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Key Stage 3

Geographical Enquiry

Teacher Book 1

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Why isn't Yuna able to play the sport she loves?**► Purpose ◀**

This investigation is designed to enable pupils to explore the relationship between physical environment and human activity and how the two interact to determine spatial patterns and influence human behaviour. In Japan, the geographical constraints imposed by a largely mountainous terrain can be limiting factors. Through the story of one young professional Japanese woman, pupils are introduced to the relief of Japan and the nature of high-density living in urban areas along its coastal plains. Because flat land is scarce it is very expensive and therefore leisure pursuits such as tennis and golf can become very exclusive. This is Yuna's problem; finding the price of the sport she loves prohibitive.

Through the interpretation of a range of sources of geographical information, provided in the Student Book and in the teacher support materials, together with additional research areas which are suggested, pupils come to understand how the geography of Japan influences the life that Yuna leads. A framework is provided through the teacher support materials for the pupils to plan (using a model), draft, peer assess, and finalise a piece of extended explanatory writing which demonstrates their understanding, and to reach conclusions consistent with the evidence. The enquiry is then extended to enable the pupils to reflect on how Japan is altering its physical geography by creating new landscapes and environments to serve as living space.

Through the case study of the construction of the new Kansai International Airport from reclaimed land in Osaka Bay, pupils are able to consider the views of local and regional stakeholders and to evaluate whether they feel the operators of the airport have addressed concerns adequately through its Environmental Management Plan.

Finally, pupils are encouraged to consider the issue of how best to meet the need for increased airport capacity in Southeast England and to present the costs and benefits of the three live options, one of which is to build a new airport on reclaimed land in the Thames Estuary based on the Japanese model.

► Aims ◀

Through this enquiry, pupils will be challenged and supported to:

- Develop contextual knowledge of the location of globally significant places, including their defining physical and human geographical characteristics, and how these provide a geographical context for understanding the actions of geographical processes.
- Understand the processes that give rise to key physical and human features of the world, how these are interdependent and how they bring about spatial variation and change over time.
- Interpret a range of sources of geographical information to reach substantiated conclusions and judgements consistent with the evidence and communicate these in a variety of ways, including through maps, numerical and quantitative skills and writing at length.

► Links to Key Stage 3 subject content ◀

Pupils should be taught to:

Locational knowledge

- Extend their locational knowledge and deepen their spatial awareness of the world's countries, including the key physical and human characteristics and major cities of those in Asia.

Human and physical geography

- Understand through the use of detailed place-based exemplars at a variety of scales the key processes in human geography relating to population and urbanisation.
- Understand how human and physical processes interact to influence and change landscapes and environments.

Geographical skills and fieldwork

- Build on their knowledge of globes, maps and atlases and apply and develop this knowledge routinely in the classroom.
- Interpret topographical and thematic mapping, and aerial and satellite photographs.
- Use Geographical Information Systems (GIS) to view, analyse and interpret places and data.

► Possible assessable outcomes ◀

- A piece of extended explanatory writing which accurately identifies, describes and explains the inter-relationship between the physical environment and human patterns and processes in Japan, including a conclusion consistent with the evidence analysed.
- A presentation which identifies, describes and explains the potential costs and benefits of the three options for increasing airport capacity in Southeast England, including a conclusion in which the pupil presents their considered evaluation of the best option, consistent with the evidence.



Utsobo Tennis Club has 18 public courts including 5 floodlit courts, plus sauna baths, a restaurant and a conference centre.

The land occupied by Utsobo Tennis Club was very expensive – about US\$950 per m².

Because the land was so expensive to buy, the Utsobo Tennis Club has to charge high prices to people who want to use it, in order to recoup its investment.

Because land prices are high, all available houses and apartments in Osaka are expensive to rent or buy.

Undeveloped areas of land, parks and open spaces without buildings are rare in Osaka.

The lack of space in Osaka means that motorway-like roads called 'expressways' have been built above smaller roads, railways, canals and even buildings.

Because every available plot of land in Osaka has to be used, many houses are built next to noisy railways, expressways and factories.

Yuna earns a salary of US\$39,000 a year, but has to work 50 hours a week sometimes and pay rent of US\$10,000 a year out of this.

In parts of Osaka, property prices are so high that people have an average of only 4 m² of floor space each at home (compared with 36 m² in the UK).

Osaka is the third-largest city in Japan (after Tokyo and Yokohama) and is part of the Keihanshin metropolis of Kyoto, Osaka and Kobe, which has a combined population of 19 million.



Yuna has loved playing tennis since she was a pupil at school. She finds it helps her to relax and to keep fit.

Yuna lives in the suburbs of Osaka and commutes to her work as a software engineer in the city centre every day.

Despite her salary, Yuna cannot afford to buy a flat of her own and has to share one condominium with two friends who help to cover the rent together.

Because flat and low land in Japan is so scarce, people tend to crowd into the available space which means that over half the people in the country live on just 5% of its land area.

Because flat land is so scarce, there is only around 20,000 km² of building land, or 4.8% of the total available land area in Japan.

Six of Japan's eight largest cities are found in the Tokaido megalopolis, which stretches all the way from Tokyo to Kobe.

About 75% of the land area of Japan is made up of mountains.

Most flat land in Japan occurs in narrow coastal plains which border the sea.

With a small land area and around 130 million people, Japan is the thirteenth most densely populated country in the world.

The Utsobo Tennis Club in Osaka opened in 1996.



<p>Members of the public like Yuna, who live in Osaka, can play tennis 24 hours a day, 365 days a year at the Utsobo Tennis Club.</p>	<p>Osaka is sometimes referred to as the 'nation's kitchen' as it was once the centre of the rice trade, but today it is better known for electronics companies such as Panasonic, Sharp and Sanyo.</p>
<p>Despite working long hours, Yuna tries to play tennis at least twice a week and often at night.</p>	<p>Yuna first started playing tennis at the Utsobo Tennis Club in 2007.</p>
<p>Because space is so limited in Osaka, land prices are very high.</p>	<p>In some parts of the Tokaido megalopolis, population density, a measure of how crowded an area is, reaches 1000 people per km². In some Tokyo wards, this figure is as high as 5748 people per km² (17% above the national average).</p>
<p>A megalopolis is the name given to a vast and continuous area of towns and cities where conurbations and metropolitan areas have merged into each other.</p>	<p>Yuna Miyakawa is 27 years old and works as a software engineer in Osaka.</p>
<p>Suitable flat land on which to build homes, factories, shops, roads and railways is in short supply all over Japan.</p>	<p>The majority of housing in Osaka is modern, built of concrete, aluminium and wood, but there are also some traditional wooden houses.</p>



Large shopping centres and car parks in Osaka have been built below ground because space is scarce.

The most sparsely populated area of Japan is the northern island of Hokkaido.

Yuna's parents live in Yokohama city and she enjoys visiting them at least once a month. She travels by Shinkansen and the journey takes around three hours.

The largest area of flat land in Japan is along the Pacific coast between the cities of Tokyo and Kobe. This is also the most heavily built and densely populated part of the country.

Japan's rail network is fast, clean and reliable. Osaka also has its own underground network. Yuna's commute takes just over an hour each way.

On average, there are 340 people for each square kilometre of land in Japan, which compares with 257 in the United Kingdom.

Farmland in Japan is always intensively cultivated in order to maximise production from small plots of land.

In many neighbourhoods of Tokyo, rubbish is collected four times a week because residents have nowhere to store it.

It is not unusual in Japan for whole mountains to be levelled in order to create flat land on which to build housing.

In 2013, three of the world's top ten most expensive cities to live in were in Japan.

- When you are writing to explain, your aim is to give clear reasons for a phenomenon, problem, situation or issue.
- The title may be a question, e.g. *How are sedimentary rocks formed? What is global warming?*
- The issue is raised at the start and often summed up at the end.

Text level features often include:

- Diagrams, maps, charts, etc. to provide statistics or illustrate processes.
- An introductory paragraph to provide background information and state the issue or problem.
- A topic sentence at the start of each subsequent paragraph, which makes it clear what the paragraph is about. Paragraphs are used to introduce different reasons or show different stages in a process.
- Headings, subheadings and bullet points might be used to organise the explanation into clear sections.

Sentence level features often include:

- Use of the third person (he, she, it, they) and sometimes the first and second person, to involve the reader, e.g. 'how can we be sure that...', 'you may not think that...'
- Use of the present tense unless referring to a finished action in the past, e.g. 'global warming refers to...', 'the term was first used...'
- Mostly use of active voice, e.g. 'scientists believe that...'. However, passive voice can be used to make the text sound more formal or when it is not important to know who did what, e.g. 'it is widely believed that...', 'proposals have been made to...'
- Connectives, which can show: time sequence, e.g. 'in the first place', 'over time', 'eventually'; cause and effect, e.g. 'consequently', 'as a result', 'because'; additional information, e.g. 'also', 'moreover', 'another reason'; comparison, e.g. 'alternatively', 'whereas', 'but'.

Word level features often include:

- Use of specialised and precise vocabulary, e.g. *sediments, compression, particles*.
- Impersonal, factual, plain writing to ensure that the explanation is clear and concise.

What were the causes and effects of the Armenian earthquake of 7 December 1988?

Title often asks a question or states clearly what the explanation is about

Purpose – to explain how and why something happens

Armenia is a small landlocked country about the size of Wales, which can be found to the east of Turkey in Southwest Asia. With a population of three million people it achieved its independence from the Soviet Union in 1988, just a few months before an earthquake devastated much of the stark rocky countryside of the northwest of the country.

Introductory paragraph sets the scene

Present tense throughout

Armenia's geographical location makes it very vulnerable to earthquakes. The country sits on top of the boundary between the Eurasian and Turkish tectonic plates, which rose by 1.5 metres on 7 December 1988. In fact, the boundary is a subduction zone, which means that the Turkish plate is being forced under the Eurasian plate. The resulting shockwaves measured 7.1 on the Richter Scale and were felt throughout the country. The greatest devastation was in the city of Leninakan which was closest to the earthquake's epicentre.

Technical vocabulary

Topic sentence introduces what the paragraph will be about

Although physical reasons explain why the earthquake happened, many human factors were responsible for making its impact much worse than it should have been. The most important of these was the fact that Armenia lacked the financial resources to incorporate earthquake-proof foundations into the design of new buildings. To house its growing population as cheaply as possible, hundreds of apartment blocks were built with cheap concrete panels, made of cement that contained too much sand.

Connectives show cause and effect

Because the government could not afford to buy heavy plant excavators, most of the apartments were built upon foundations which were too shallow to support the weight of the building above. Finally, the lack of trained rescue services meant that after the earthquake there was little chance of survivors being located in the rubble or resisting the freezing winter temperatures for long.

Over 60,000 people died on the night of 7 December 1988 and during the weeks that followed the earthquake. The most devastating effects were in Leninakan, where all of the city's 120 apartment blocks collapsed, claiming the lives of one in four of the population. Thousands of others died under buildings in more rural areas which were cut off completely from outside help for many weeks. As time passed, diseases such as dysentery and diarrhoea took the lives of those who were left with no option but to drink contaminated water. Even today over half a million Armenians remain homeless, living in tents or portacabins, with little prospect of ever having a permanent home again.

Paragraphs consisting of sentences written in a series of logical steps, usually in time order

Concluding paragraph summarises the key points

The main cause of the 1988 Armenian earthquake was the fact that the country sits astride a major plate boundary which moves violently from time to time. Natural events such as these are impossible to prevent or predict with the present level of technology. However, many other human factors caused by Armenia's poverty and lack of economic development were also responsible for much of the devastation that occurred on 7 December.

Peer Assessment Sheet: Why can't Yuna play the sport she loves?

Enquiry Support Materials

Are these conventions included?	Yes	No	If yes, draw a numbered arrow to show an example in the text	Choose <u>one</u> of the conventions which is missing, or you feel could be improved. Write down your ideas below on how and where in the text it might be included or improved.
1 The introductory paragraph sets the scene and provides background information			Arrow 1	
2 Each paragraph begins with a topic sentence which introduces what it is going to focus on			Arrow 2	
3 Maps, diagrams and photographs are used selectively and provide additional information to that which is written in the text			Arrow 3	
4 Headings, subheadings and bullet points are used to divide the text into clear sections to assist the reader			Arrow 4	
5 Written in the third person			Arrow 5	
6 Written in the present tense			Arrow 6	
7 Use of active voice , e.g. 'Geographers believe that...'			Arrow 7	
8 Effective use of connectives to show cause and effect			Arrow 8	
9 Use of appropriate and specialised subject vocabulary			Arrow 9	
10 Plain and impersonal writing to ensure that the explanation is clear and concise			Arrow 10	
11 In the final paragraph, the issue is summarised clearly and a conclusion reached			Arrow 11	

A lack of living space in urban Japan

Flats and apartments

One way of overcoming the problem of space in Japan is, of course, to build upwards. Many families live in high-rise apartment blocks like those shown in the photographs. They can be very small but most will contain at least one bedroom, a small kitchen and living area and a bathroom. Many will also have a balcony. Family homes are generally more spacious than an apartment and are nearly always detached. However, they are very often built very close together with only small gaps between them. Gardens are likely to be small, if indeed there is one. Domestic appliances such as washing machines, tumble-dryers, freezers and boilers are often located outside the home and on balconies because there is insufficient space inside.

Multi-layered parking

Residential areas often have multi-layered car-parking facilities as a means of saving space. This allows for double the storage. The same also applies for bikes. To help maximise the number of bikes that can be stored in any one location, Japan often uses multi-layered bike racks. These types of bike sheds are common near train stations, especially as many people cycle there before catching the train to work and school, etc. There is occasionally a small fee for using the storage system, but bikes will be well looked after. You could ask the children how they think bikes are elevated to the top layer.

High-rise buildings

Skyscrapers are perhaps the most obvious way of overcoming the problems of congestion. Most cities in Japan will have high-rise buildings in the city centre and they are frequently torn down and replaced with modern, even more efficient equivalents. All new skyscrapers are built to strict guidelines and have to incorporate earthquake-proof measures. As technology advances, the height of the buildings keeps increasing and the shape of buildings becomes ever more inventive.

Transport systems

As a way of saving space regarding transport, many cities now boast multi-layered infrastructure networks. Sometimes, the train lines also run through buildings and go underground as well. 'Bullet' train tracks run separately to regular train tracks. This helps ensure the smooth running of

the bullet trains and that they are never slowed down by the regular local trains. Japan also has an extensive underground network to help people travel around.

Roof space

Every spare inch of land is used in Japanese cities and roofs are commonly used for all-weather sports pitches. Most department stores in Japan will have either a rooftop garden, or an outdoor recreational facility, whether it be a restaurant or a sports pitch.

Underground shopping centres

A clever method of saving space has been to develop a network of underground shopping centres in Japan. Nagoya has a particularly large and impressive network of underground shops, ranging from supermarkets to clothes shops.

Tunnels

As Japan is so mountainous, many tunnels have had to be cut through the sides of mountains to make way for the ever-increasing desire for better infrastructure networks. In times gone by, crossing from the Pacific side of Japan to the Japan Sea side was a timely process, with few practical options available other than sea. The mountains made it near impossible for roads to be constructed. By creating a network of tunnels, both major roads and rail lines now connect towns and cities on both sides of the country.

Rush hour

Rush hour in Japan, like any other country, is a busy time on the roads, trains and underground. Shinjuku Station in central Tokyo sees at least two million commuters pass through one of the sixty exits each day. It's a confusing place and very easy to become lost! During peak hours, guards are employed to help push people onto the trains and underground carriages to help keep the traffic moving.

Urban sprawl

Building work takes place on any available flat land in Japan. It only stops when the land becomes too mountainous or gives way to the sea. Around 70% of Japan's population live on 30% of the available land space, so every spare inch is used.