

MAYOR OF LONDON

THE LONDON CURRICULUM
GEOGRAPHY KEY STAGE 3

MAPPING LONDON



**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning

LONDON CURRICULUM

PLACING LONDON AT THE HEART OF LEARNING

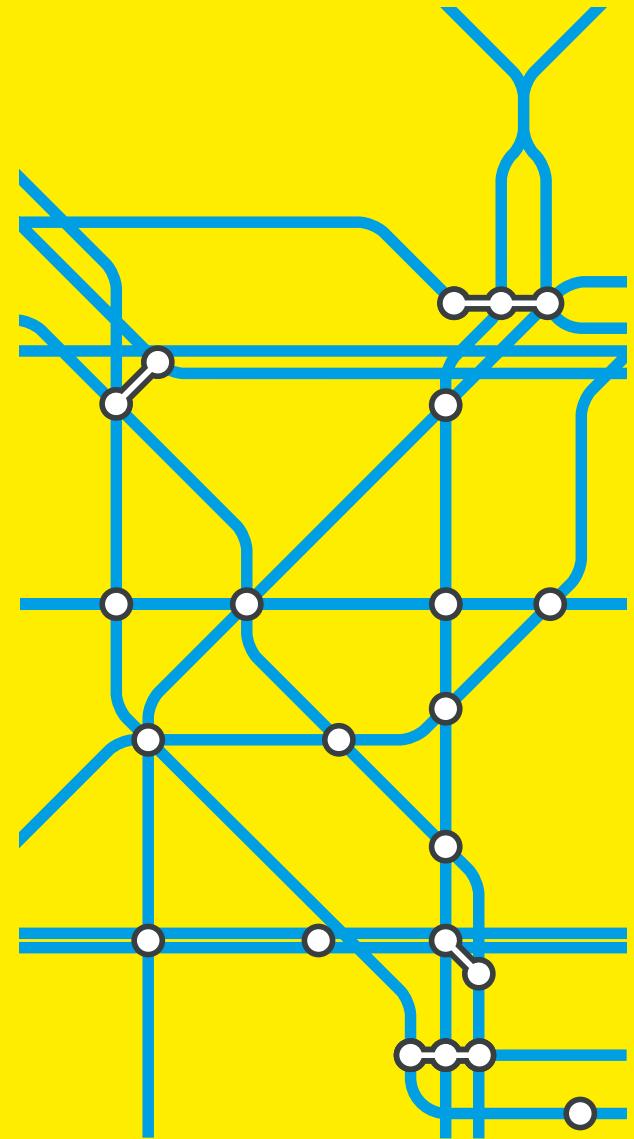
The capital is the home of innovations, events, institutions and great works that have extended the scope of every subject on the school curriculum. London lends itself to learning unlike anywhere else in the world. The London Curriculum aims to bring the national curriculum to life inspired by the city, its people, places and heritage.

To find out about the full range of free resources and events available to London secondary schools at key stage 3 please go to www.london.gov.uk/london-curriculum.

Geography in the London Curriculum

London offers a fascinating exemplar of the shaping of the urban landscape by human and physical processes over thousands of years. London Curriculum geography teaching resources aim to support teachers in helping their students to:

- ♦ **DISCOVER** the geography of the city, its landmarks and characteristics
- ♦ **EXPLORE** their neighbourhood and key sites around London through fieldwork to extend their locational knowledge and environmental understanding of the city
- ♦ **CONNECT** their learning inside and outside the classroom, analysing and drawing conclusions from the geographical data they have gathered.



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MAPPING LONDON OVERVIEW



UNIT AIMS AND ACTIVITIES

This unit introduces students to the geography of their capital city through the medium of maps. Each lesson introduces a different map around which some or all of the activities are based. These maps are both traditional, eg Ordnance Survey, census and flood risk maps, and alternative, eg mapping London surnames, life expectancy and Twitter use. They enable students to develop and use key mapping skills as well as understanding the geography that shapes their city.

KEY STAGE 3 NATIONAL CURRICULUM

This unit addresses some core requirements of the new key stage 3 national curriculum. It provides specific opportunities for students to:

- ♦ analyse and interpret different data sources
- ♦ understand, through the use of detailed place-based exemplars, the key processes in physical geography relating to rivers (rocks, geological timescales, glaciation)
- ♦ understand, through the use of detailed place-based exemplars, the key processes in human geography relating to population, economic activity and urbanisation
- ♦ build on pupils' knowledge of maps and use of these geographical tools routinely in the classroom and in the field
- ♦ Interpret Ordnance Survey maps in the classroom and in the field, including using six-figure coordinates and scale, thematic mapping, and aerial photographs
- ♦ use Geographical Information Systems (GIS) to view, analyse and interpret places and data
- ♦ use fieldwork to collect, analyse and draw conclusions from geographical data, using multiple sources of increasingly complex information.

This topic covers the following learning objectives:

- ♦ to investigate some of the human and physical features of the city of London
- ♦ to develop and practise skills in mapping using a range of different styles of map
- ♦ to identify the issues facing London and Londoners in the present and future.

FURTHER READING

These are general background texts for the unit. Specific references for each lesson are given in the lesson plans.

London: Process and Change

An A level case study written by Garrett Nagle and Paul Guinness, which investigates recent economic, demographic and social change in London (up to and including the 2001 census). It includes useful summaries of key trends as well as data and graphs, and examines themes such as inequality, population change, deindustrialisation and gentrification.

www.geocases1.co.uk/l2.htm

Christopher Winn, *I Never Knew That about London*, Ebury Press, 2007

A book of historical facts and interesting anecdotes about London, this time following the route of the River Thames and divided into areas.

Teresa Paddington, *The London Pocket Bible: everything you need to know about the capital city*, Crimson Publishing, 2011

An easy to read book packed with facts about London, including its history, architecture and green spaces as well as its culture, literature, fashion and food.

***Ten Interesting Things about London's Boroughs* London Councils publication, 8 June 2012**

www.londoncouncils.gov.uk/pdfs/10Interesting/index.html

A London Councils document which does exactly what you'd expect: gives 10 interesting facts about each of the 32 London boroughs. The facts could be about the history, geography or demography of the borough, and there are some fun facts in there too, eg famous residents. Useful for teaching students about the place that they live in.

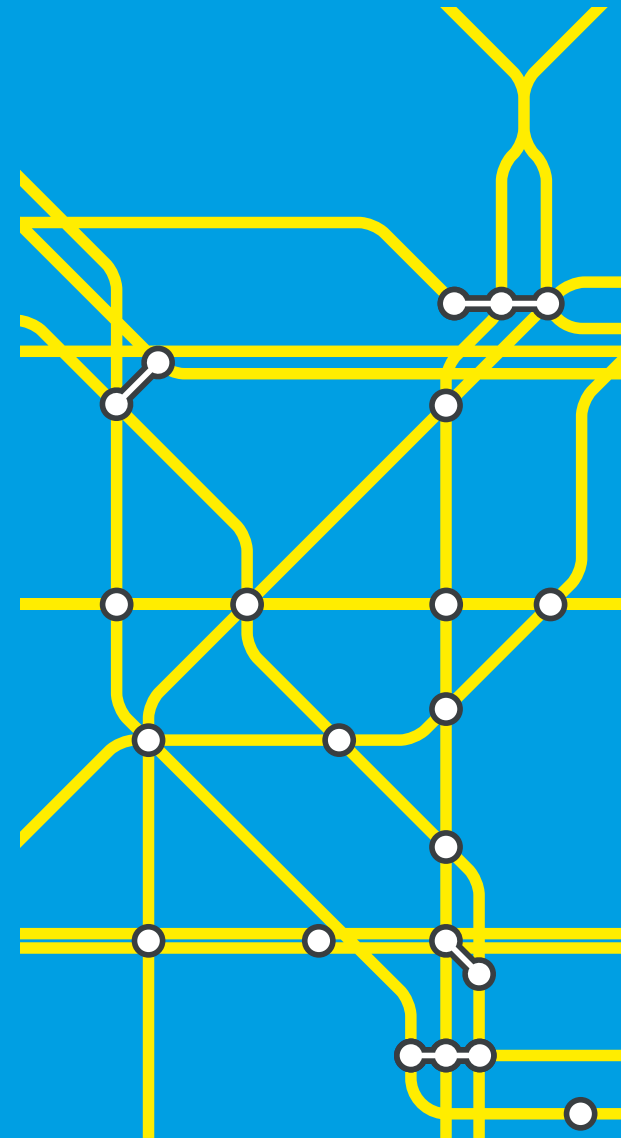
***170 years of industrial change across England and Wales* Office for National Statistics, 5 June 2013**

www.ons.gov.uk/ons/rel/census/2011-census-analysis/170-years-of-industry/170-years-of-industrial-changeponent.html

A detailed description and analysis, based on census data, of industrial change trends in England and Wales between 1841 and 2011. Includes a video animation with commentary, graphs and a key points summary.

DISCOVER

In this section your students will learn about London, from its public transport systems to population and geographical changes through the years. They will have the opportunity to get to know their local areas more through the study of historical maps as well as creating personalised Google maps of the city and annotating areas that shaped their identity. Social, environmental and political issues that face Londoners will be explored.



LESSON 1

GETTING TO KNOW OUR CITY



THE BIG IDEA

London: its size, scope and setting.



LESSON OBJECTIVES

All students will be able to locate London on a map of the UK and use four figure grid references to label and describe key features of the city.

Most students will be able to use six figure grid references to plan a route around London and to ask geographical questions about features of the city.

Some students will be able to start to investigate the social, economic and environmental characteristics of London and apply this knowledge when planning a day out in the city.

Key words: Urbanisation, settlement, population change.



RESOURCES

- ♦ **Resource 1.1:** What do I already know? (starter)
- ♦ **Resource 1.2:** London factsheet (main 1)
- ♦ **Resource 1.3:** Extension task: grouping your facts (higher ability) (main 1)
- ♦ **Resource 1.4:** Character cards (differentiated) (main 2)

YOU WILL ALSO NEED:

- ♦ Student access to www.londoncouncils.gov.uk/londonfacts (main 1)
- ♦ Maps of London (per pair of students, main 2)

LESSON 1: GETTING TO KNOW OUR CITY

SETTING THE SCENE

Europe's largest city



London is the capital city of England and of the United Kingdom. With a population of 8.17 million at the 2011 census, it is Europe's largest city, and the population is forecast to rise to over 9 million by 2021 and almost 10 million by 2031. The population of London inhabits a relatively small area, 611 square miles, resulting in an average population density of 12,331 people per square mile.

About the boroughs

Greater London is divided into 32 boroughs and the City of London Corporation. Each borough is responsible for local services such as schools, social services, waste collection and recycling and road maintenance.

- ◆ Twelve of the boroughs (plus the City of London) are classified as Inner London.
- ◆ The remaining 20 are Outer London.
- ◆ Bromley is the largest borough in Greater London, covering an area of 58 square miles.
- ◆ Kensington and Chelsea is the smallest at only 4.7 square miles, although of course the City of London (or 'Square Mile' as it is also known) is the smallest administrative area.
- ◆ Croydon is the most populous London borough with around 363,000 residents.

A map of the London boroughs can be found at:
[www.londoncouncils.gov.uk/londonfacts/
londonlocalgovernment/publications/
politicalmap2010.htm](http://www.londoncouncils.gov.uk/londonfacts/londonlocalgovernment/publications/politicalmap2010.htm)

World city

London is one of the world's most ethnically diverse cities, and is the most ethnically diverse area in England and Wales. Fewer than half of Londoners (45% or 3.7 million people) are from the White British ethnic group, compared to 80.5% in England and Wales as a whole. 37% of Londoners were born outside the UK, but in four boroughs this rises to over half: Brent (55%), Newham (54%), Westminster (53%) and Kensington and Chelsea (52%).

People in London who were born outside the UK were most likely to have been born in India, Poland, Bangladesh, Nigeria or Ireland. However, 50 non-indigenous groups have populations in London, 29 of which have populations of over 30,000 people.

Economic power house

As well as being highly populated and ethnically diverse, London is the fifth richest city in the world. Gross Domestic Product per capita in Inner London is 328% of the average in the European Union. London makes a significant contribution to the economy of the UK as a whole, responsible for 24% of the total value of all UK exports (£92 billion/year) and 45.8% of the total financial and insurance sector.

The economy of London grew by 12.5% between 2007 and 2011, in spite of the recession – twice as fast as the rest of the UK. The average household income in London is 30% higher than the UK average, with people working in London earning an average of £15.70 per hour compared to the national average of £11.21 per hour.

However, these figures disguise the fact that considerable diversity exists within London in terms of wealth. Six London boroughs (Hackney, Newham, Tower Hamlets, Islington, Waltham Forest and Barking and Dagenham) are in the top 10 most deprived areas in England.

Extra facts for the lesson

- ♦ The River Thames is 215 miles long from source to mouth.
- ♦ The Shard is the tallest building in the UK (and the EU) at 310 metres and 72 storeys high.

LESSON 1: GETTING TO KNOW OUR CITY

LESSON PLAN

STARTER

What place are we learning about?

Divide the students into groups and put together 'hot topic bags' of clues, for example items manufactured in London or with links to the city.

What do you already know about London?

Carry out a prior knowledge check using mapping task Resource 1.1: *What do I already know?*

MAIN ACTIVITY 1

Setting the learning objectives for the unit

Working individually or in pairs, students use the website www.londoncouncils.gov.uk/londonfacts to conduct a fact hunt, researching facts about the city and asking geographical questions about them.

These questions can be used to set the learning objectives for the unit.

If internet access is not available, Resource 1.2: *A London factsheet* (page 14) is provided. The layout of this sheet is such that it can also be used as a card sort.

Differentiation opportunities

Example questions can be provided to support lower ability students.

Higher ability students might group the facts into social, economic and environmental categories using Resource 1.3: *Extension task: grouping your facts* (page 15) provided.

MAIN ACTIVITY 2

OS map skills activity – character cards

Students work in pairs to plan a themed day out in London, with the aim of finding out more about the city. Have the students work in pairs to use symbols and grid references to locate and describe places, and use the TfL website (www.tfl.gov.uk/journeyplanner) to work out public transport routes and timings.

Differentiation opportunities

Differentiated character cards. Differentiated instruction sheets using four and six figure grid references.

Higher ability students could plan their own day out in London, visiting places of interest, writing an itinerary and explaining why they've chosen to visit these places. Alternatively, they could choose another capital city to investigate and research some facts and figures about the city. How is it similar to London? What are the differences between the two cities?

PLENARY

Prior knowledge update

Students revisit and complete their resource 1.1 on their own.

Homework idea

Design an advert or website to attract visitors to London, based on some of the key facts and knowledge learned from the lesson, plus additional research.

Assessment opportunities

Revisiting learning outcomes and success criteria

Targeted questions

Confidence checks (traffic lights)

Prior knowledge check

Assessment of homework task

Other suggestions

Introduce alternative public transport maps such as a map of actual routes of the tube (www.esriuk.com/news/announcements/true-geography-london-underground), and/or real-time transport (<http://traintimes.org.uk/map/tube/>). Discuss their usefulness and application. Students could also design their own alternative public transport map of London, based on a theme of their choice.

FURTHER READING

www.londoncouncils.gov.uk/londonfacts/

www.visitlondon.com/discover-london/

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.1



WHAT DO I ALREADY KNOW?

Where is London in the UK?

- 1 Label London on your map
- 2 Describe its location in the UK



LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.1 CONTINUED



WHAT DO I ALREADY KNOW?

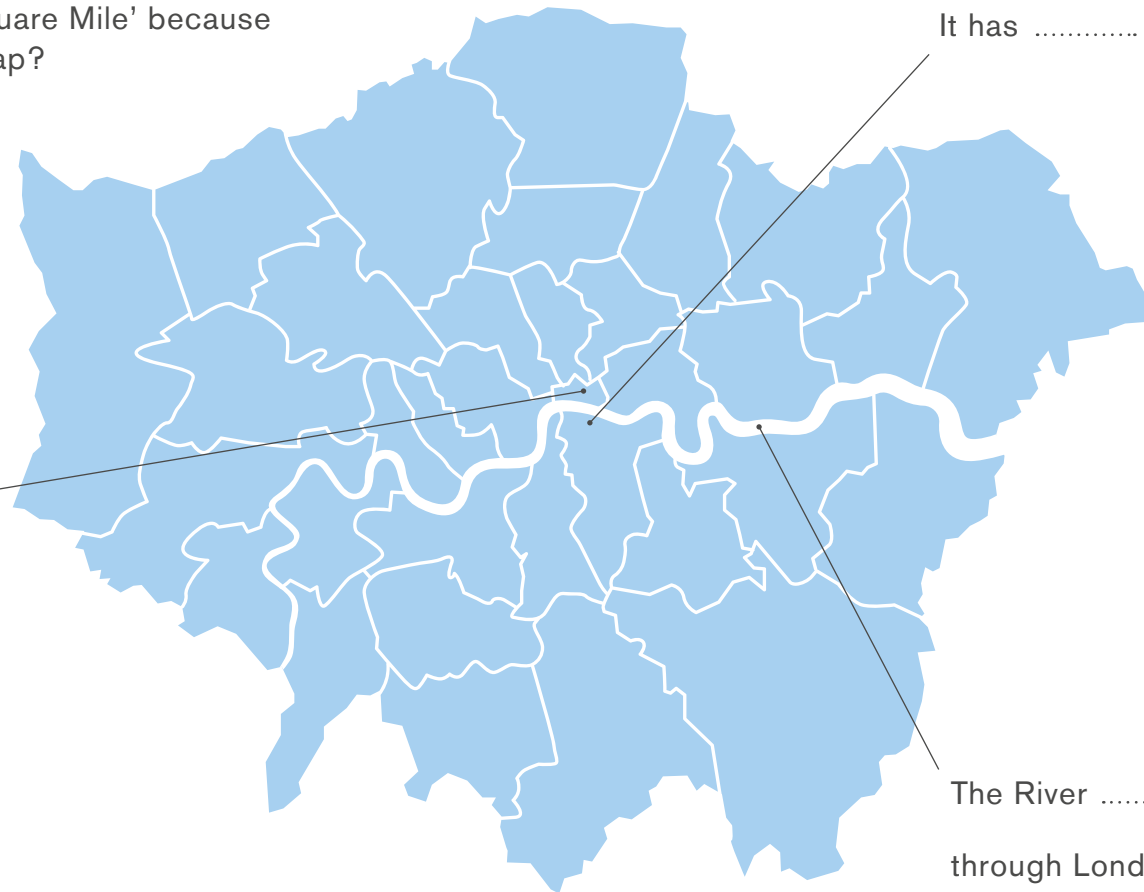
The smallest London Local Authority is the City of London. It is also known as the 'Square Mile' because of its size. Can you find it on the map?

London has boroughs

Can you name three of the London boroughs?

Extra points if you can label them on the map.

This famous building is in the City of London. What is it called?



The tallest building in London is called

.....

It has storeys.



The River runs through London. It is miles long.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.1 CONTINUED



WHAT DO I ALREADY KNOW?

3 Complete columns 1 and 2 at the start of the lesson. You will complete column 3 at the end of the lesson.

THIS IS WHAT I KNOW ABOUT LONDON

THIS IS WHAT I WOULD LIKE TO
KNOW ABOUT LONDON

THIS IS WHAT I HAVE LEARNT
ABOUT LONDON IN TODAY'S LESSON

1.

2.

3.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.2 LONDON FACT SHEET



The Thames is the longest river in England. It is 215 miles from source to mouth.



London councils collect 4 million tonnes of rubbish each year.



3.3 million Londoners are Black and Minority Ethnic, 4.9 million are White.

London has four World Heritage Sites: the Tower of London, Maritime Greenwich, Westminster Palace and Kew's Royal Botanic Gardens.

In May 2013 the unemployment rate in London was 8.5%, that's 368,000 people out of work.

The Metropolitan Police has over 100,000 followers on its Twitter account.



There are 17 city farms in London and 30,000 people rent allotments to grow fruit and vegetables.



London's population was 8.17 million in 2011. It is forecast to exceed 9 million by 2021 and to be almost 10 million by 2031.

Each Londoner uses on average 167 litres of water per day.



Over 600,000 adults in London have no qualifications.

85% of UK fashion designers are based in London.

The hottest temperature ever recorded in London was 38.1°C in August 2003.



The Shard at London Bridge is the tallest building in the European Union with 72 storeys.

770,443 crimes were committed in London in 2012/2013 – down 5.5% on the previous year.



There are around 1.4 million disabled people in London.

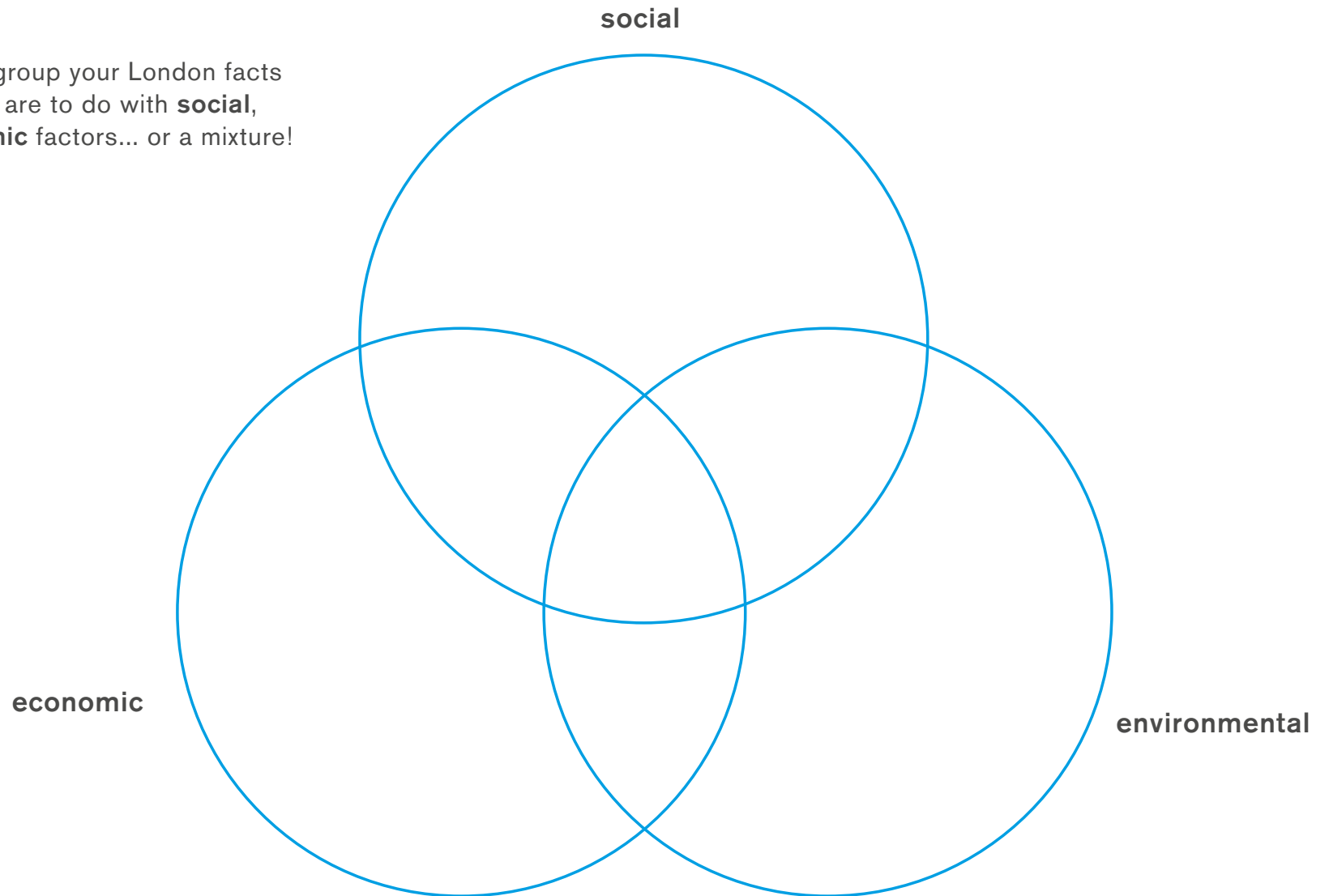


LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.3: GROUPING YOUR FACTS



Use this Venn diagram to group your London facts according to whether they are to do with **social**, **environmental** or **economic** factors... or a mixture!



LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4: CHARACTER CARDS



CHARACTER CARD 1



Hi we are a family with an animal mad little boy who would love to visit London Zoo (2883) and the London Aquarium (3079) on our day out. Can you suggest somewhere we could have a picnic in between?

We are bringing a buggy so we'll need step-free access from the street to the station.

Tasks

- 1 Locate the two places the family would like to visit on your map and mark them with suitable symbols. Add a key for your symbols.
- 2 Find a possible place for the family to have a picnic and work out a four figure grid reference for it.
- 3 Use the website www.tfl.gov.uk/journeyplanner to work out the routes for the journeys between each place.

To do this, you will need to work out which station or bus stop is closest to the place being visited. You can either look at the map, or type the place in the 'From' or 'To' box.

Remember that the family needs step-free access between the street and the station because they will have their buggy with them.

Record all your findings in the itinerary on the next page.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



Itinerary: Character card 1

1 Key – complete the table below with details of the places the family will be visiting.

SYMBOL	NAME OF PLACE BEING VISITED	4 FIGURE GRID REFERENCE	DESCRIPTION OF ITS LOCATION IN LONDON
	London Zoo	2883	
	London Aquarium	3079	

2 Explain why you chose this picnic spot.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



Itinerary: Character card 1

3 Transport routes

	TRANSPORT, ROUTES AND STATIONS/STOPS USED	APPROXIMATE LENGTH OF JOURNEY (MINS)
London Zoo to picnic spot		
Picnic spot to London Aquarium		

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



CHARACTER CARD 2



I'm studying textiles so I'd like to visit the fashion galleries at the Victoria and Albert Museum (270792), and then get some inspiration for new fabric prints at the Tate Modern (320805).

I'd ideally like to visit Buckingham Palace, too, if I have time, but I'm not sure where it is or whether it would fit in with my travel between the two places, so if you could work that out for me I'd be really grateful.

Tasks

1. Locate the two places the student would like to visit on your map and mark them with suitable symbols. Add a key for your symbols.
2. Locate Buckingham Palace on your map and give a six figure grid reference for it.
3. Use the website www.tfl.gov.uk/journeyplanner to work out the routes for the journeys between each place.

To do this, you will need to work out which station or bus stop is closest to the place being visited. You can either look at the map, or type the place in the 'From' or 'To' box.

Remember that the student would like to know if it is possible for her to visit Buckingham Palace as well as the other places. You have to work out which order she should visit the places in, as well as the routes she should take. You should allow her an hour and a half at each place.

Record all your findings in the itinerary on the next page.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



Itinerary: Character card 2

1 Key – complete the table below with details of the places the student will be visiting.

SYMBOL	NAME OF PLACE BEING VISITED	6 FIGURE GRID REFERENCE	DESCRIPTION OF ITS LOCATION IN LONDON
	Victoria & Albert Museum	270792	
	Tate Modern	320805	
	Buckingham Palace		

2 Itinerary – fill in the places being visited in the best order with times and routes.

PLACE VISITED	TIME OF ARRIVAL	TIME OF DEPARTURE	HOW TO GET THERE

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



CHARACTER CARD 3



I've got a job interview at Canary Wharf (375804) at 9.30am in the morning and I've got tickets to the Chelsea match at Stamford Bridge (255775) at 7.45pm in the evening but I'd like something to do during the afternoon.

I like sport and history, and I quite like the idea of a boat trip down the Thames. Can you suggest anything? It would also be great to find somewhere I might be able to get a bite to eat before the match.

Tasks

1. Locate the two places the student needs to visit on your map and mark them with suitable symbols. Add a key for your symbols.
2. Study the map for suitable places for the interviewee to visit during the afternoon. Mark these on the map and add them to your key.
3. You also need to find somewhere that he is likely to be able to have a meal. Again, add this to your map and key.
4. Use the website www.tfl.gov.uk/journeyplanner to work out the routes for the journeys between each place.

To do this, you will need to work out which station or bus stop is closest to the place being visited. You can either look at the map, or type the place in the 'From' or 'To' box.

Record all your findings in the itinerary on the next page.

LESSON 1: GETTING TO KNOW OUR CITY

RESOURCE 1.4 CONTINUED



Itinerary: Character card 3

1 Key – complete the table below with details of the places the student will be visiting.

SYMBOL	NAME OF PLACE BEING VISITED	6 FIGURE GRID REFERENCE	DESCRIPTION OF ITS LOCATION IN LONDON
	Canary Wharf	375804	
	Stamford Bridge	255775	

LESSON 2

A GEOGRAPHICAL HISTORY OF LONDON



THE BIG IDEA

How London came to be the city it is today.



LESSON OBJECTIVES

All students will be able to describe the growth of London as a city, in terms of both its size and population.

Most students will be able to explain the reasons for this growth, in terms of both the physical location and history of London.

Some students will be able to identify the problems associated with an increasing population, and to consider possible solutions to these problems.

Key words: Urbanisation, settlement, population change, ethnic diversity, migration, inequality, poverty, flood risk, flood protection.



RESOURCES

- ♦ **Resource 2.1:** Choosing a site for settlement mind map (main 1)
- ♦ **Resource 2.2:** Living graph activity resources (main 2)

YOU WILL ALSO NEED:

- ♦ Map of London (main 1)
- ♦ Access to modern and historical maps of London – see plenary on page 29 for details)

LESSON 2: A GEOGRAPHICAL HISTORY OF LONDON

SETTING THE SCENE

Roman invasion

London was founded by the Romans shortly after their invasion of Britain in AD43. London's geography made it an ideal location for a settlement. The River Thames provided a water supply for drinking, cooking, washing and watering animals, and was also deep and wide enough for a port to be established and for sea bound vessels to pass through, enabling imports and exports to be traded with other countries. Its location on the floodplain of the Thames also meant that soils were fertile for farming, and that the land here was relatively flat.

One of the first things the Romans did was to bridge the Thames, linking areas to the north and south of the river, again for trade and communications. The site also provided good features for defence: the meander in the River Thames for visibility and to slow down potential invaders and the surrounding relief (the North and South Downs), which also provided some shelter. The natural vegetation of south east England at the time would have been mixed woodland, and again this was attractive to settlers because it provided fuel and a food source through hunting.



RECONSTRUCTION DRAWING OF LONDINIUM C 200AD (DETAIL)
Alan Sorrell © Museum of London

Spectacular expansion

During the course of this lesson, students focus on population change and urbanisation in London between 1800 and the present day. This was a period of rapid growth for the city. The Industrial Revolution transformed the city's transport systems and created employment for thousands in the docks and factories of the East End, and the city's sewer system, finished in 1875,

improved the health of Londoners and put an end to cholera epidemics. As a result, the population of the city increased from around 1 million in 1800 to its all-time peak of 8.6 million people in 1939. With this came geographical expansion into the surrounding countryside (the suburbs), particularly in the interwar period, when further transport improvements, particularly the tube, and increased car ownership meant that people could travel greater distances to work. The Green Belt was established in 1952 to prevent urban sprawl and protect open spaces.

Downturn

However, industrial change and mechanisation were also responsible for a downturn in London's fortunes in the 1960s and 1970s, when the introduction of large container ships meant that the London Docks were no longer suited to ship-bound vessels. This resulted in massive unemployment and the population of the recession-hit city went into decline as people moved elsewhere to find work. In 1983 the population of London reached its lowest point since the 1900s.

Regeneration

London needed to reinvent itself, and in the 1980s, the banking and finance sectors began to take off. The London Docklands Development Corporation was responsible for redeveloping and rebranding the derelict docks as a new business and finance centre. Canary

Wharf was built in 1987, and in 1994 the opening of the Channel Tunnel helped to connect London with Europe and the rest of the world. By 1999, banking and financial services accounted for 22% of London's economy.

The changes to London's industry and economy resulted in changes to the city's landscape. Former industrial sites have been redeveloped in a similar way to the docks – most recently the site of the Olympic Park in Stratford. The skyline of the city is constantly changing with new skyscrapers added to the financial sectors of the city and Docklands. In the plenary, students will investigate historical land use change in their local area.



ST KATHARINE DOCKS

LESSON 2: A GEOGRAPHICAL HISTORY OF LONDON

LESSON PLAN

STARTER

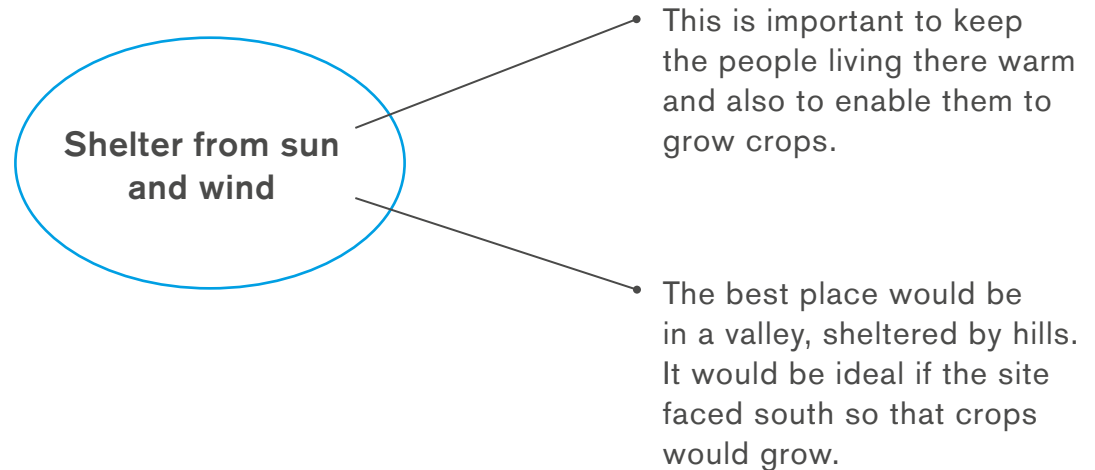
Introduce the concept of urbanisation by showing the living graph in Resource 2.2 with facts about how London's population has increased. Students work individually and as a class using the 5Ws format to structure their geographical questions about the patterns they see.

MAIN ACTIVITY 1

Why did London become our capital city?

Ask students, working individually or in pairs, to imagine they are Romans in AD43 looking for a site to build a new settlement in England. Using the mind map in Resource 2.1, they should write in the ovals the resources or environmental features that would be important when considering a site for settlement – things that would support the survival of the people living there.

Explain that the arrows extending from the ovals are for them to note down 1) why they are important and 2) the places where they might find these things.



Other possible answers are listed in the table on the next page.

Differentiation opportunities

To differentiate this task, you could complete the ovals for students, asking them to suggest the reasons and ideas.

The second part of the task is to use the map of London to identify and label (higher ability students can annotate) the factors that meant it was a suitable site for a settlement.

IMPORTANT FACTOR TO CONSIDER	REASON	WHERE IT MIGHT BE FOUND
Water supply	For drinking, washing, cooking, watering crops and animals	A river, lake or spring
Building materials and fuel	For building houses and tools, etc. For burning to cook and create heat and power	A woodland
Fertile soil	To grow crops	Fertile soils are usually found in valleys as sediment deposits from rivers contain minerals and nutrients. Floodplains are particularly fertile
Bridging (or fording) points	To be able to cross the river for accessibility and to expand the settlement	Places where the river is narrow enough for a bridge or ford to be feasible
Dry land	So that the settlement does not flood	A place that is slightly above sea level or elevated above the flood plain
Trade routes	To import and export goods	Inland via road networks and abroad via the sea (or a navigable river to the sea)
Defence	To protect the population from enemy attacks	A hill top for good visibility or a meander in the river to slow the enemy down
Flat land	To build houses and graze livestock	Flat land is often found in the valley bottom or on the floodplain of a river
Food supply	To feed the population	Woodlands are often home to wild animals and birds that can be hunted for food

Extending the activity

Use the Nottingham University Institute for Name Studies website (<http://kepn.nottingham.ac.uk/map/place>) to research the origins of local place names and record what this can tell us about the history of the local area.

Study a geological map of London (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>) to investigate rock and soil types and their links to settlement.

MAIN ACTIVITY 2

Living graph

Provide pairs of students with Resource 2.2, a graph showing population change in London between 1800 and the present day, and a timeline of statements relating to the history of the city at this time. They have to select the most relevant statements from the list, using them to answer the questions about the changes in population shown on the graph. Finally the students have to predict the future changes in London's population.

Differentiation opportunities

The number of statements given to students to add to their graph can be changed according to ability. Differentiated questions provided.

PLENARY

Spot the difference

Students work on their own to study historical and current maps of their local area, identifying and attempting to explain local changes in land use, drawing on their knowledge of the city as a whole.

Two main options for doing this include:

1 Obtain and print off paper versions of current and historical maps of the area

- ♦ Historical maps can be purchased from the Ordnance Survey website (www.ordnancesurvey.co.uk) and also from the Old-Maps website (www.old-maps.co.uk). Alternatively, you can print limited areas for free from the websites listed in 2 below.

- ♦ Current digital OS maps can be downloaded free from the Ordnance Survey OpenData service www.ordnancesurvey.co.uk/oswebsite/products/os-opendata.html The OS Street View map is particularly good for the London area, giving detailed coverage: www.ordnancesurvey.co.uk/oswebsite/products/os-streetview/index.html

2 Compare current and historical maps online

- ♦ Historical and current maps can be compared online on the website www.ponies.me.uk/maps/osmap.html.
- ♦ Some London councils also have historical mapping services on their website, for example the Southwark website: http://maps.southwark.gov.uk/connect/southwark.jsp?mapcfg=Historical_Selection&tooltip=Hist_tips

Homework ideas

Our stories

Ask students to write questions and then interview relatives or friends who have lived in the local area for some time about changes that they have seen during their lifetime.

Assessment opportunities

Revisiting learning outcomes

Targeted questions

Confidence checks (1-5 fingers)

Peer assessment

Ongoing AfL through classroom circulation and one-to-one feedback

Assessment of Main 2 extended questions and spot the difference exercise.

Other suggestions

Two maps linked to the history of London can be investigated as an extension to the lesson:

John Snow's cholera map of Soho

This was the first use of geographical data to explore health issues in London. Dr Snow used mapping to identify a water pump responsible for a concentration of cases

of cholera and was able to not only prevent the further spread of the disease, but also change the way people thought cholera was spread – through water rather than through the air. (www.arcgis.com/home/webmap/viewer.html?webmap=34d9f29cbc514837b5979e08481ffcd3)

The Cholera and the Thames website has an informative Dr John Snow game that students can play to learn about Dr Snow's work and how he investigated the spread of cholera in 1854: www.choleraandthethames.co.uk/education-resources/dr-john-snow-game/

The Bomb Sight website

The Bomb Sight website can be used to investigate the impact of WW2 bombing on London, including the local area. Students can compare these maps with current OS maps of the local area, identifying areas of post-war infilling and different land uses in previous bomb sites. (www.bombsight.org)

FURTHER READING

City Timeline

www.cityoflondon.gov.uk/things-to-do/visiting-the-city/archives-and-city-history/city-history/Pages/city-timeline.aspx

Museum of London

www.museumoflondon.org.uk

Museum of London Docklands

www.museumoflondon.org.uk/docklands/

A Brief History of London

www.localhistories.org/london

Twentieth Century London

www.20thcenturylondon.org.uk

170 Years of Industrial Change across England and Wales

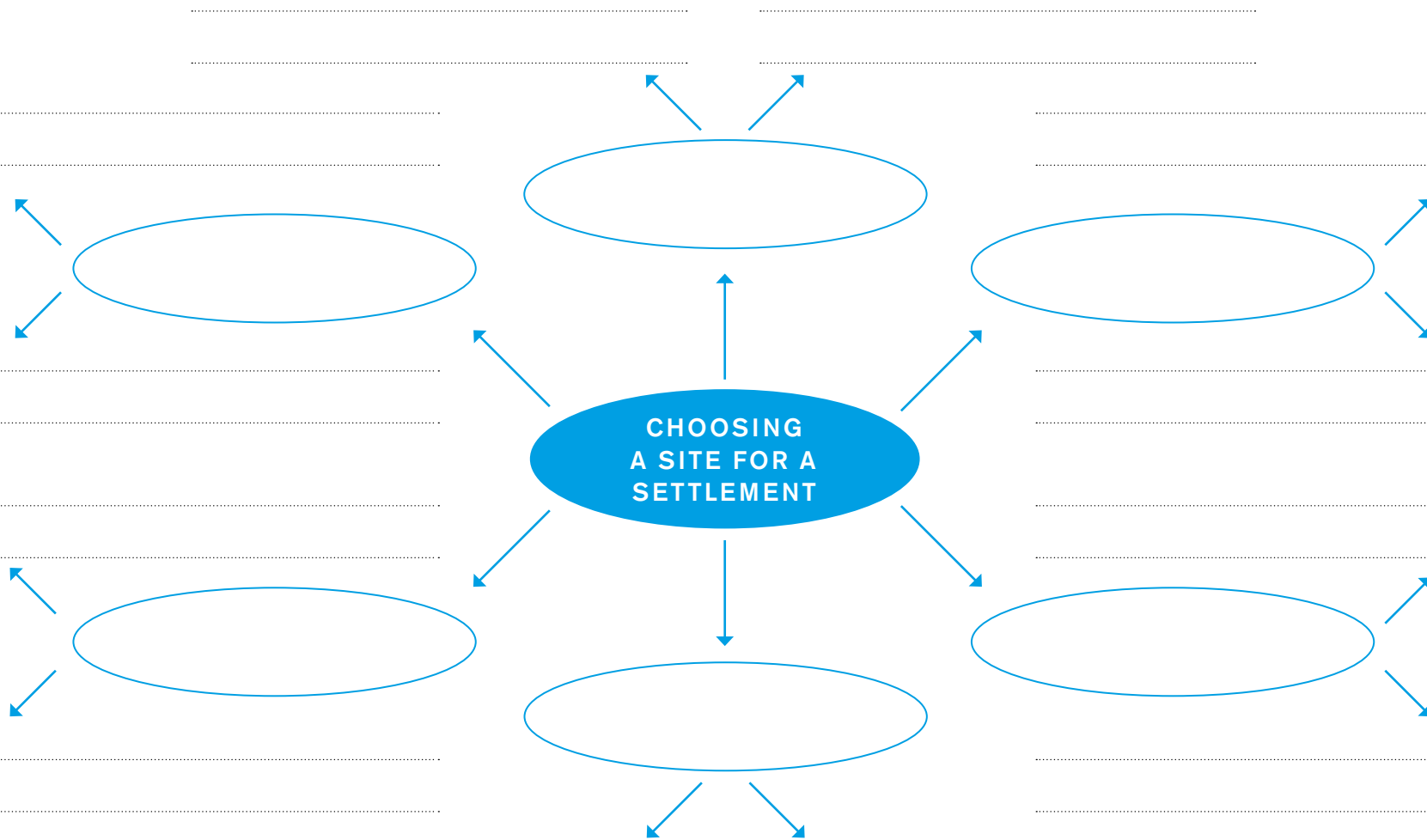
www.ons.gov.uk/ons/rel/census/2011-census-analysis/170-years-of-industry/170-years-of-industrial-changeponent.html

Discovering Britain

www.discoveringbritain.org/walks/region/greater-london/

LESSON 2: A GEOGRAPHICAL HISTORY OF LONDON

RESOURCE 2.1: CHOOSING A SITE FOR A SETTLEMENT – MIND MAP

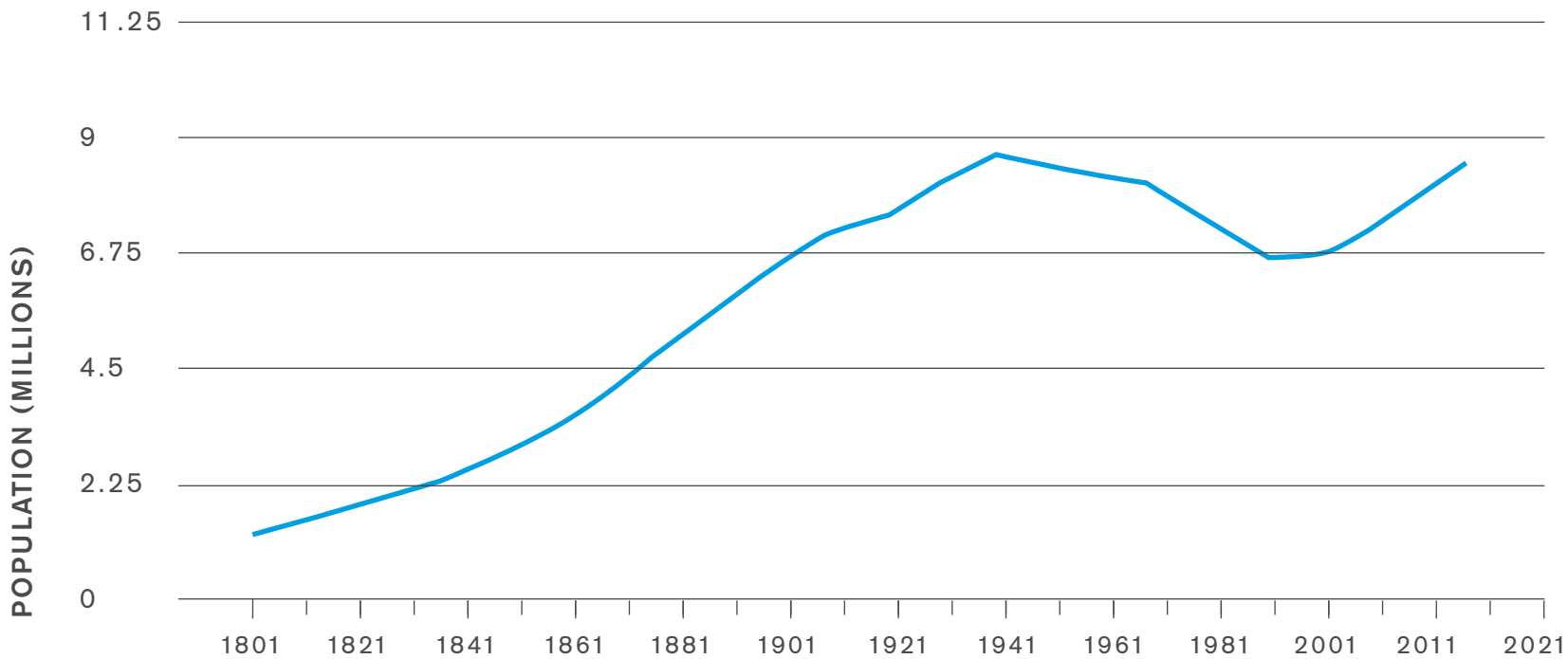


LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?

RESOURCE 2.2: LIVING GRAPH



Population of London 1800-2011



LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?



RESOURCE 2.2: A TIMELINE OF LONDON: 1800 – PRESENT DAY

1800	London becomes the world's largest city.
1836	The first railway line and station (London Bridge) are built in the city.
1875	London's sewage system is completed.
1914–18	124,000 young men from London are killed during World War 1.
1920s–30s	London grows as improvements in transport and increased car ownership mean that people can travel in from the suburbs to work.
1939	London's population reaches an all-time peak of 8.6 million.
1940–1	World War 2 bombs kill around 20,000 people in London.
1950s	The London Docks employ 30,000 workers.
1960s–70s	The London Docks start to go into decline as they are not suited to new large container ships and as countries start trading elsewhere.
1970s	Recession in London forces many companies to leave the city.
1986	The city's banking and finance industries start to take off.
1987	Canary Wharf is built.
1994	The Channel Tunnel opens, linking London directly with Europe.
1999	Banking and financial services account for 22% of London's economy.
2012	The Shard opens.

LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?

RESOURCE 2.2: QUESTIONS



You have been given a graph which shows the changing population of London between 1800 and the present day.

- 1 **Fill in the gaps below** using the words in the box to describe how the population of London changed during this time.

Between _____ and _____ the population of London _____. In 1939 it reached its highest population ever, of over _____ million people. After this peak the population _____ until the _____, when it started to _____ again. In 2011 the population of London was _____ million people.

1939	1800
decreased	increased
8.1	8.6
1980s	increase

Now read through the Timeline of London: 1800 – the present day. The timeline contains facts about London's history during the same period.

- 2 Choose **three** statements that you think best explain the changes in population you've described above and stick them on your graph in the correct place.

LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?

RESOURCE 2.2: QUESTIONS CONTINUED



- 3 Number your statements 1–3 and fill in the table below to explain how each statement can help you to understand the changes in population shown on the graph.

STATEMENT	HOW DOES THIS STATEMENT HELP ME TO EXPLAIN THE CHANGING POPULATION OF LONDON?
1	I chose this statement because it tells me that:
2	I chose this statement because it tells me that:
3	I chose this statement because it tells me that:

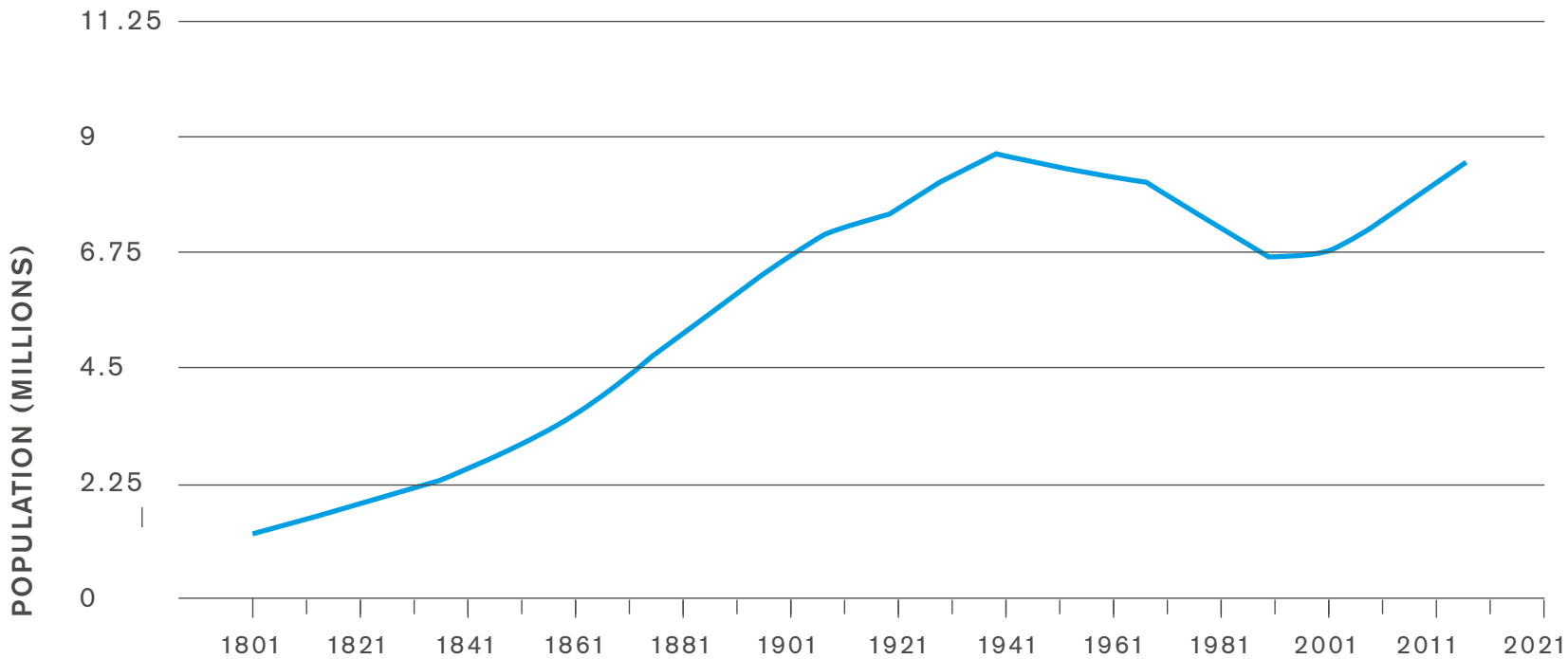
LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?

RESOURCE 2.2: QUESTIONS CONTINUED



4 Complete the graph below to show what you think will happen to the population of London over the next 100 years.

Population of London 1801–2111



LESSON 2: HOW HAS LONDON'S POPULATION CHANGED OVER TIME?

RESOURCE 2.2: QUESTIONS CONTINUED



5 Complete the following paragraph:

I think the population of London will **increase/decrease** over the next 100 years.

I think this because:

Another reason is that:

LESSON 3

WHO LIVES HERE?



THE BIG IDEA

Exploring London's ethnic diversity



LESSON OBJECTIVES

All students will be able to understand that London is an ethnically diverse city and contribute their own family stories.

Most students will be able to describe and start to explain historical and current patterns of ethnic diversity.

Some students will be able to apply their knowledge of ethnic diversity in London to the local area, drawing conclusions as to whether as a class, they are representative of London as a whole.

KEY WORDS

Urbanisation, settlement, population change, ethnic diversity, migration, inequality, poverty, flood risk, flood protection.



RESOURCES

- ♦ **Resource 3.1:** Group roles sheet (main 2)
- ♦ **Resource 3.2:** Who lives here? Investigation task sheet (main 2)
- ♦ **Resource 3.3:** Matrix for key facts (main 2)
- ♦ **Resource 3.4:** Weblinks to information sources for investigation task (main 2)

YOU WILL ALSO NEED:

- ♦ Twitter Tongues map <http://twitter.mappinglondon.co.uk/> (starter)
- ♦ Blank world map, Post-it notes (main 1)
- ♦ Map of London's most common surnames (main 2) <http://names.mappinglondon.co.uk/>

LESSON 3: WHO LIVES HERE?

SETTING THE SCENE



THE BRICK LANE JAMME MASJID

Built as a Huguenot church, it became a Wesleyan Methodist chapel, then the Great Synagogue and finally the East London Mosque in 1975.

City of diversity

Migration in London has a long history. Since the city was founded by the Romans people have arrived here as settlers, invaders, economic migrants seeking a better quality of life, or refugees fleeing war or persecution. Immigrants have influenced the geography, economy, landscape and culture of London.

Today London is one of the world's most ethnically diverse cities; there are more languages spoken in London than in any other city in the world – over 300 languages and dialects in our schools. The city is also the most ethnically diverse area in England and Wales: fewer than half of Londoners (45% or 3.7 million people) are from the White British ethnic group, compared to 80.5% in England and Wales as a whole. For hundreds of years people have migrated to London from across Great Britain and around the world.

Waves of immigration

In the late 16th and early 17th centuries thousands of Huguenots (members of the Protestant Reformed Church of France) fled France and settled in other parts of Europe including London. At the time, Protestants faced prosecution under the rule of King Louis XIV. Many Huguenots settled in the East End of London as they arrived by boat. They were skilled in weaving, especially silk weaving, establishing successful businesses in the area of Spitalfields (eg Petticoat Lane).

Significant Irish immigration to London took place over three centuries (18th, 19th and 20th centuries). Thousands of Irish immigrants came in search of work and a better life. In the 18th century, Irish immigrants

found work as builders, in textile industries and as coal heavers. A wave of Irish immigration followed the 1840s famine in Ireland. By this time there was plenty of work to be found in the docklands, on the railways and canals. According to the 2011 census, there are approximately 176,000 people of Irish origin living in London.

London also attracted migrants from Britain, including Wales and Scotland. The Honourable Society of Cymmrodorian was founded in 1751 to provide assistance to Welsh families who had moved to London in search of livelihoods (www.cymmrodorion.org/our-history). The Caledonian Society of London was established in 1837 and dedicated to advancement of Scottish national and philanthropic interests. Both nations have London-based rugby clubs in the form of London Scottish Football Club and London Welsh. Today, thousands of Londoners have Welsh and Scottish heritage.

From the middle of the 18th century Jewish people settled in London over the next two centuries. There was a wave of Jewish migration from central Europe following the collapse of the revolutions in 1848. And, between 1870 and 1914 some 120,000 Jews arrived in London fleeing persecution in Poland and Russia, but also job-seekers from Holland. Many settled not far from their port of entry, the docklands, including Whitechapel, Mile End, Stepney, Poplar and Hackney. They worked in sweatshops, manufacture, street trading and



STEEL DRUMS AT THE NOTTING HILL CARNIVAL, 1997

© Museum of London

jewellery making.

The Caribbean community

Caribbean immigrants started arriving in London as early as the 17th century, soon after colonies were established in the region. Some were brought to London during the slave trade, others came as seamen, labourers and domestic servants. In 1948 the Nationality Act gave British citizenship to members of the Commonwealth. At this time there was great need for rebuilding in London following the Second World War and recruitment campaigns encouraged people from the Caribbean (as well as India and Pakistan) to travel to the UK. 125,000

Caribbean immigrants arrived in the country between 1955 and 1962. In London, key areas for Caribbean settlement were Notting Hill, Tottenham and areas of South London such as Brixton. As well as construction and manufacturing, many immigrants took on semi-skilled work in the public sector, for example in hospitals, transport and on the railways. They faced discrimination and often poverty. Today, subsequent generations of Caribbean people are successful in business, sport, politics and public life, and make a large contribution to London's social and cultural life.

The Bangladeshi community

Bangladeshi immigrants – mainly men from the Sylhet region of Bangladesh – started arriving in the capital in the 1950s and 1960s, in search of employment. They were later joined by their families. Many more arrived in the 1970s to escape the conflict between West Pakistan and East Pakistan (which became Bangladesh). Initially, they took on low-paid unskilled jobs, for example in factories and the textile industry. Later, they moved into the restaurant business, and established banks and shops in Brick Lane and the surrounding area. Today, subsequent generations of Bangladeshi people are well established in East London, particularly Tower Hamlets, Westminster, Camden and Newham. There are now more than 150,000 Bangladeshi people living in London and they make a significant contribution to political, social and cultural life. Many are now employed in the hotel, catering, textile and printing industries, although unemployment rates are high among the population.

The Polish community

Polish immigrants started arriving in London in the 18th century, escaping religious and political persecution. Others arrived as economic migrants. They tended to work as tailors, shoemakers, tobacconists and printers. Many stayed after the Second World War when Poland was under the influence of the communist Soviet Union. In the 1950s, there were around 33,000 Poles living in London, concentrated mainly around Ealing, Hammersmith, Acton and Balham. In 2004 Poland joined the European Union, allowing the free movement of workers to the UK. One million Poles have arrived in the UK since then, motivated by low wages and high unemployment in Poland. Although many have now returned home, there are still 148,000 Polish people living in London. Often skilled workers, many found that their qualifications weren't recognised in the UK so took on work in unskilled jobs or in the manual labour sector.

Reference:

The East End: Four Centuries of London Life
Palmer A. (2000) John Murry.

LESSON 3: WHO LIVES HERE?

LESSON PLAN

STARTER

Twitter map stimulus: the 'yes no' game

Show the class the *Twitter Tongues* map. Working as a class, ask students to guess what the map shows (it shows the language of messages tweeted in London during the summer of 2012). They are allowed one question each, which they write on whiteboards at the start of the activity. The only possible answers to their questions are yes or no.

MAIN 1: FAMILY STORIES

Ask students, individually or in pairs, to share their own experiences using three different coloured Post-it notes and a large world map. On the first Post-it they should write the country in which they were born, on the second they should write the country in which their parent(s) were born and on the third they should write the country in which their grandparent(s) were born. Ask them to stick the Post-its on the world map, and discuss any patterns.

Extending the activity:

Students could use Google Maps to create an annotated map explaining why certain places are important to their own and their family's identity.

MAIN 2: WHERE DO LONDONERS COME FROM?

Divide the students into six differentiated groups and show them the map of London's most common surnames. Ask students to carry out a think, pair, share activity to think about what the map shows.

Allocate each group one ethnic community and hand out the corresponding Who lives here? Investigation task sheet (Resource 3.2) and ask them to research answers to the questions posed, using the sources of information provided. (Links to information sources are set out in Resource 3.4 – provide hard copies to students, or the weblinks).

Allocate each student in the group one of the group roles, handing out the Group role sheet, Resource 3.1, which explains the roles.

Ask each group to produce a six slide Powerpoint presentation, to be presented in turn to the rest of the class. As each group presents, ask the rest of the class to record key facts by completing the matrix provided in Resource 3.3.

Questions that can be asked following the presentations include:

1. Why might the population still be living in the same area?
2. Why might the population have moved across London?
3. Why do many people of the same nationality or religion choose to live together in London? Why do some people choose not to stay with a group of common nationality or religion?

Differentiation opportunities

The questions are the same for each group, but the information sources provided vary in their complexity as set out below:

Polish	Information sources for higher ability groups
Caribbean	Information sources for middle ability groups
Bangladeshi	Information sources for lower ability groups

Extending the activity:

This activity can be extended to include other groups, for example the Irish and Jewish populations of London. Sources of information are suggested in Resource 3.4.

PLENARY

Are we representative?

Return to the map of London surnames. Carry out a class survey (or use school data if available) and all discuss the extent to which the class is representative of London as a whole.

Encourage students to critique the value and usefulness of the map. What does it show us? And importantly, what doesn't it show us?

Homework idea

Mapping activity:

Students map the ten most common surnames in the school and draw comparisons between their map and the map of London's most common surnames studied in the Main 2 task, deciding whether their class patterns are representative of London as a whole.

Independent research task:

Investigating ethnic diversity in the local area. Students select one ethnic/religious group and research the origins and historical reasons for the migration of this group of people to the area. Research can be internet based, library or museum based, or personal story based. It could also involve individual fieldwork (see local high street survey visit suggestion below).

Assessment opportunities

Revisiting learning outcomes

Targeted questions

Confidence checks

Self-assessment of group work task

Assessment of plenary outcomes (discussion and questioning) and independent research task homework

Other suggestions

Study the population pyramids of London and the UK as a whole to describe and attempt to explain the age structure of people living in London (www.ons.gov.uk/ons/interactive/vp2-2011-census-comparator/index.html). Compare population pyramids over time and in different boroughs of London to identify and attempt to explain patterns and changes (including changing birth and death rates, ageing population). London population pyramids, including for individual boroughs, can be found on the London Data website: <http://data.london.gov.uk/datastorefiles/visualisations/atlas/2011-pyramids/atlas.html>.

FURTHER READING

Museum of London Pocket Histories Where do Londoners come from? London's communities 1675–present

<http://www.museumoflondon.org.uk/files/7613/7052/8090/Wheredolondonerscomefrom.pdf>

Ethnicity and National Identity in England and Wales 2011

www.ons.gov.uk/ons/rel/census/2011-census/key-statistics-for-local-authorities-in-england-and-wales/rpt-ethnicity.html

London's Poverty Profile

www.londonpovertyprofile.org.uk

LESSON 3: WHO LIVES HERE?

RESOURCE 3.1: GROUP ROLES SHEET

Group leader

You are responsible for:

- ♦ Allocating tasks to members of the group so that everything gets done.
- ♦ Making sure the group completes the task on time.

Reader

You are responsible for:

- ♦ Reading the instructions for the exercise to others in the group.
- ♦ Explaining the instructions to other people in your group.

Problem solver

You are responsible for:

- ♦ Working out which resources should be used to answer each question.
- ♦ Helping the creator to decide what information should be included in the Powerpoint presentation.

Scribe

You are responsible for:

- ♦ Writing down the answers to each of the questions as they are found.
- ♦ Helping the presenter to write the script to go with the Powerpoint.

Creator

You are responsible for:

- ♦ Designing the PowerPoint presentation.
- ♦ Working with the Problem Solver to decide on the content for the PowerPoint.

Presenter

You are responsible for:

- ♦ Working with the scribe to write the presentation that goes with the Powerpoint.
- ♦ Deciding who is going to say what, and letting them know.

LESSON 3: WHO LIVES HERE?

RESOURCE 3.2: INVESTIGATION TASK SHEET



YOUR TASK IS TO INVESTIGATE THE BANGLADESHI POPULATION OF LONDON.

As a group, you need to use the resources provided to answer **six questions** about this population:

1. Are there any concentrations of this population in London?
If so, where?
2. Why did this population come to London?
3. When did they come?
4. Who came? Why?
5. Where did they settle when they arrived?
6. Are they still living in that area?

When you have found out all of the answers, you need to put together a **powerpoint presentation** to share your answers with the rest of the class.

Your teacher will allocate each group member a **role**. Make sure you follow the instructions set out for your role on the group roles sheet (Resource 3.1), but remember that each group member should be involved in researching the answers to the questions above.

Resources

This is a list of the resources you should use to answer the questions. Make sure you have a copy of each of them before you start.

- ♦ *Bangladeshi London* article
- ♦ Map of the Bangladeshi population in London
- ♦ Graph of London's population by country of birth

If you have access to the internet, you could also use the following website to help you:

<http://archive.museumoflondon.org.uk/RWWC/themes/1084/1086>

PowerPoint presentation

Your PowerPoint presentation should be made up of six slides, one for each of the questions you answer.

The rest of the class will be filling in a **matrix** while you talk, so make sure your answers are clear.

LESSON 3: WHO LIVES HERE?

RESOURCE 3.2: INVESTIGATION TASK SHEET CONTINUED



YOUR TASK IS TO INVESTIGATE THE CARIBBEAN POPULATION OF LONDON

As a group, you need to use the resources provided to answer **six questions** about this population:

- 1 Are there any concentrations of this population in London? If so, where?
- 2 Why did this population come to London?
- 3 When did they come?
- 4 Who came? Why?
- 5 Where did they settle when they arrived?
- 6 Are they still living in that area?

Your teacher will allocate each group member a **role**. Make sure you follow the instructions for your role on the **group role sheet** (Resource 3.1), but remember that each group member should be involved in researching the answers to the questions above.

Resources

This is a list of the resources you should use to answer the questions. Make sure you have a copy of each of them before you start.

- ♦ *Where do Londoners come from?* article
- ♦ *Caribbean London* article
- ♦ Map of the Caribbean population in London
- ♦ Graph of London's population by country of birth

If you have access to the internet, you could also use the following website to help you:

www.movinghere.org.uk/galleries/histories/caribbean/caribbean.htm

Powerpoint Presentation

Your Powerpoint presentation should be made up of six slides, one for each of the questions you answer.

The rest of the class will be filling in a **matrix** while you talk, so make sure your answers are clear.

LESSON 3: WHO LIVES HERE?

RESOURCE 3.2: INVESTIGATION TASK SHEET CONTINUED



YOUR TASK IS TO INVESTIGATE THE POLISH POPULATION OF LONDON

As a group, you need to use the resources provided to answer **six questions** about this population:

- 1 Are there any concentrations of this population in London? If so, where?
- 2 Why did this population come to London?
- 3 When did they come?
- 4 Who came? Why?
- 5 Where did they settle when they arrived?
- 6 Are they still living in that area?

When you have found out all of the answers, you need to put together a **Powerpoint presentation** to share your answers with the rest of the class.

Your teacher will allocate each group member a **role**. Make sure you follow the instructions for your role on the **group role sheet** (Resource 3.1), but remember that each group member should be involved in researching the answers to the questions above.

Resources

This is a list of the resources you should use to answer the questions. Make sure you have a copy of each of them before you start.

- ♦ *Why Poles Love Coming to Britain* article
- ♦ Migration Case Study: *Poland to the UK*
- ♦ Map of the Polish population in London
- ♦ Graph of London's population by country of birth

If you have access to the internet, you could also use the following websites to help you:

<http://data.london.gov.uk/datastorefiles/visualisations/atlas/2011-rate-diversity-borough/atlas.html>

(instructions for use provided)

<http://archive.museumoflondon.org.uk/RWWC/themes/1275/1197>

Powerpoint Presentation

Your Powerpoint presentation should be made up of six slides, one for each of the questions you answer.

The rest of the class will be filling in a **matrix** while you talk, so make sure your answers are clear.

LESSON 3: WHO LIVES HERE?

RESOURCE 3.3: MATRIX TO CAPTURE KEY FACTS FROM GROUP PRESENTATIONS



WHO LIVES HERE?

	BANGLADESHI	CARIBBEAN	POLISH
Where are the concentrations?			
Why did they come?			
When did they start to arrive?			
Who came?			
Where did they live when they arrived?			
Are they still living in these areas?			

LESSON 3: WHO LIVES HERE?

RESOURCE 3.4: WEBLINKS TO INFORMATION SOURCES



Information sources to provide for students (either as weblinks or hard copies)

Bangladeshi resources

1. Bangladeshi London article:
www.bbc.co.uk/london/content/articles/2005/05/27/bangladeshi_london_feature.shtml
 2. Map of the Bangladeshi population in London: www.maptube.org/map.aspx?s=DBLFGkAJLAoDURPJjApcHLHLHd
 3. Graph of London's population by country of birth:
www.londonpovertyprofile.org.uk/indicators/topics/londons-geography-population/londons-population-by-country-of-birth/
- Website: <http://archive.museumoflondon.org.uk/RWWC/themes/1084/1086>

Caribbean resources

1. Where do Londoners come from? article: www.museumoflondon.org.uk/explore-online/pocket-histories/where-do-londoners-come-londons-communities-1675present/londons-caribbean-community-after-1948/
 - 2 Caribbean London article:
www.bbc.co.uk/london/content/articles/2005/05/27/caribbean_london_feature.shtml
 3. Map of the Caribbean population in London map: <http://data.london.gov.uk/datastorefiles/visualisations/atlas/2011-rate-diversity-borough/atlas.html>
 4. Graph of London's population by country of birth: www.londonpovertyprofile.org.uk/indicators/topics/londons-geography-population/londons-population-by-country-of-birth/
- Website: www.movinghere.org.uk/galleries/histories/caribbean/caribbean.htm

Polish resources

1. Why Poles Love Coming to Britain article: www.telegraph.co.uk/news/uknews/immigration/9840059/Why-Poles-love-coming-to-Britain.html
 2. Migration case study: Poland to the UK: www.geographylwc.org.uk/A/AS/ASpopulation/GF550.pdf
 3. Map of the Polish population in London: www.maptube.org/map.aspx?s=DLHLGAYxgMEIwKXByyx
 4. Graph of London's population by birth: www.londonpovertyprofile.org.uk/indicators/topics/londons-geography-population/londons-population-by-country-of-birth/
- Website: <http://archive.museumoflondon.org.uk/RWWC/themes/1275/1197>

LESSON 3: WHO LIVES HERE?

RESOURCE 3.4: WEBLINKS TO INFORMATION SOURCES FOR INVESTIGATION TASK CONTINUED

Jewish resources

Article: www.theguardian.com/world/2013/sep/15/jews-new-sense-of-identity

Map: www.maptube.org/map.aspx?mapid=104

Website: www.visitjewishlondon.com/uk-jewish-life/demography

www.maptube.org/map.aspx?mapid=102

Irish resources

Article: www.bbc.co.uk/news/uk-northern-ireland-20821292

Map: www.maptube.org/map.aspx?mapid=102

Website: www.oldbaileyonline.org/static/Irish.jsp

Useful reference:

Palmer, A. (2000) *The East End: Four Centuries of London Life*. John Murry.

LESSON 4

A CITY OF CONTRASTS



THE BIG IDEA

London's population lives in areas that vary greatly by income, employment, housing and environmental conditions.



LESSON OBJECTIVES

All students will be able to understand that while London is one of the richest cities in the world it also has variations in income, employment, housing, health and environmental conditions.

Most students will be able to identify relationships between levels of income and other variables such as employment, health, housing type, and environmental conditions, including crime.

Some students will be able to explain the cause and effect relationships that they have identified.

Key words: incomes, health, employment, housing and environment



RESOURCES

- ♦ **Resource 4.1:** Number of Employees in London, by industry sector (Office of National Statistics)

LESSON 4

A CITY OF CONTRASTS



YOU WILL ALSO NEED:

Student access to London Datastore and/or other online data sources (main 1)

Suggested pages listed below:

- ♦ Profile of London Boroughs (population, economy, housing, environment, health, poverty, transportation, car ownership etc.) <http://data.london.gov.uk/datastore/package/london-borough-profiles>
- ♦ Distribution of Income (2012/13) (maps, wards and statistical range of income) <http://data.london.gov.uk/visualisations/atlas/gla-household-income-estimates/atlas.html>

Student access to average life expectancies mapped against tube stops (main 2)

<http://life.mappinglondon.co.uk>

LESSON 4: A CITY OF CONTRASTS

SETTING THE SCENE

WEALTH AND DEPRIVATION

London is the fifth richest city in the world, after Tokyo, New York, Los Angeles and Seoul. Gross Domestic Product per capita is the highest in Europe at 328% of the European average and is greater than that of the national economies of Belgium, Sweden and Switzerland. The city has the third highest number of billionaires of anywhere in the world (behind New York and Moscow), and is home to the world's most expensive apartments at One Hyde Park (£30 million a time, or £6,000 per square foot). The average earnings of people living in Inner London are £23,964 per year, almost £8,000 higher than the national average of £16,034.

However, this is not the full story. Considerable variation exists within London in terms of wealth. The median house price varies from £180,000 in Barking and Dagenham to £980,000 in Kensington and Chelsea (2011 prices). Six London boroughs (Hackney, Newham, Tower Hamlets, Islington, Waltham Forest and Barking and Dagenham) are in the top 10 most deprived areas in England. The city also has higher than average rates of unemployment: 8.5% (368,000 people) in May 2013, compared to 7.8% nationally. Across the capital, unemployment rates are highest in the London



boroughs of Newham and Tower Hamlets, and lowest in Sutton and Richmond. People from Black and Ethnic Minority backgrounds are more likely to be in poverty (see www.londonspovertyprofile.org.uk/indicators/groups/ethnicity/ for more on the links between poverty and ethnicity). And London's child poverty rates are higher than in any other region of the UK.

Child poverty

Child poverty can have wide ranging impacts:

- ♦ **Education:** Children living on free school meals achieve on average 1.7 GCSE grades lower than their better-off peers. Fewer qualifications can affect the child's earnings in the workplace once they leave school.
- ♦ **Health:** Babies from lower income families weigh less at birth and are more likely to die at birth or during infancy. Children living in poverty are more likely to suffer from chronic illness or disabilities.
- ♦ **Housing:** Children living in poverty are more likely to live in poor quality housing, or in temporary accommodation such as bed and breakfasts or hostels. The charity Shelter suggests that 70,000 families in England are homeless, and 1 million families live in overcrowded accommodation.
- ♦ **Lack of opportunity:** Children living in poverty are more likely to lack everyday items and be unable to participate in the same range of activities as their peers, foregoing holidays, clubs and school trips.

Employment sectors

Across the boroughs of London there are people of all levels of income and wealth who do all sorts of jobs. Alongside the extremes of wealth and poverty, the majority of Londoners are in the middle. They work predominantly in the service sector in education, health care, entertainment, servicing business and industry, tourism, hotels and restaurants, government and transportation.



LESSON 4: A CITY OF CONTRASTS

LESSON PLAN

STARTER

Is this the whole picture?

Present facts, headlines and images of London's economic success. As a class students discuss whether these show the whole picture and share their own thoughts and experiences of London.

Ask pupils what jobs they think people do in London. Share ideas and discuss why there is such a variety of job types. Show pupils the graph of Number of Employees in London, by Industry Sector (Resources 4.1).

Ask pupils which jobs are paid more and which jobs are paid less. Again, discuss why this might be the case. Also, discuss why some people are sometimes out of work, how they survive when this is the case and what the impact on their lives might be.

MAIN 1: LONDON'S VARIATION

Use the London Datastore (or other data sources listed in the resources section on page 53) to display maps showing variations in levels of income, number of jobs, housing, life expectancy and environment (eg green space).

Ask pupils to describe contrasting places/boroughs they know in London. Discuss why they are different.

Give pupils the opportunity to explore the datasets, describe patterns and note correlations between different factors.

What are the relationships between income and other variables?

Working in pairs, students can use the London Datastore to investigate the links between average income and variables such as health, crime and jobs. Ask students to set their own hypotheses. Ask them to complete an extended writing task to attempt to explain the relationships they've noticed.

Differentiation opportunities

Differentiated activities provided, in which students of different abilities investigate different variables. Scaffolding provided for extended writing task.

MAIN 2: LIVES ON THE LINE

Show the class the map of average life expectancies for every stop on the tube map (<http://life.mappinglondon.co.uk>).

Ask students, working on their own or in pairs, to choose a route or a tube line and draw a bar or line graph to show how life expectancy changes along their route. Graphs can be created using Excel, if computers are available.

Ask students to then annotate their graph with ideas to explain the changes, or questions they'd like to ask about the changes.

Differentiation opportunities

Make differentiated suggestions for routes/tube lines to investigate. Templates can be provided for graph and annotations.

PLENARY

What have you learnt?

Working on their own students use their knowledge from the lesson to complete an exit slip, writing down one thing they already knew, two things they've learnt from the lesson (revisit their questions from the starter activity), and one geographical question they'd still like answered.

Homework idea

Students create an information poster to display the findings of their investigation in Main 1, selecting key facts and figures that they have researched from the London's Datastore and/or Poverty Profile website (www.londonspovertyprofile.org.uk).

Assessment opportunities

Revisiting learning outcomes

Targeted questions

Confidence checks

Ongoing AfL through classroom circulation and one-to-one feedback

Assessment of knowledge shown in exit slip

FURTHER READING

[London Profiler](http://www.londonprofiler.org)

www.londonprofiler.org

[London's Poverty Profile](http://www.londonspovertyprofile.org.uk/)

www.londonspovertyprofile.org.uk/

[Save the Children – UK child poverty](http://www.savethechildren.org.uk/about-us/what-we-do/child-poverty/uk-child-poverty)

[www.savethechildren.org.uk/about-us/what-we-do/
child-poverty/uk-child-poverty](http://www.savethechildren.org.uk/about-us/what-we-do/child-poverty/uk-child-poverty)

[Office for National Statistics Census 2011](http://www.ons.gov.uk/census)

www.ons.gov.uk/census

[Office for National Statistics – size of firms in London](http://www.ons.gov.uk/ons/rel/regional-trends/london-analysis/size-of-firms-in-london--2001-to-2012/art-size-of-firms-in-london--2001-to-2012.html?format=print)

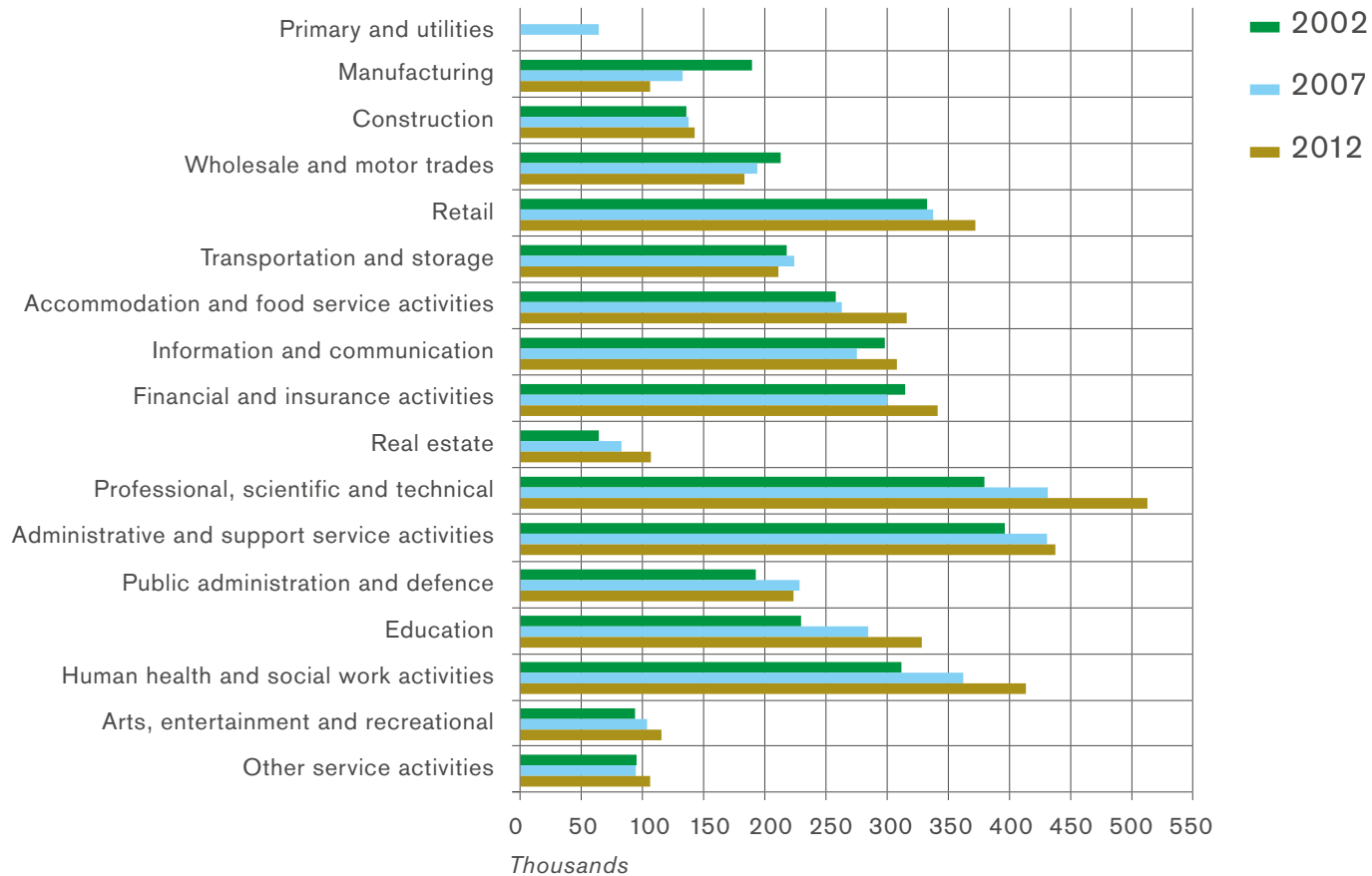
[www.ons.gov.uk/ons/rel/regional-trends/london-
analysis/size-of-firms-in-london--2001-to-2012/
art-size-of-firms-in-london--2001-to-2012.
html?format=print](http://www.ons.gov.uk/ons/rel/regional-trends/london-analysis/size-of-firms-in-london--2001-to-2012/art-size-of-firms-in-london--2001-to-2012.html?format=print)

LESSON 4: A CITY OF CONTRASTS

RESOURCE 4.1



NUMBER OF EMPLOYEES IN LONDON, BY INDUSTRY SECTOR (OFFICE OF NATIONAL STATISTICS)



LESSON 5

LONDON-ON-THAMES/MANAGING THE THAMES



THE BIG IDEA

A river running through a major city needs careful management and planning.



LESSON OBJECTIVES

All students will be able to label the key features of the River Thames, and understand the role of the Thames Barrier in protecting London from flooding.

Most students will be able to identify areas of London that are at particular risk of flooding, and explain the implications of flooding in the city.

Some students will be able to weigh up arguments for and against the replacement of the Thames Barrier, and justify their own opinion with relevant facts and figures.

Key words: flood risk, flood protection, storm surge.



RESOURCES

MAIN 2

- ♦ **Resource 5.1:** Using the Environment Agency flood risk map – a guide
- ♦ **Resource 5.2:** Using the Environment Agency flood risk map – activity sheet (differentiated)
- ♦ **Resource 5.3:** Google Earth flood risk map instruction sheet.

LESSON 5

LONDON-ON-THAMES/MANAGING THE THAMES



YOU WILL ALSO NEED:

STARTER

images and facts about the 1953 storm surge, which can be found on the Met Office website:

www.metoffice.gov.uk/news/in-depth/1953-east-coast-flood

Maps of the winter floods 2014

BBC: Mapping the floods:

www.bbc.co.uk/news/uk-26127121

Video of helicopter showing extent of flooding

www.bbc.co.uk/news/uk-26146361

MAIN 1

Map of the River Thames aerial footage of the Thames in London (per student)

MAIN 2

Animation of flood risk without the Thames Barrier

www.youtube.com/watch?v=jp4Y1HrRBD0#t=13

Student access to the Environment Agency flood risk map

<http://maps.environment-agency.gov.uk/wiyby/>

Office for National Statistics Census 2011

www.ons.gov.uk/census

MAIN 3

Suggested resources

Intergovernmental Panel on Climate Change: Sea Level Rise

www.ipcc.ch/publications_and_data/ar4/wg1/en/faq-5-1.html

How do you stop flooding?

www.bbc.co.uk/news/uk-25929644

Environment Agency (government response):

www.gov.uk/government/news/uk-floods-2014-government-response

Flooding in Surrey:

www.getsurrey.co.uk/news/surrey-news/no-flood-defence-work-staines-7010662

LESSON 5: LONDON-ON-THAMES/MANAGING THE THAMES

SETTING THE SCENE

The River Thames is the longest river in England, at 215 miles long. Its source is Thames Head, a meadow near Cirencester in Gloucestershire, and it flows 135 miles before reaching London, passing in all through nine different counties. Historically, it has played an important role in the lives of Londoners. The people of London were reliant on water from the Thames until 1582, when it started to be pumped from outside.

Open sewer

However, the river continued to be used as an 'open sewer' until the 19th century, resulting in four serious outbreaks of cholera between 1832 and 1865, and the 'great stink' of 1858 when Parliament had to be abandoned because of the smell. London's sewage system was completed in 1875, but heavy industry waste and oil continued to be discharged into the river until the mid-20th century, when the River Thames was declared 'biologically dead'.

Back from the dead

Today, the River Thames is the cleanest river flowing through a major city in the world. It is home to 125 species of fish and 400 species of invertebrates live on the muddy river banks. This transformation was the result of conservation efforts, legislation and infrastructure improvements. The River Thames is teeming with life.



You can find an illustrated map of the River Thames from source to mouth on the River Thames Path website (www.riverthamespath.co.uk).

Flood risk

One of the major challenges for London of being located on the River Thames is of course the flood risk. Fifteen per cent of the city is located on the former river floodplains, including just over half a million properties and one million people. As a result there is need for a system of floodwalls, gates and dams to protect the city from flooding.

As well as the risk of flooding linked to excess rainfall, 55 miles of the Thames (from Teddington Lock to the sea) is tidal, which brings its own challenges. In 1953 a tidal surge resulted in severe flooding of the Thames Estuary and East Coast, causing 300 deaths. A tidal surge occurs when low pressure conditions in the atmosphere cause sea levels to rise. When the extra mass of water reaches the shallow area of the North Sea just outside the Thames Estuary, the water is channelled up the River Thames, increasing water levels by 1 metre and resulting in flooding. The condition is exacerbated by heavy rain and strong northerly winds, and in 1953 this all coincided with a spring tide, when the tide levels were higher than usual anyway.

Thames barrier

After the 1953 storm surge, it became apparent that London needed protection from similar events in the future. The 1972 Thames Barrier and Flood Protection Act resulted in the construction of the Thames Barrier, which was completed in 1982 and used for the first time to protect the city in February 1983. The Barrier is formed of 10 gates. The four main gates are each 20 metres high and capable of holding back 9,000 tonnes of water. When the gates are closed, they form a solid steel barrier to prevent the flow of water upstream towards central London. Since it opened, the Thames Barrier has been closed over 100 times to protect London from surge tides, and the frequency of its closure is increasing due to sea level rise: in the 1990s it was closed 35 times, in the 2000s it was closed 80 times.



Studies suggest that the current Thames Barrier will be effective for a maximum of 50 closures each year. The Environment Agency has announced that with appropriate modification and upgrading, the barrier will be capable of providing protection until at least 2070.

2013–14 was the wettest winter on record and provided a good test of Britain's flood defences. Many flood defences worked effectively and protected thousands of homes and businesses from rising water. The Thames Barrier was closed an unprecedented number of times (over 40) during the course of the winter, preventing storm surges from reaching the city. With so much water the Thames eventually burst its banks in several places including in Oxfordshire, Berkshire and west London, especially in Staines and Egham.

LESSON 5: LONDON-ON-THAMES/MANAGING THE THAMES

LESSON PLAN – A CITY AT RISK

STARTER

Is London at risk from flooding?

Show images and facts about the 1953 storm surge. Ask students for their view on the likelihood of a flood scenario such as this happening.

Explain that 2013–14 was the wettest winter on record and provided a good test of Britain's flood defences. Explain that the Thames Barrier was closed an unprecedented number of times (over 40) during the course of the winter, preventing storm surges from reaching the city. With so much water the Thames eventually burst its banks in several places including in Oxfordshire, Berkshire and west London, especially in Staines and Egham. Display images or a map showing the extent of the flooding in London and/or play the BBC video of the route along the Thames taken on board a helicopter.

Discussing these events gives the opportunity to introduce the key concepts of the tidal Thames, flood control and the Thames Barrier.

MAIN ACTIVITY 1

The River Thames

Provide each student with a map of the River Thames. Ask students to work on their own to complete a mapping activity to identify the key features of the River Thames, including source, mouth, meander, confluence, tributary and floodplain. Show aerial footage of the Thames in London. Students then focus on this part of the river, including key London bridges.

Ask students to annotate the map with suggestions for which areas might be at most risk from flooding, giving reasons why.

Differentiation opportunities

Provide a key word list.

MAIN ACTIVITY 2

Who is at risk?

Show animation of flood risk without the Thames Barrier (www.environment-agency.gov.uk/homeandleisure/floods/117713.aspx).

Hand out Resource 5.1: Using the Environment Agency Flood Risk Map- a guide, and Resource 5.2, Activity sheet.

Ask students to work in pairs using the Environment Agency website flood mapping service to map flood risk on a map of London, annotating key sites and landmarks that are at risk of flooding, or would be without the Thames Barrier.

Ask them to suggest the social, environmental and economic impacts of flooding. Students can also use the Census 2011 website to find out the population density of areas at risk of flooding.

This activity can also be completed using Google Earth – an instruction sheet is provided.

Differentiation opportunities

Students can be provided with printed flood maps from the Environment Agency website to annotate instead of drawing the area on a map themselves.

MAIN ACTIVITY 3

The 2014 floods

Explore the extent and effects of the 2014 floods in London using maps and articles suggested in the resources section. Find out about the flood defences that are in place along the Thames and how effectively they worked during the flood. How much worse could the flooding in London have been without flood defences? Why did the Thames break its banks in some places and not others?

PLENARY

Discuss with the class their conclusions about:

- a) The function and importance of the Thames Barrier to the city of London.
- b) Which methods of flood defence (from rivers and the sea) do they think are most effective and why?

Homework idea

Complete one of the following:

Explore the difference between flooding caused by surface water runoff and groundwater.

What is river dredging? How does it work? How effective is it in reducing the risk of flooding?

Assessment opportunities

Revisiting learning outcomes

Targeted questions

Confidence checks

Ongoing AfL through classroom circulation and one-to-one feedback

Other suggestions

Two additional resources can be introduced to extend the lesson, with students given the opportunity to explore, discuss and ask geographical questions:

Explore the hidden waterways of London: subterranean rivers, underground railways and the sewage system, as represented in this 'underground' map: <http://mappinglondon.co.uk/2011/mapping-londons-underground-rivers/>

Listen to the sounds of London's rivers with this audio map: <http://now-here-this.timeout.com/2012/05/21/sound-of-the-underground-explore-this-audio-map-of-londons-rivers/>.

Students can complete the Mission Impossible task that can be found on the Royal Geographical Society (with IBG) KS3 resources website www.rgs.org/OurWork/Schools/Teaching+resources/Key+Stage+3+resources/The+geography+of+science/Flood+in+London+A+Mission+Impossible.htm

FURTHER READING

Thames Barrier project pack

http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/static/documents/Leisure/Thames_Barrier_Project_pack_2012.pdf

LESSON 5: A CITY AT RISK

RESOURCE 5.1

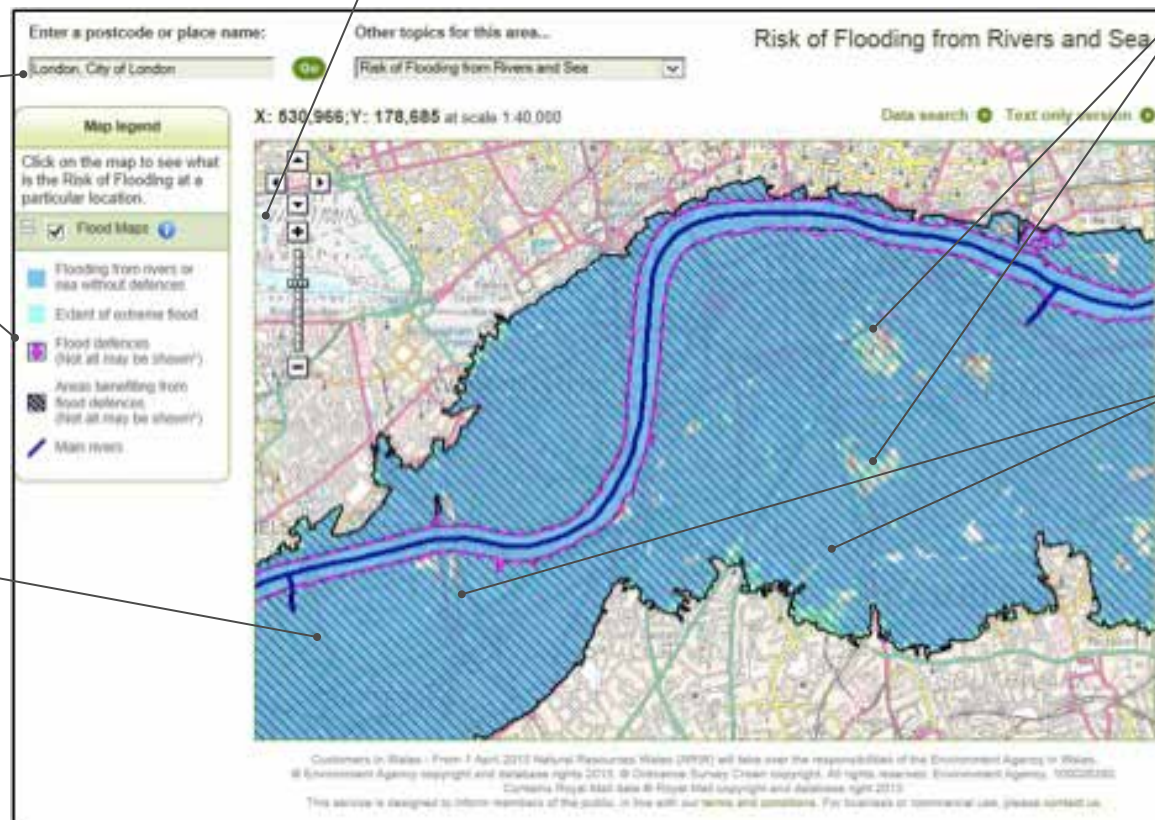
USING THE ENVIRONMENT AGENCY FLOOD RISK MAP

Use these controls to zoom in and out of the map, and to move to new areas. You can also explore new areas by clicking on the map area and holding the button down while you move the mouse from left to right.

<http://maps.environment-agency.gov.uk/wiyby>



Enter a postcode or place name



The map legend tells you whether the area is at risk from flooding with or without flood defences, and shows you where there are existing defences in place.

The blue flood area is semi-opaque, which means that you can see through it to the map underneath. This will help you to transfer the flood risk area to your own map.

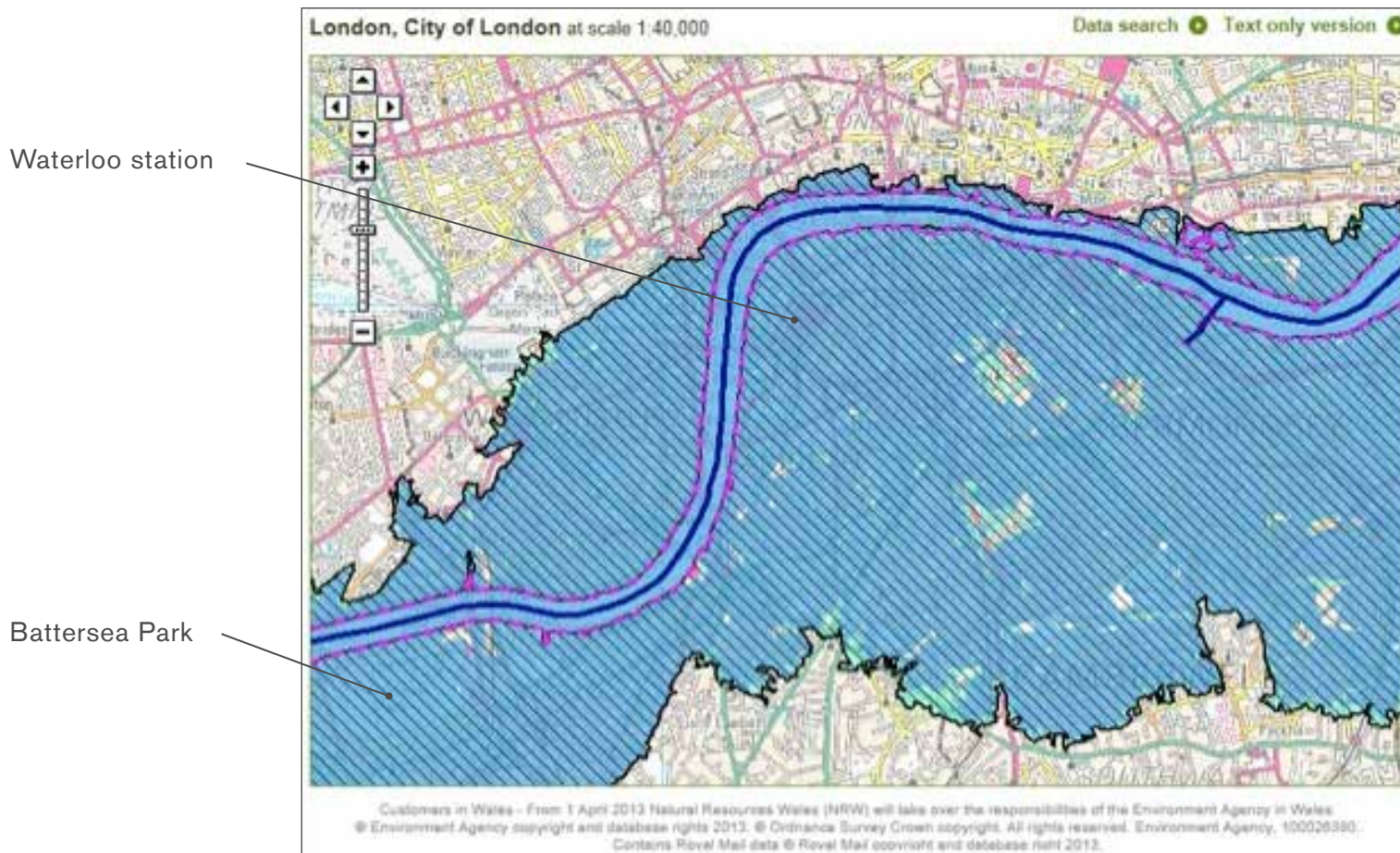
Why do you think these areas are safe from flooding?

Here you can see that a large area of central London would be at risk from flooding if it wasn't for flood defences in place. We know this because of the lines across the blue area of flooding. Flood defences along the banks of the River Thames are shown in pink, and this area is also defended by the Thames Barrier further downstream.

LESSON 5: A CITY AT RISK

RESOURCE 5.1 CONTINUED

USING THE ENVIRONMENT AGENCY FLOOD RISK MAP



Things to look out for:

Transport

(roads, stations, railway lines)

Places of interest

(sights, museums, churches)

Key services (hospitals)

Environments (parks)

LESSON 5: A CITY AT RISK

RESOURCE 5.2



USING THE ENVIRONMENT AGENCY FLOOD RISK MAP: ACTIVITY SHEET

Which places are at risk from flooding?

- 1 Using the Environment Agency Flood Risk map as a guide, draw and colour the flood risk area in central London on your own map.
- 2 Add a key and a title to your map.

You are now going to investigate the places covered by this flood risk area.

- 3 Using the map symbols key to help you, identify and label significant places that fall into the flood risk area. These might be:
 - ◆ Transport links, for example, stations or railway lines
 - ◆ Places of interest, for example sights, museums, historical buildings
 - ◆ Key services, for example hospitals
 - ◆ Environments at risk, for example parks and green spaces

What impact would this flooding have?

- 4 Now find three different coloured pens and highlight or underline your labels to show the **social**,

environmental or **economic** impacts of flooding.

For example, flooding of a station might have social and economic impacts, because people would be unable to travel, and may be unable to get to work. The rail company would also lose money with no tickets being bought.

- 5 Record and explain your findings in the table on the next page.

How do we know how many people would be affected?

- 6 Our Ordnance Survey map doesn't tell us about housing and how many people live in the areas at risk from flooding. We can find this information out using Census data. Go to www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-interactive-content/index.html and scroll down the page until you find a map called 2001 vs 2011 Census – Population and Age. Use the right-hand side of the map (2011 data) to explore the population density of the areas at risk from flooding. You can even see the proportion of people of different ages in the area by changing the variable in the drop down menu. Record your findings on the next page.

LESSON 5: A CITY AT RISK

RESOURCE 5.2: CONTINUED



USING THE ENVIRONMENT AGENCY FLOOD RISK MAP: ACTIVITY SHEET

- (a) What would be the social, environmental and economic effects of flooding in central London?
Remember to explain your answers.

SOCIAL

ECONOMIC

ENVIRONMENTAL

LESSON 5: A CITY AT RISK

RESOURCE 5.2: CONTINUED



USING THE ENVIRONMENT AGENCY FLOOD RISK MAP: ACTIVITY SHEET

(b) Describe the population density of the area of central London at risk of flooding.

(c) Which age groups are most at risk of flooding and why?

Describe the population densities of these age groups in the at-risk area.

LESSON 5: A CITY AT RISK

RESOURCE 5.3



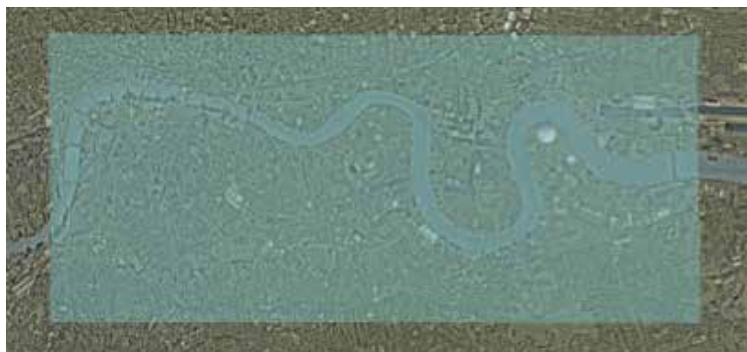
FLOOD RISK

A mapping task using Google Earth

It is possible to use Google Earth to create a flood risk map of an area. To do this, you need to be aware of the land elevation values that the program shows at the bottom of the screen when you scroll over an area. You also need to know how to create a polygon (instructions on separate sheet).

Your task is to create a flood risk map of an area of your choice. The map will show flood risk associated with a sea level rise of 0.5 metres.

- 1 Follow steps 1 to 5 of the 'How to create polygons' skills sheet. The polygon shown below covers a stretch of the River Thames in London:



When you get to step 5, choose a suitable flood colour for your polygon and set the opacity to 50%.

- 2 In the **Altitude** settings of the polygon, select the '**Absolute**' option from the drop-down menu. In the Altitude Value box type in **0.5 metres**. This will mean that your map shows the areas that will be at risk from flooding with a sea level rise of 0.5m. Click **OK**. Any land that is covered by the polygon but is over 0.5m high will now obscure the polygon, giving you a map that just shows that areas that are at risk of flooding. Zoom in to study your map in more detail.
- 3 Now add **placemarks** to your Google Earth map describing which areas and types of properties are most at risk from flooding with a 0.5m sea level rise. You can have a closer look at the area at risk using the Street View tool.

LESSON 5: A CITY AT RISK

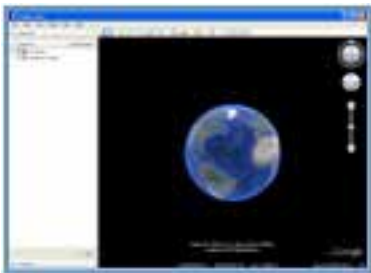
RESOURCE 5.3 CONTINUED



CREATING PLACEMARKS AND POLYGONS IN GOOGLE EARTH

Google Earth 5 has a range of useful tools that are easy and effective to use. They can be found on the tool bar at the top of the window.

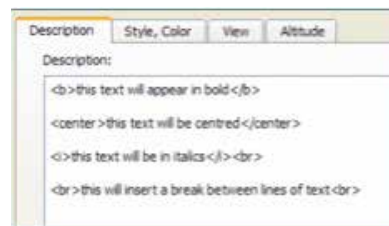
By clicking the desired tool you will initiate the process of creating personalised additions to your Google Earth 'Places'.



Placemarks



- 1 Navigate to the area on the globe you wish to create your placemark(s).
- 2 Click on the placemark tool icon to bring up an 'active' placemaker and dialogue box.
- 3 With the dialogue box open drag the placemark to the desired location. In the dialogue box name the placemark and select a placemark style by clicking the icon to the right of the name (this will remain the style for subsequent placemarks created in the same session until a different style is selected).
- 4 The description box can be used to add simple text that will appear when the placemark is clicked. The text can be formatted using some simple code (see box below).



LESSON 5: A CITY AT RISK

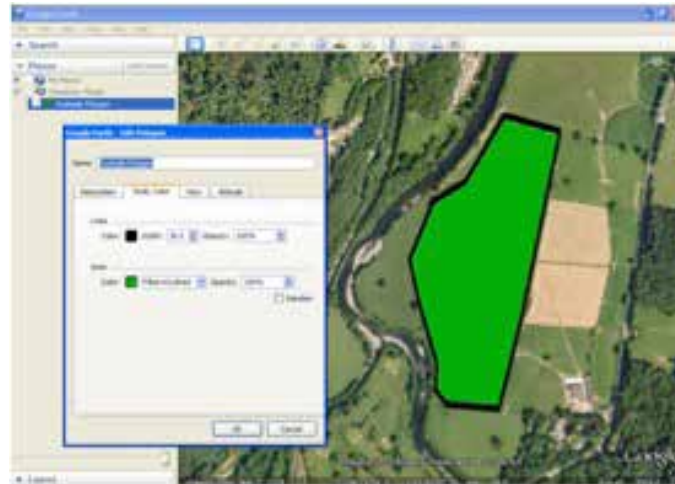
RESOURCE 5.3 CONTINUED

- 5 A photo can be added by using some further code. In the description box type in

Opening the picture with Internet Explorer gives the full file location in the address bar that can be directly copied and pasted. Specifying the pixel width makes the photo a suitable size for viewing in a placemark.



- 6 When ready click OK to shut the properties box and complete the placemark. To edit the placemark at any time right click and choose 'properties'.



Polygons

- 1 Follow steps 1 and 2 as for placemarks, just this time selecting the polygons icon.
- 2 With the properties box open left click where you would like to start to **create your polygon**, continue to left click at points around the edge of the area to complete the desired shape.



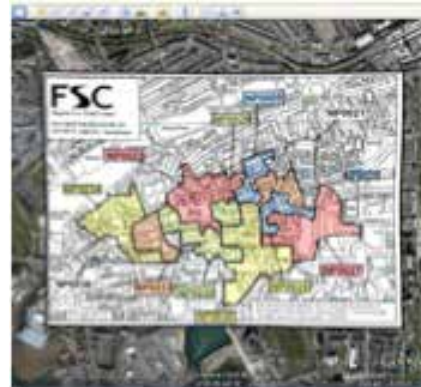
- 3 The line and fill properties can be chosen on the **'Style/Color'** tab.
- 4 For polygons that appear **flat to the ground** leave 'Altitude' as default. The polygon can be made **three-dimensional** by changing the Altitude setting to 'Relative to ground' inserting a height in metres and ticking 'Extend sides to ground'.

This can be used to create simple simulations of buildings for example, or to plot small amounts of data (also see '*Using GEGraph to create Choropleth maps*')

- 5 If you wish to **alter the shape** of a polygon the 'corner' points can be dragged by left clicking, holding and moving the cursor. 'Corner' points can be deleted by right clicking on them.
- 6 As for placemarks to **edit** a completed polygon right click on the files in the 'Places' bar, or on the shape in Google Earth, and select 'properties'.

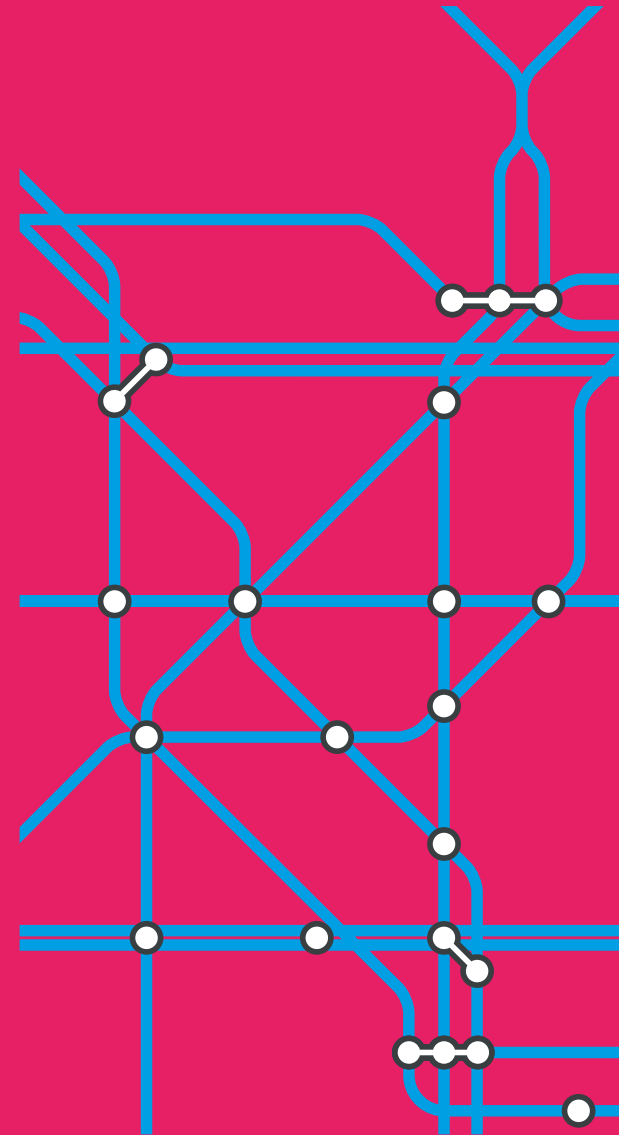
Useful tips

Polygons can be created for areas such as Output Areas by creating a Layer with the OAs shown, then creating polygons around their shape. By then turning the layer off the Output Areas are left and can be used in conjunction with GEGraph to create graphical data displays (see *Using GEGraph to create choropleth maps*).



EXPLORE

A number of potential visits in London build on the learning from the discover section, from a high street study to a visit to the Thames Barrier. Examples are provided. In addition, London Curriculum geography units: *My London* and *Managing the Urban Environment* provide structured fieldwork activities that build on the themes in this unit.



EXPLORE

VISITS AND FIELDWORK

Visits and fieldwork linked to lesson 1

The OS education resource '*Fantasy expedition*' (www.ordnancesurvey.co.uk/oswebsite/education-and-research/teaching-resources/fantasy-expedition.html) is a useful starting point for planning tourist trails around the local area, to build on one of the main themes of this lesson.

Ideas for activities that can be carried out as part of a local fieldtrip can be found on the Royal Geographical Society (with IBG) website: www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Local+learning/Local+learning.htm

Visits and fieldwork linked to lesson 2

The British Geological Survey iGeology App (www.bgs.ac.uk/igeology/) can be used out and about in the local area or further afield to explore the geology of London, for example looking for evidence of local rock types in the landscape and building materials or comparing the properties of different local rock types.

mySoil, another BGS app, can be used to identify soil types in the local area. These can be uploaded to a community-produced collection of soil types, photos and other information.



CLAPHAM HIGH STREET, 2009
Torla Evans © Museum of London

Local museums often have galleries dedicated to investigating historical change in the area.

There is information about directed and self-led visits, resources and exhibits at the Museum of London on the museum's website www.museumoflondon.org.uk/schools/

Public transport transects can be used to study changing land use (see examples).

Visits and fieldwork linked to lesson 3

A local high street survey can identify ethnic and cultural influences, investigating how the local area has been shaped by migration. Students can participate in fieldwork activities such as taking photos, creating land use maps, carrying out participant observation and using matrices to assess inclusion and exclusion, using the information they gather to answer questions about current patterns and to think about future changes. They can count how many different countries are represented in their high street, looking for any evidence that links it to other countries. This can be followed up with a mapping activity back in the classroom to locate evidence of global influences in the local area.

The Royal Geographical Society (with IBG) website includes information and resources for a fieldwork project investigating how the local area has been shaped by migration

<http://www.rgs.org/OurWork/Schools/Teaching+resources/Key+Stage+3+resources/Changing+faces+shaping+places/>

Local libraries and museums can often provide information on ethnic diversity, including both historical and current patterns. The Wandsworth Museum, for example, has a gallery which relates the Wandsworth story, including the contribution made by people from around the world who have come to the borough and left their mark on it (www.wandsworthmuseum.co.uk/exhibitions/permanent/).

Visits and fieldwork linked to lesson 4

Carry out a local area survey linked to 2011 Census data, for example looking at the link between house type/prices and evidence of crime. Fieldwork to include housing survey, estate agent house price survey, environmental quality assessment, evidence of crime and questionnaires (optional). Follow-up activities in the classroom link this to data from the census 2011 website (www.ons.gov.uk/census). This resource from the Royal Geographical Society (with IBG) website (www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Local+learning/Fieldwork+in+the+local+area/Clone+town+survey.htm) focuses on Guildford and was written pre-2011 but it contains some ideas for census-

related fieldwork on the high street.

Visits and fieldwork linked to lesson 5

The Thames Barrier has a visitor centre which contains information about the history, construction, operation and use of the Barrier. The Thames Barrier website listed includes information for visitors. Guided tours of the centre lasting one and a half hours can be booked for groups of up to 35.

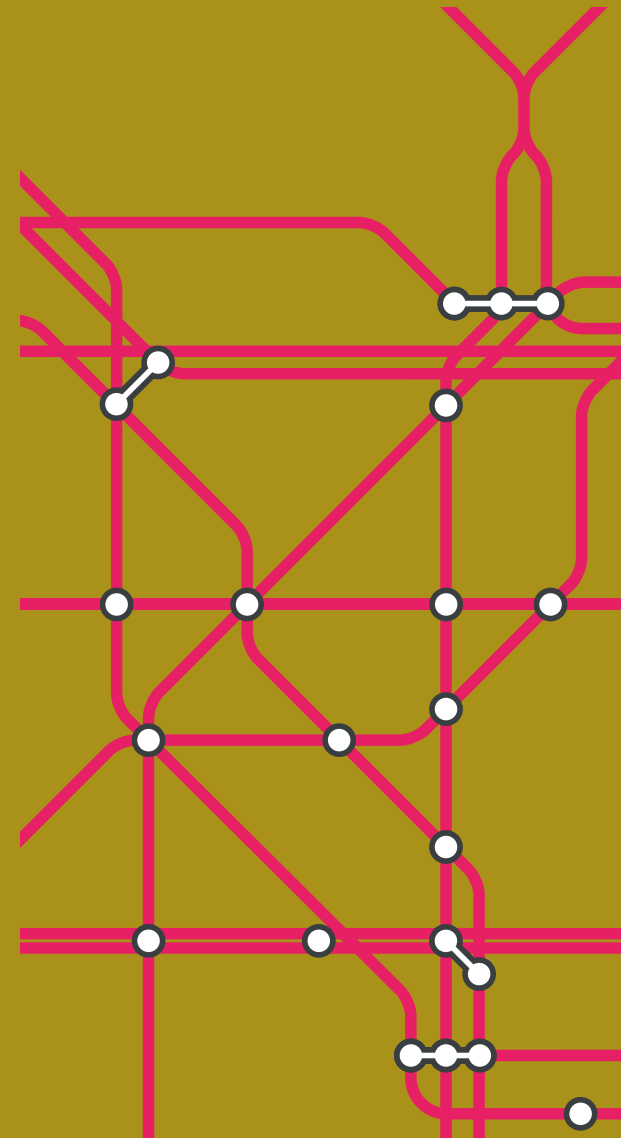
Alternatively, a local river, particularly a tributary of the Thames, could be the focus of a river study, focusing on processes and features, flood risk or land use. Flood risk maps could be used during a walk around the local area to identify and map areas and properties that are at risk.

A hidden rivers walk in the local area, using the London's Lost Rivers website listed above for guidance and searching for clues in the built up environment.

Students could create their own audio map of the local area, along the lines of the Sounds of the Underground map: <http://now-here-this.timeout.com/2012/05/21/sound-of-the-underground-explore-this-audio-map-of-londons-rivers/>

CONNECT

In this section students have the chance to apply their learning about London as they explore the issues that face the city of the future.



LESSON 6

CITY OF THE FUTURE



THE BIG IDEA

What are the issues that are likely to face London in the future and how are they being addressed?



LESSON OBJECTIVES

All students will be able to identify a range of issues affecting London now and in the future.

Most students will be able to consider, in role, the effect that these issues may have on people living in London, and the need for them to be addressed.

Some students will be able to make decisions about which issues should be prioritised and justify their decisions.

Key words: Urbanisation, housing, population change, regeneration, development, transportation, environment.



RESOURCES

- ♦ **Resource 6.1:** Images representing the issues that may continue to affect London in the future (starter)
- ♦ **Resource 6.2:** What are the issues? (main 1)
- ♦ **Resource 6.3:** Matrix handout for completion during feedback (main 1)
- ♦ **Resource 6.4:** Prioritising the issues
- ♦ **Resource 6.5:** My London learning journey

LESSON 6: CITY OF THE FUTURE

SETTING THE SCENE

During the course of this lesson, students will investigate some of the issues facing London and Londoners in the future. Here are some key facts about the issues:

Housing shortage

To cope with projected population growth in the city, it is estimated that London will need another 1 million homes by the mid-2030s. House prices have increased by 94% in the last 10 years (compared with an increase of only 29% in wages). One in 10 Londoners are on the council house waiting list and in 2011 there was a 26% increase in the number of people living in bed and breakfast accommodation.

Transport overcrowding

The London Underground takes 3.5 million passengers each day, and London's busiest station, Waterloo, had 104 million passengers in 2011–12. Cost, delays and overcrowding are three challenges facing the London transport system. Many routes are extremely overcrowded: the busiest commuter train in London has been found to be the 07.44 Henley on Thames to London Paddington, which regularly takes 80% more passengers than the train is designed to fit. The cost of a season ticket for this route was £3,388 in January 2013.

Some rail and underground links will be improved when the Crossrail project is completed and services commence in late 2018. This will enhance services between west and east London, as well as commuter towns. New stations will be opened and new trains will run on its lines.

Demand for air travel

Demand for air travel in London is expected to more than double by 2050 – an increase of over 100 million passengers each year. Heathrow Airport currently has two runways and is working at 98% capacity, but still lags behind other European airports in terms of number of flights and destinations. As a result, it is estimated that London is missing out on £1 billion worth of trade each year. A new airport-hub for London is presently being discussed. Three scenarios include an additional runway at Heathrow, an additional runway at Gatwick and a new airport constructed in the Thames estuary.

Ageing population

The number of people aged over 80 years in London is expected to increase by 40% over the next 30 years. However, healthy life expectancy is not increasing as fast and as a result, NHS spending in 2007–8 was an average of £2,800 for a non-retired household but £5,200 for a retired household. In addition, 36% of Inner London pensioners live in poverty.

Air pollution

London is one of the most polluted places in the UK due to its size, dense road network and tall buildings, which trap pollution and cause adverse health effects. In fact, The Supreme Court has ruled that London's air quality does not meet EU regulations. London has a long history of air pollution which was far worse when the city was more industrial and houses burned coal. Winter smogs, such as the one in 1952, contributed to significant loss of life. Since this time air quality has improved with much reduced sulphur dioxide, lead, carbon monoxide, benzene and smoke. Efforts are underway to reduce levels of nitrous oxide and fine particulates derived mostly from vehicle exhausts (see: *50 Years On: the struggle for air quality in London since the great smog of December 1952*) http://legacy.london.gov.uk/mayor/environment/air_quality/docs/50_years_on.pdf

Increasing birth rate

In 2011, 132,843 babies were born in London – the highest number since 1971. Part of the reason for this is the ethnic diversity of London: whereas British born women have an average of 1.89 children, non-British born women have an average of 2.28 children, and six out of 10 babies in London are born to non-British born women. As a result of this increase, 80,000 new primary school places will be needed in London by September 2014. However, rising birth rates will to some extent compensate for an ageing population as more young people enter the workforce.

LESSON 6: CITY OF THE FUTURE

LESSON PLAN

STARTER

Image analysis: think, pair, share.

Hand out Resource 6.1, images of a range of issues affecting London now and in the future to students in pairs. They have to identify and consider the issue before feeding back to the class as a whole.

MAIN ACTIVITY 1

What are the issues? (role play)

Students work in groups to investigate the issues raised in the images in more detail. Hand out Resource 6.2 What are the issues? They consider the causes and effects of the issue, who is affected and why it is so important that the issue is addressed. The pairs feedback in role, with the aim of putting across the best argument for addressing their problem.

Students are provided with a table to complete while other pairs feedback their arguments.

MAIN ACTIVITY 2

Ask students to use Resource 6.4 to prioritise the issues and develop possible solutions. This activity could include additional independent research.

PLENARY

Mapping my learning journey

This is an opportunity to revisit and evaluate the learning objectives of the unit as a whole. Students should complete their personal learning journeys on their own using the Resource 6.5 and then share with the class.

Homework idea

Geographical imaginations

Students draw an annotated map or image of the London of the future, using this lesson and their learning throughout the unit as inspiration. Annotations should focus on how the changes they've depicted will impact on them growing up in London.

The following websites provide some possible ideas:

Postcards from the future

www.postcardsfromthefuture.co.uk

London Futures www.guardian.co.uk/environment/gallery/2010/oct/27/london-futures-exhibition

www.flickr.com/groups/londonfuturesmetro/pool

Assessment opportunities

Revisiting learning outcomes

Targeted questions

Confidence checks

Peer assessment followed by self reflection of DME presentations.

Assessment of annotated maps or images, or of extended writing task

FURTHER READING

London schools hit by population growth Population Matters 15 May 2013

<http://populationmatters.org/2013/newswatch/london-schools-set-feel-strain-population-growth/>

London Air Quality Network

www.londonair.org.uk/LondonAir/Guide/Default.aspx

50 Years On: the struggle for air quality in London since the great smog of December 1952:

http://legacy.london.gov.uk/mayor/environment/air_quality/docs/50_years_on.pdf

Crossrail

www.crossrail.co.uk

Older Londoners

www.olderlondoners.org/

Shortage of homes over next 20 years threatens deepening housing crisis.

www.jrf.org.uk/media-centre/shortage-homes-over-next-20-years-threatens-deepening-housing-crisis

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.1: WHAT ARE THE ISSUES?



LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES?



Ageing population



- ♦ The number of people aged over 80 years in London is expected to increase by 40% over the next 30 years.
- ♦ Girls born today have a life expectancy of 92 years. Boys have a slightly lower life expectancy of 89 years.
- ♦ Healthy life expectancy is not increasing as fast.
- ♦ 36% of Inner London pensioners live in poverty.
- ♦ NHS spending in 2007–8 was an average of £2,800 for a non-retired household and £5,200 for a retired household.

Why are people living longer?

Do you think it is good that people are living longer?

What challenges are there for a society in which more people live to an older age?

What needs to be done to support more people living longer?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES? CONTINUED



Air pollution



- ♦ London is one of the most polluted places in the UK due to its size, dense road network and tall buildings, which trap pollution.
- ♦ London's levels of air pollution are illegal, according to EU legislation.
- ♦ London has the highest levels of nitrogen dioxide (from diesel) in the air of any capital city in Europe.
- ♦ More people are admitted to hospital for lung and heart problems on days when air quality is poor.
- ♦ Up to 9% of deaths in London's most polluted areas are down to air pollution, which causes 4,267 extra deaths in the capital every year.

What are the **CAUSES** of this problem?

What are the **EFFECTS** of this problem?

WHO is affected by the problem?

WHY is it so important that this problem is tackled?

Extension:

What do you think could be done to **SOLVE** this problem?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES? CONTINUED



Demand for air travel



- ♦ Heathrow Airport had 6 million passengers through its doors in May 2013.
- ♦ Demand for London air travel is expected to more than double by 2050 – an increase of over 100 million passengers per year.
- ♦ The airport has two runways and is working at 98% capacity: 87 flights per hour to 192 destinations.
- ♦ Other European airports have more runways, more flights and more destinations.
- ♦ London is missing out on £1 billion worth of trade each year due to constraints on its air transport system. This has a negative effect on the economy of London as a whole.

What are the **CAUSES** of this problem?

What are the **EFFECTS** of this problem?

WHO is affected by the problem?

WHY is it so important that this problem is tackled?

Extension:

What do you think could be done to **SOLVE** this problem?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES? CONTINUED



Housing shortage



- ♦ It is estimated that to cope with the expected growth in population in the city, London will need another 1 million homes by the mid 2030s.
- ♦ In the last 10 years, house prices in London have increased by 94% while wages have only increased by 29%.
- ♦ One in 10 Londoners are on council housing waiting lists.
- ♦ There was a 26% increase in people living in bed and breakfast accommodation in the capital in 2011.
- ♦ The lack of affordable housing is causing a 'brain drain', where key workers move out of the city, threatening London's economic success.

What are the **CAUSES** of this problem?

What are the **EFFECTS** of this problem?

WHO is affected by the problem?

WHY is it so important that this problem is tackled?

Extension:

What do you think could be done to **SOLVE** this problem?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES? CONTINUED



Increasing birth rate



- ♦ In 2011, 132,843 babies were born in London – the highest number since 1971.
- ♦ The general fertility rate (number of live births per 1000 women aged 15–44) for London in 2011 was 66.5.
- ♦ British-born women have an average of 1.89 children, non-British born women have an average of 2.28 children. Six out of 10 babies in London are born to non-British born women.
- ♦ Of the 10 local authorities in England with the highest proportion of pre-school age children (0–4 years), seven are in London.
- ♦ 80,000 new primary school places will be needed in London by September 2014.

Why do you think birth rates in the capital are rising?

What are the benefits and challenges presented by an increase in birth rate?

What can be done to support families with more children in the city

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.2: WHAT ARE THE ISSUES? CONTINUED



Transport overcrowding



- ♦ The busiest commuter train in London is the 7.44 am Henley-on-Thames to London Paddington train, which regularly takes 80% more passengers than the train is designed to fit.
- ♦ The season ticket for this journey went up to £3,388 per year in January 2013.
- ♦ The London Underground takes 3.5 million passenger every day.
- ♦ The busiest station is London Waterloo. In 2011–12 it had 104 million passengers.
- ♦ In July 2011 passengers were stuck on commuter trains in South West London for four hours after some cable had been stolen from the line.

What are the **CAUSES** of this problem?

What are the **EFFECTS** of this problem?

WHO is affected by the problem?

WHY is it so important that this problem is tackled?

Extension:

What do you think could be done to **SOLVE** this problem?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.3: MATRIX FOR COMPLETION DURING PRESENTATION



London faces a number of issues over the coming years. Listen to the presentations and fill in the table below, thinking about which you think is the greatest challenge to the city, and that should be addressed as a priority.

	WHO IS AFFECTED?	WHAT ARE THE CAUSES?	WHAT ARE THE EFFECTS?	RANK THE CHALLENGES 1 = Priority challenge 6 = Least important
--	------------------	----------------------	-----------------------	--

Transport overcrowding



Population increase



Housing shortage



LESSON 6: CITY OF THE FUTURE

RESOURCE 6.3: MATRIX FOR COMPLETION DURING PRESENTATION CONTINUED



	WHO IS AFFECTED?	WHAT ARE THE CAUSES?	WHAT ARE THE EFFECTS?	RANK THE CHALLENGES 1 = Priority challenge 6 = Least important
--	------------------	----------------------	-----------------------	--

Demand for air travel



Air pollution



Ageing population



LESSON 6: CITY OF THE FUTURE

RESOURCE 6.4: PRIORITISING THE ISSUES



It is the job of The Mayor of London to decide which of the challenges facing London should be addressed first. Which do you think he should choose?

Why have you chosen this as a priority?

What do you think he should do to address this challenge?

LESSON 6: CITY OF THE FUTURE

RESOURCE 6.5: MY LONDON LEARNING JOURNEY



Have I met the learning objectives of the unit?

Yes definitely

Yes partly

No not at all

One thing about London that I'm going to find out more about is...

Three things I know about London now that I didn't know before:

1

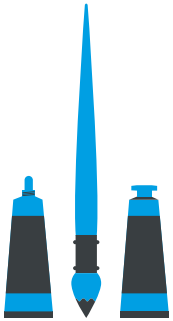
2

3

Something I enjoyed about the unit is...

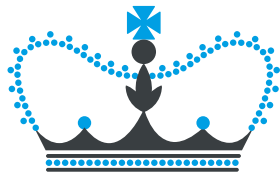
Something I didn't enjoy so much about the unit is...

LINKS TO OTHER LONDON CURRICULUM SUBJECTS



ART AND DESIGN

The art of walking explores architectural mapping and enables students to 'read' the built environment.



HISTORY

World City explores the history and impact of migration into London.

London at War focuses on the impact of the Blitz on London.

Social reform in Victorian London draws on Charles Booth's poverty maps in exploring life in Victorian London.



MUSIC

Global city explores the musical impact of London's global and maritime heritage.

CREDITS

The GLA would like to thank the following organisations for their contribution:

Our collaborators on
the London Curriculum



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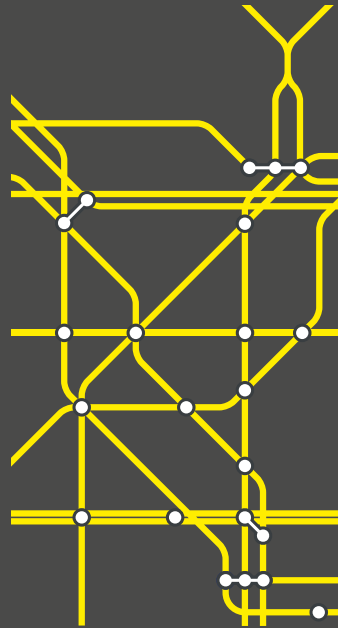
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'I find the London Curriculum really interesting to teach and I think the children are really intrigued by the subject matter.'

key stage 3 teacher

'Everyone in the department was really happy when we got the resources.'

key stage 3 teacher

'The idea of using London as a teaching resource has never been explored much before, so both students and teachers are excited about it.'

key stage 3 teacher