Can be used for **picture guessing games**, as well – a learner has to draw a geographical feature and their partner has to guess what it is. Once they have done so, they have to explain how it has been formed.

Card sorting activity – this is a good activity to encourage classification. Learners have to place cards into categories – for example, sorting cards into causes and effects of a natural hazard and then further sorting the effects cards into long and short term effects. Add challenge by not providing the categories in the first instance and see what they come up with.

Carousels – place learners in groups and set them a question. They record their ideas on a large piece of paper. After a short time interval the groups move round – to add information to the work that another group has already done. Different colours can be used.

Text highlighting – this helps learners to understand a piece of text. They can use different colours to highlight key pieces of information in a textbook – for example, one colour for location detail, one for causes, one for effects and another for solutions.

Debates – think of an issue where there are two clear viewpoints – for and against. Split the class into two. Each team researches and then presents an argument – it could be points in favour of the 'One Child Policy' and then points against. Each team has the opportunity to ask the other team questions. The outcome of the debate is decided by a whole class vote at the end.

Writing styles – use a variety of styles for learners to present their ideas – for example, ask them to present their ideas as a letter, diary entry, report, newspaper article, web page, presentation for another class, etc. Good to develop literacy skills and also to familiarise your learners with using a variety of different textbook-based resources.

Mind maps – record all the ideas a learner can think of about a topic – can be sorted into different branches. Discuss as a class and a learner can record new learning in a different colour. There are lots of websites that provide frameworks to build up mind maps and also provide advice on other revision tools. Ask learners to extend their thinking by writing a written development point for each of their ideas on the mind map.

Quizzes – learners can work in teams to answer questions – a great way to make revision more fun! You can make it kinaesthetic by asking learners to come to the front with their answers – first one to you wins the point but watch health and safety!!

Washing line – this activity works well when you want learners to place something into order or into a sequence. For example, learners are provided with a series of statements to show why a volcano or earthquake happens at a plate boundary – they work in pairs or small groups to hang the cards on a washing line in the correct order. Alternatively, learners draw a series of pictures to explain the formation of a feature and place these on their washing line too.

Give me five – this is a useful plenary activity. You can ask for five things about any topic…five flood management schemes, five coastal landforms, four types of erosion (the number can vary). Learners like to draw around their hand and record their ideas on the fingers of the hand – can be a starter too.

True/False – this is a really simple assessment for learning technique. Provide statements and learners hold up a card or mini whiteboard to say if the statement is true or false. Add challenge by asking learners to justify their decision and then provide the accurate statement.

Visual clips – take a look at the BBC Learning zone website – there is an index to help you to sort clips according to topics. Short visual clips to aid learning at www.bbc.co.uk/learningzone/clips/topics/secondary.shtml#geography. All clips should be checked for suitability.

Photographs and images – these add reality to the topic you are teaching and can be used in so many different ways. Some suggestions are: asking questions about a photograph, adding labels to annotate, producing a labelled sketch from a photo, using a high impact photograph to introduce a topic, showing s combination of photographs and asking what connect s them. You can also use two techniques – "picture reveal" and "a question of" – both interactive ideas for starters and plenaries based on photographs and available at www.sln.org.uk/geography/visual.htm. There are also interactive images on this site. Google Images is a great source of photographs and you can also use Google Earth and Maps too. If you are looking for a diagram such as a flood hydrograph or a climate graph…then use Google as a search engine and it will take you to a variety of pages where you can find your image.

Thinking skills – these include a range of activities designed to encourage thinking through Geography. They are based on the work of David Leat – *Thinking through Geography Book 1 and 2* (Chris Kington Publishing, 2001). There are also examples at www.sln/org.uk - thinking skills. They include **odd one out** activities, living graphs, maps from memory and mysteries – lots of different ways to encourage an investigative and interactive approach to learning about Geography.

Learner as a teacher (role play) – we learn something really well when we have to teach it to another person. This could be done very quickly such as a quick paired discussion where one learner explains a concept to another. However, it can also be done more formally – for example, a small group of learners research

and produce a presentation on a particular topic. They also provide a revision sheet to summarise key points. This can be quality assured by a whole class discussion after each presentation to add in any missing information.

Modelling – it is important to model examples of how to complete tasks but also certain geographical skills will need modelling too. A good example is describing a distribution which learners often find difficult. For example, if asked to describe the distribution of water supply globally, learners work in pairs to: identify areas of shortage and name, identify areas of surplus and name, look for trends in both, look for anomalies. Swap with another group to peer assess work against a criteria including whether appropriate place specific detail is included such as names of continents, lines of latitude, etc.

PowerPoint presentations – there are a number of PowerPoint presentations that have already been produced for use in the classroom – again they should be checked for suitability. Have a look at www.geographyatthemovies.com for some great ideas.

Think, Pair, Share – sometimes learners are not always good at giving an immediate answer to our questions. Some learners are more reluctant to participate in a class discussion than others. A useful strategy is to build in thinking time – think (time to consider a question), pair (share your ideas with a peer) and share (contribute to the whole class).