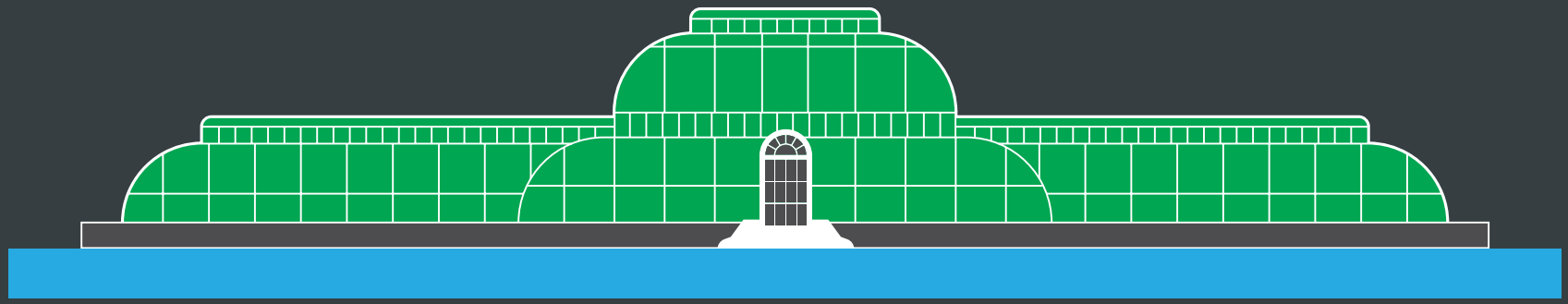
MAYOR OF LONDON

THE LONDON CURRICULUM

GEOGRAPHY KEY STAGE 3

GREEN LONDON?

GEOGRAPHICAL ASSOCIATION SILVER 2017 PUBLISHERS' AWARD



Royal Geographical Society with IBG

Advancing geography and geographical learning

THE LONDON CURRICULUM

PLACING LONDON AT THE HEART OF LEARNING

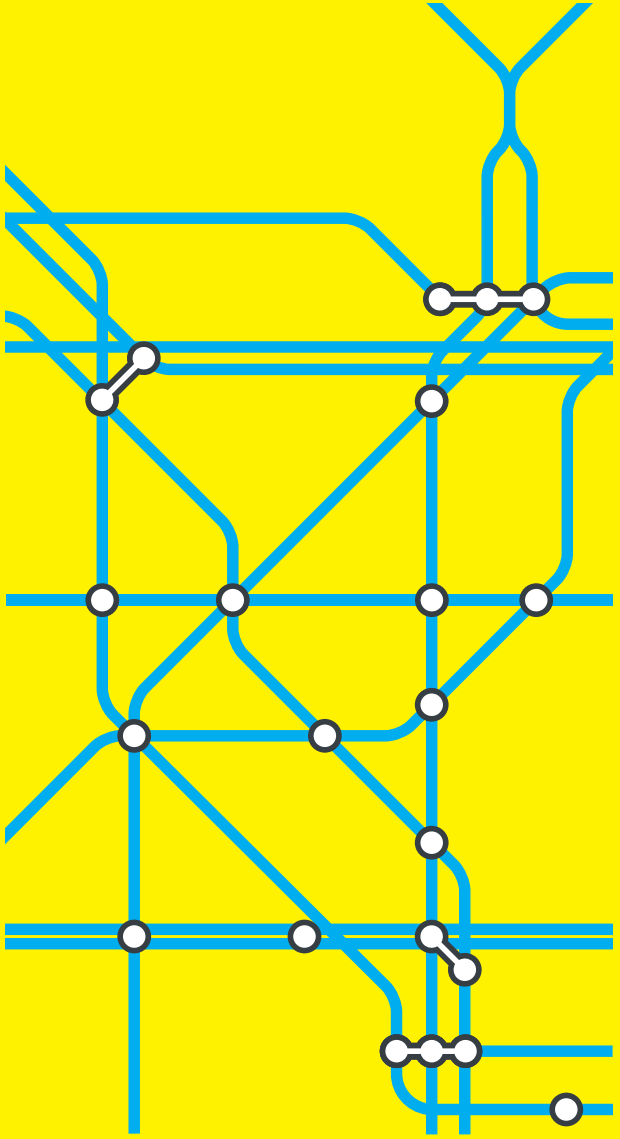
The capital is the home of innovations, events, institutions and great works that have extended the scope of every subject on the school curriculum. London lends itself to learning unlike anywhere else in the world. The London Curriculum aims to bring the national curriculum to life inspired by the city,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



CONTENTS

GREEN LONDON OVERVIEW

UNIT AIMS AND OBJECTIVES

Zooming in from the global to the local scale, this unit gives students the opportunity to investigate what ‘being green’ or ‘going green’ means in London, with a particular focus on the purpose and value of open spaces, the Green Belt, urban regeneration, and biodiversity.

They will investigate how green London is in literal terms, what percentage of the city is open or green space and the quality of those habitats, but also find out about the capital’s support for conservation around the world and, closer to home, its relationship with surrounding regions.

Opportunities to map London’s connections around the world and enhance locational knowledge of the UK and the city form a key part of this unit. Extended pieces of writing, in particular, in Lessons 2 and 4, give students the chance to evaluate different points of view or draw conclusions based on a range of data sources. Such tasks may be used for assessment of students’ synoptic skills.

LAVENDER OUTSIDE WESTIMINSTER
Luke Massey © National City Park

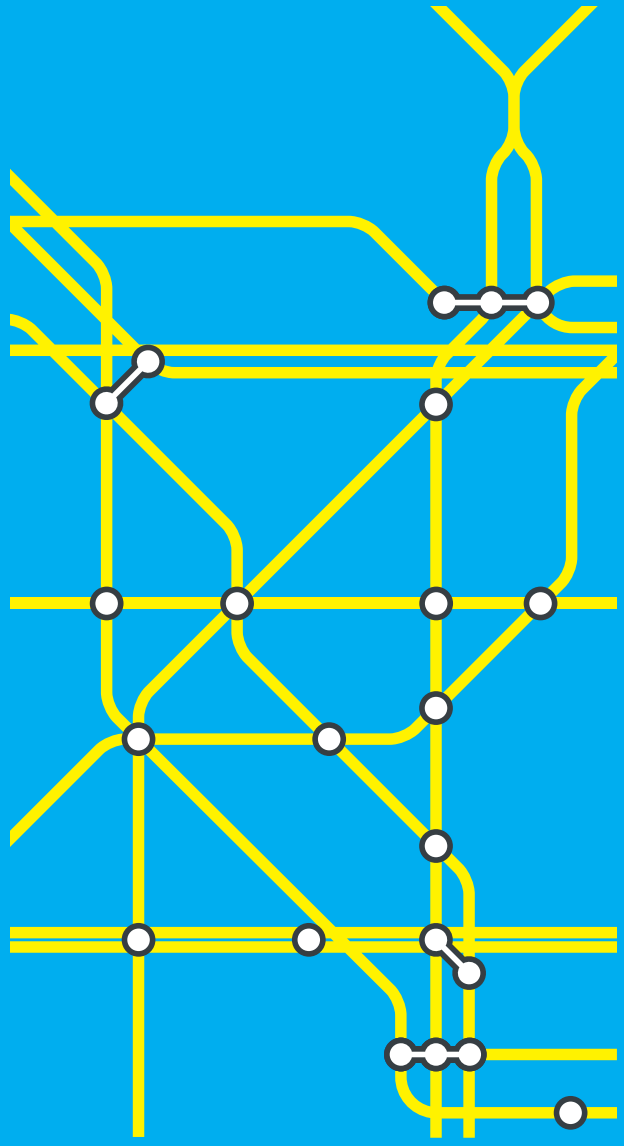
KEY STAGE 3 NATIONAL CURRICULUM

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

- understand, through detailed place-based exemplars, how human and physical processes interact to influence, and change landscapes, environments and the climate
- understand through detailed place-based exemplars, how human activity relies on effective functioning of natural systems
- build on their knowledge of maps, globes and atlases, and use these geographical tools in the classroom and in the field.
- interpret Ordnance Survey maps in the classroom and the field, including using grid references and scale, thematic mapping, and aerial and satellite 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.

DISCOVER

In this section your students will learn about the role of Royal Botanic Gardens, Kew in biodiversity and the importance of this issue on a global scale. At the scale of the city, they will explore the purpose of the Metropolitan Green Belt and consider what the future expansion of Greater London might look like. And, in the third suggested lesson, students will find out about the transformation of Stratford, in particular Queen Elizabeth Olympic Park, in the run up to the London 2012 Olympic and Paralympic Games and the changes that have happened in this place since.



LESSON 1
KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

BIG IDEA

Why should we care about plants? Why is biodiversity a global issue today? How might the work of Kew scientists inform decisions about the conservation or development of different places and resources around the world?

LEARNING OBJECTIVES

All students will be able to give a number of reasons why plants are important to people, and locate places around the world where scientists from the Royal Botanic Gardens, Kew work.

Most students will be able to describe and explain the value of GIS and satellite imagery and how they can be used to inform decision-making about resource exploitation that may affect biodiversity.

Some students will be able to go beyond the 'natural logic' of conserving biodiversity to suggest ways in which the value of biodiversity may be assessed with reference to human wellbeing.

RESOURCES

Resource 1.1: Nothing left to discover?

Resource 1.2: Mapping Tropical Important Plant Areas

Resource 1.3: Mozambique key facts and biodiversity

Resource 1.4: Mozambique role-play cards

Resource 1.5: Reviewing the criteria for Important Plant Areas

YOU WILL ALSO NEED

Access to Google Earth to introduce the GIS capabilities of this software alongside launch Resource 1.1. In addition, atlases or online resources for the starter activity (Resource 1.2) would also be useful.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

KEY LANGUAGE

KEY WORD	EXPLANATION
Biodiversity	The number or range of different genes, species or habitats of living things found in a location, an area, region, country or globally.
Biome	Large-scale ecosystems are zones that may stretch across the globe distinguished by their climate, plants and animals.
Conservation	The protection of a certain species or allocation of land as habitat for an identified species under threat.
Ecosystem	The interaction of plants and animals with each other and their non-living surroundings (soil, water, sunlight and gases in the air) in a given area. Ecosystems exist at different scales from the micro to the macro scale.
Ecosystem services	Umbrella term for the many ways in which humans benefit from ecosystems, that range from food, water, air and the decomposition of waste products, to cultural services such as spiritual enrichment and recreation.
GDP per capita	Measured annually or quarterly, Gross Domestic Product is the amount of money brought into a country through the sale of goods and services. When presented ‘per capita’ the total GDP is divided by its population. (Of course, such a measure implies that wealth is divided equally in society, which of course it isn’t.)

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

KEY LANGUAGE

KEY WORD	EXPLANATION
GIS	A Geographical Information System (GIS) is a type of software that can store, integrate, overlay or manipulate different layers of spatial (map-based) information to allow analysis of patterns and processes – both in human and physical geography.
Remote sensing	Methods of collecting information about places without on the ground fieldwork. Data may be collected via sensors on un-manned aerial vehicles (drones), aircraft and satellites that orbit the Earth. Such data may include radiation emitted or reflected by an object or landscape. This data may be interpreted to draw wider conclusions about the land area under investigation, including major vegetation type, land use or hydrology
Satellite imagery	Images or pictures of Earth taken by satellites that orbit the planet, in space.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

SETTING THE SCENE

FIGURE 1: THE GLOBAL REACH OF KEW'S SCIENTIFIC WORK

Image sourced from the Kew Science Strategy – A Global Resource for Plant and Fungal Knowledge Science Strategy 2015 – 2020

The Royal Botanic Gardens, Kew

Royal Botanic Gardens, Kew is a world famous scientific organisation, respected for its outstanding plant and fungi collections as well as its scientific expertise in biodiversity and conservation. Kew is a top London visitor attraction. Kew's 132 hectares of landscaped gardens, and Kew's country estate, Wakehurst, attracts over 1.5 million visitors every year. In 2003, Royal Botanic Gardens, Kew was added to the UNESCO list of World Heritage Sites and in 2009 it celebrated its 250th anniversary. Wakehurst is home to Kew's Millennium Seed Bank, the largest wild plant seed bank in the world – an invaluable resource for plant science in the UK and further afield.

Not only do Kew's two sites in the South East of England function as international hubs for botany, Kew scientists travel widely in the pursuit of plant science. Figure 1 illustrates that Kew's scientific work spans 110 countries (shaded green) and involves over 400 collaborating institutions worldwide (red dots).

The impact of new technology to direct fieldwork

In 2005, on the look-out for new areas to study plantlife, Kew scientist Julian Bayliss spotted an area of mountains in northern Mozambique of similar height to mountains in Malawi where he had previously worked, where the climate was similar and the location was remote. With the help of Google Earth, he zoomed in to take a closer look and found Mount Mabu and the biggest rainforest in southern Africa – often referred today as the 'Google forest'. At that time there was no official record of this place within the scientific community. After many years of civil war, even within Mozambique, knowledge of the area was limited to local villagers living close to the forest.

On expedition to Mount Mabu in 2009, an international team including scientists from Kew discovered many new species of plants and animals including a very small chameleon, Nadzikambia baylissi (named after Bayliss), along with new populations of endangered bird species. And in 2014, Kew scientists applied to the Mozambique Government to make Mabu a protected area, to prevent commercial logging in this newly discovered, pristine forest ecosystem.

Figure 2, a map produced by Kew's science team using data from field surveys in Cameroon, West Africa, illustrates the need to map plant biodiversity and the occurrence of valuable species in detail. At a glance the lack of significant overlap between existing protected areas and those identified by scientists as having the greatest concentration of threatened species is stark. Kew's research work in Cameroon has led to the government demarcation of five new protected areas in this country in the last decade.

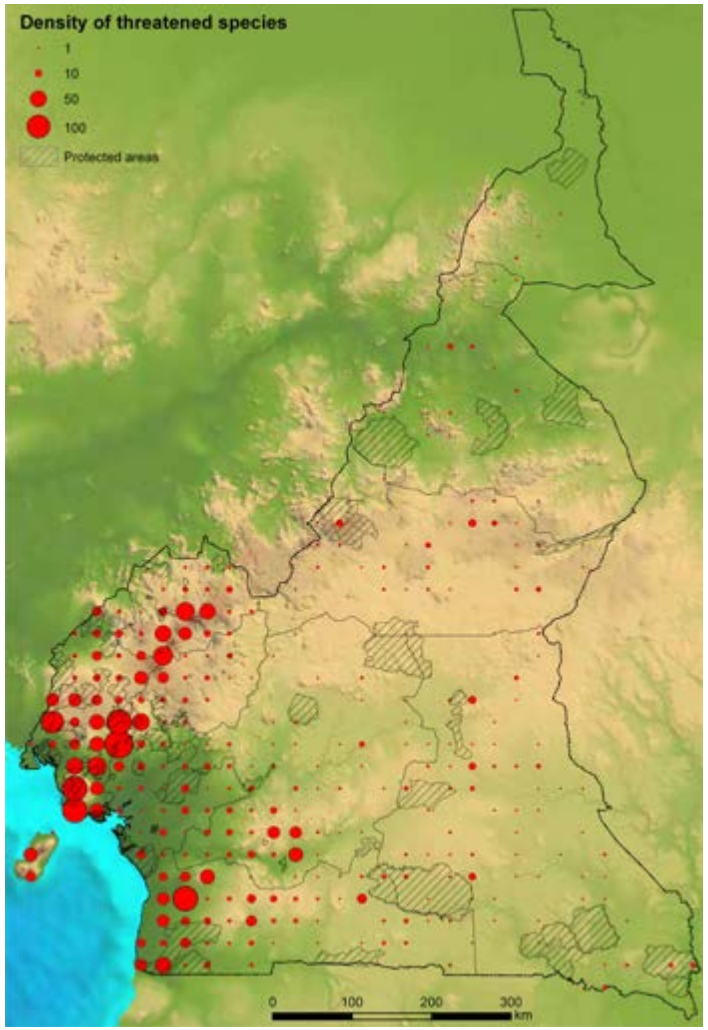


FIGURE 2: MAP SHOWING DISTRIBUTION OF THREATENED PLANT SPECIES AND PROTECTED AREAS IN CAMEROON

Image Credit: S. Bachman, J.M. Onana, C. Cole & M. Cheek. In Onana & Cheek, Red Data Book of the Flowering Plants of Cameroon. Royal Botanic Gardens, Kew.

Valuing the biodiversity of plants

Important plant areas or IPAs are "the most important places in the world for wild plant diversity that can be protected and managed." (Plantlife, 2004)

Tropical Important Plant Areas (TIPAs) are Important Plant Areas in tropical ecosystems. In one of a number of international collaborations, Kew scientists are undertaking field surveys (on the ground) as well working with satellite imagery and GIS to map biodiversity in seven different countries in the tropics – this is a five year project. They hope this information will promote the sustainable management and protection of important plants in these countries.

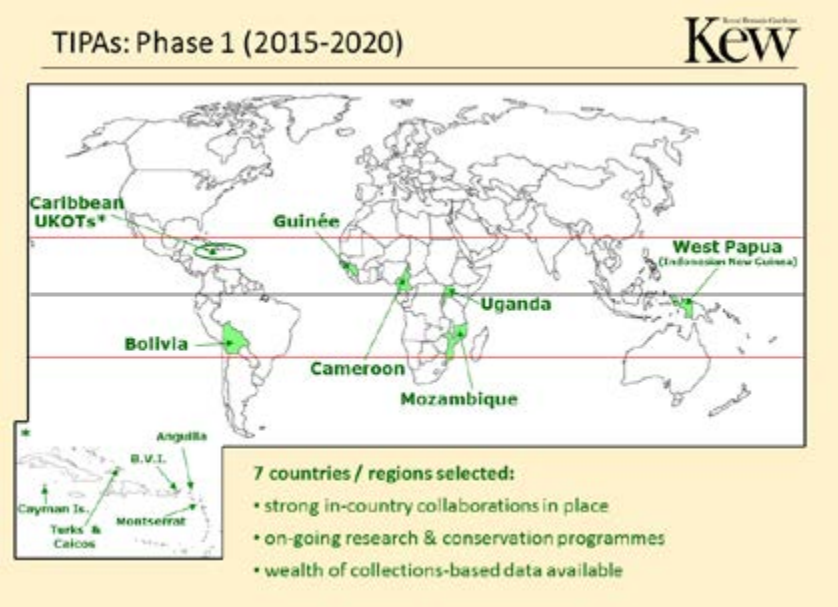


FIGURE 3: KEW'S PROJECT TO MAP TIPAS IN SEVEN COUNTRIES
Iain Darbyshire © RGB Kew

Sustainable development and biodiversity

Important plant areas are those in need of protection. Historically places given the IPA title had to have levels of biodiversity that met one or more of three criteria, set out below.

However, increasingly, conserving biodiversity for its own sake, at all costs, is seen as a luxury the world's poor can't afford – even at Kew:

"Given the pressure on land for urbanisation, food and fuel, we'll never get beyond 15% protected areas… that's where some biodiversity will remain. Elsewhere, the biodiversity that we have to maintain is the biodiversity we identify as being important for us and for human wellbeing."

(Kathy Willis, Director of Science at Kew on BBC Radio 4, 2015)

CRITERION HEADING	EXEMPLAR QUESTION
Threatened species	Are there a large number of threatened species in this place? They may be facing the threat of extinction on a regional, national or global scale (i.e. those on the IUCN Red list)
Botanical richness	Are there a large number of species (in total) given the main vegetation type or habitat? What number of species are endemic (occur nowhere else)?
Threatened habitat	Does this place include a threatened habitat or vegetation type?

Crop wild relatives

Our changing climate has been cited as one of the key reasons why one aspect of plant biodiversity remains useful and therefore important.

Crop wild relatives are undomesticated plant species that are important for agriculture due to their wide diversity and their relatively close genetic link to cultivated species, making them an important source of unique traits or characteristics for crop improvement. They have been successfully used in plant breeding programmes for many years boosting crop:

- yields
- nutritional content
- resistance to pests and diseases
- and tolerance of drought/flood

As a result, crop wild relatives have been identified as valuable resources that can contribute to adaptation of farming to meet the demands of our changing climate. A team of scientists at Kew are collecting and mapping data about crop wild relatives of 29 different crops, from rice and wheat to aubergine and sweet potato. This data comes from a wide range of sources including gene banks (such as Kew's own Millennium Seed bank), herbaria, research centres and individual researchers in the field.

Figure 4 illustrates the known occurrence of crop wild relatives in Mozambique in 2016 – each different species is given a dot of a different colour. This information could be integrated with maps of soil, climate and major vegetation type to predict further areas of occurrence of these key plant species, highlighting new areas for field study and ultimately areas for protection, to preserve the genetic diversity in Mozambique (and Southern Africa) that will be essential for its long-term productivity.

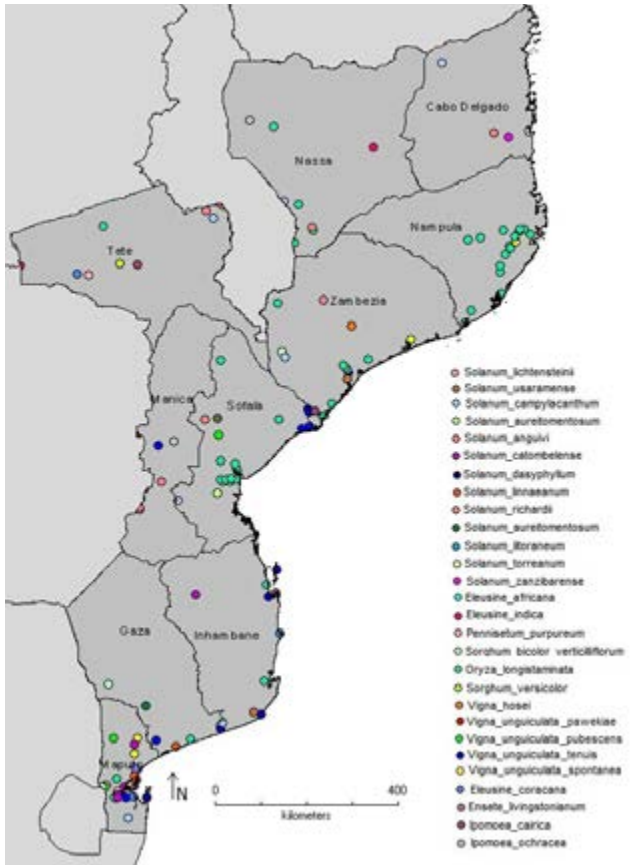


FIGURE 4:
OCCURRENCE OF CROP WILD RELATIVES IN MOZAMBIQUE

Ruth Harker © RGB Kew

Rural Mozambique: ripe for development?

Mozambique is one of the poorest countries in the world with just over half of the population living in absolute poverty. A much higher proportion of the rural population survive at a subsistence level ($1.25 a day). Resource 1.3: Mozambique key facts and biodiversity (page 17) summarises some of the key development statistics for this country. A report by the International Fund for Agricultural Development (IFAD) in 2014 noted that agricultural productivity in Mozambique was low.

While coal is mined in Mozambique currently, there is potential for significant expansion of this industry but would require the development of rail links to the coast and port handling facilities. In 2012, natural gas reserves were discovered in Mozambique, which have the potential to dramatically change the economy. The reserves were estimated to be the 4th largest in the world.

It is said, in financial circles, that revenues from this country's vast natural resources, including coal and gas, titanium and hydroelectric capacity could overtake donor assistance within five years. But at what long term cost? And do Kew scientists have a role in informing decision-making about resource development? This is a question for students to consider in the suggested role-play activity in this lesson, Resource 1.4: Mozambique role-play cards (page 18).

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

ACTIVITIES

STARTER

Launch the lesson by asking students to read Resource 1.1 Nothing left to discover (page 15) about Kew scientist Julian Bayliss' discovery of the previously unknown rainforest of Mount Mabu in Mozambique using Google Earth. You might also like to demonstrate the capabilities of Google Earth and watch one of these suggested films about 'the Google Forest.'

Film links

Dr Julian Bayliss: The Lost Forest of Mount Mabu – via Youtube
youtube.com/watch?v=mni8mSS4KDU

How Google Earth helped find Mozambique's lost forest of Mount Mabu – via RBG Kew
kew.org/files/dr-julian-bayliss-lost-forest-mount-mabu

Undiscovered rainforest 'Googled' – via BBC News
news.bbc.co.uk/1/hi/sci/tech/8094444.stm

Exploring the 'Google forest' – via BBC News
news.bbc.co.uk/1/hi/sci/tech/8094862.stm

Introduce the role of Kew scientists in plant science and identification and also conservation. Ask students to complete Resource 1.2 Mapping Tropical Important Plant Areas (page 16) using an atlas or online resources as needed to complete the map labels.

MAIN

Divide the class into six groups for the role-play activity or more as needed. Each group should have Resource 1.3 Mozambique: key facts (page 17) and biodiversity and the appropriate card from Resource 1.4 Mozambique role-play cards (page 18). The groups described are as follows:

- Government of Mozambique
- International coal company
- National Farmers' Union of Mozambique
- IUCN that administers the Red List of Threatened Species
- IFAD – the international fund for agricultural development, an agency of the UN.
- Kew scientists
- Internation gas company

Each group is given the same linked questions to respond to, in the form of a short presentation:

1. How should Mozambique develop its economy to benefit its people?
2. More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

Each card includes new data that no other group has that relates to this issue.

Plenary: Revising the criteria for 'Important Plant Areas'

Ask students to reflect on what they have learned about the importance of conserving biodiversity. If time allows, ask for contributions to a quick brainstorm about how to define what is meant by 'useful or culturally important' plants, in the context of the current revision of criteria for awarding areas the title of IPA, Resource 1.5: Reviewing the criteria for Important Plant Areas (page 25)

Differentiation

The six contributing groups within the role-play activity can be designed to support all students, both in terms of the make-up of each team and/or the allocation of roles to different groups.

Use Resource 1.4: Mozambique role-play cards (page 18) as an extension task ahead of the whole class plenary and ask any groups that get started on this to feed back to the class during the plenary.

Homework idea

Students should write a short report to weigh up the pros and cons of protecting Mozambique's Important Plant Areas that fall within regions previously surveyed for fossil fuel extraction.

Assessment opportunities

- Locational knowledge and understanding of tropical regions
- Targeted questions during group presentations
- Assessment of homework task

Suggested follow-up

Return to the suggested plenary, to make deeper use of Resource 1.5: Reviewing the criteria for Important Plant Areas (page 25) Students should try to recall or create a list of all of the possible, different benefits that crop wild relatives, when interbred with food crops, might bring to Mozambique's farmers. You could also develop this theme by asking students to undertake further research into the climate, population distribution and other key elements of this country's physical and human geography.

Further reading

Enhancing human livelihoods and the conservation and restoration of Mozambique's biodiversity, RBG, Kew

kew.org/science-conservation/research-data/science-directory/projects/enhancing-human-livelihoods-and

Crop Wild Relatives project, RBG, Kew

cwrdiversity.org

Kew's Science Strategy 2015 – 2020, RBG, Kew (2015)

kew.org/science-conservation/kews-science-strategy

How to interpret satellite images: five tips and strategies, NASA Earth Observatory

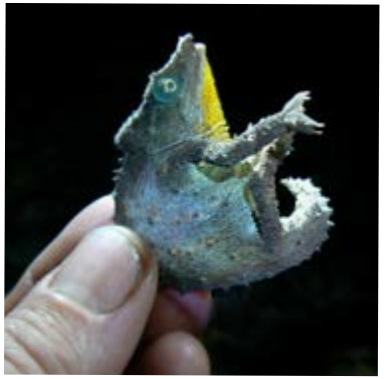
earthobservatory.nasa.gov/Features/ColorImage

Using drones (UAVs) to survey plants and vegetation around the world, RBG, Kew GIS

storify.com/KewGIS/flying-high-with-phoebee-the-conservation-drone

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.1: NOTHING LEFT TO DISCOVER?



In 2005, on the look-out for new areas to study wildlife, Kew scientist Julian Bayliss spotted an area of mountains in northern Mozambique of similar height to mountains in Malawi where he had previously worked, where the climate was similar and the location was remote. With the help of Google Earth, he zoomed in to take a closer look and found Mount Mabu and the biggest rainforest in southern Africa – often referred today as the 'Google forest'. At that time there was no official record of this place – it was a first for science!

On expedition to Mount Mabu in 2009 a team including scientists from Kew discovered many new species of plants and animals including a pygmy chameleon, along with new populations of endangered bird species. And in 2014, Kew scientists applied to the Mozambique government to make Mabu a protected area, perhaps one day a national park, to prevent commercial logging in this newly discovered, pristine forest ecosystem.

"People say that there's nothing left to discover in this world…I was working on an isolated mountain in Malawi and noticed that there were similar mountains over the border in Mozambique. There was nothing written about these mountains, so when I returned to the UK [using Google Earth] I was able to look across to northern Mozambique and then, as I zoomed in, a dark green patch emerged…"

(Conservationist Julian Bayliss, RGB, Kew)

PGYMY CHAMELEON (RHAMPHOLEON SP),
Julian Bayliss / © RGB Kew

FOREST OF MOUNT MABU
© Tom Timberlake

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.2: MAPPING TROPICAL IMPORTANT PLANT AREAS

Kew's work in the tropics

Important plant areas or IPAs are

"*the most important places in the world for wild plant diversity that can be protected and managed.*"

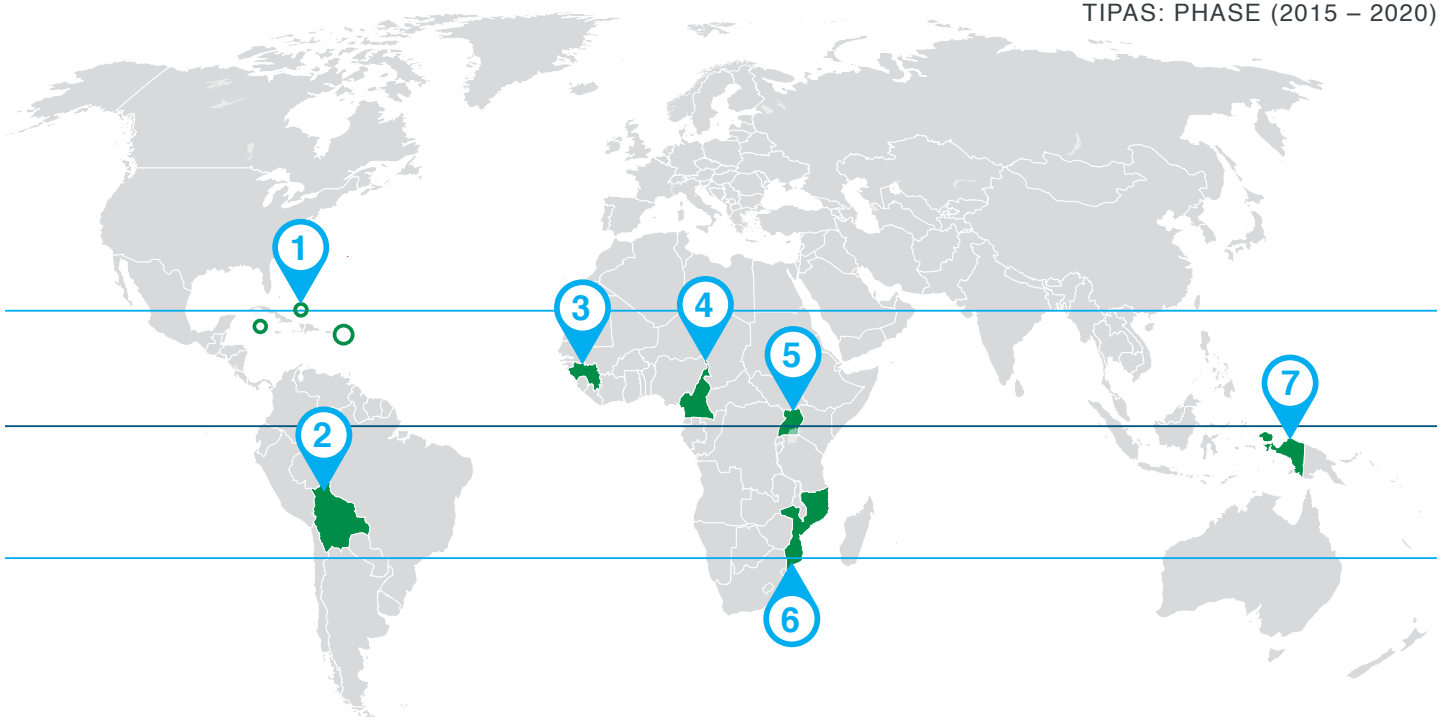
(Plantlife, 2004)

Tropical Important Plant Areas (TIPAs) are IPAs in the tropics. Royal Botanic Gardens, Kew is currently running a number of international projects. Kew scientists are undertaking field surveys (on the ground) as well as using satellite imagery and GIS to map bio-diversity. They hope this information will help promote the sustainable management and protection of important plants.

Where are Kew's scientists working in the tropics today?

Identify the countries in which Kew scientists are working to map tropical plant life.

TIPAS: PHASE (2015 – 2020)



1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

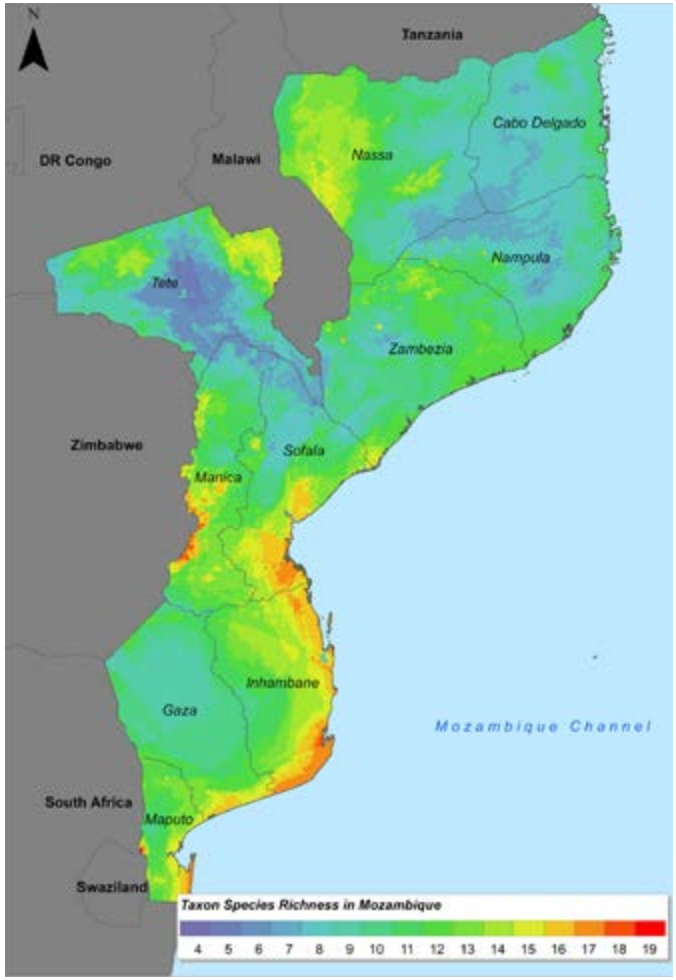
LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.3: MOZAMBIQUE KEY FACTS AND BIODIVERSITY

DEVELOPMENT INDICATOR	MOZAMBIQUE	UK
Life expectancy	52.9 YEARS	80.54 YEARS
GDP per capita (PPP)	$1,200	$39,800
Literacy rate	58.8%	>95%

LAND USE	MOZAMBIQUE	UK
Agricultural land	56.3%	71%
Forest	43.7%	11.9%
Other	0%	17.1%

Source: CIA World Factbook (2016)



MAP OF PREDICTED BIODIVERSITY (SPECIES RICHNESS) OF WILD RELATIVES OF FOOD CROPS, IN MOZAMBIQUE

Image Source: Kew's partners on the Crop Wild Relatives project – CIAT of Colombia

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS

GOVERNMENT OF MOZAMBIQUE

Your data

Mozambique is rich in mineral resources yet one of the poorest countries in the world. Just over half of the population live in absolute poverty and only 60% have access to clean water.

Sixteen years of civil war in Mozambique has severely limited exploration and mineral extraction activities. The war finished in 1992 but it wasn't until 2012 that large natural gas reserves were discovered. Financial experts will tell you that taxes and other monies raised, as a result of gas exploitation, have the potential to dramatically change the economy.

However, the civil war devastated the rural infrastructure in Mozambique and this is a major concern because it is holding back the development of new industry.

Your view

Think about what your views might be of a plan to develop new coal mines and gas fields in areas also identified as areas of high plant biodiversity.

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your views to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

INTERNATIONAL COAL COMPANY

Your data

Coal is mined in Mozambique currently and there could be expansion of this industry if rail links to the coast were developed along with port handling facilities.

Your current exports are often delayed by transport trouble.

In early 2013, floods prevented parts of the railway line from operating, coal stocks piled up and some coal mines had to stop production.

In April 2013, three coal mining companies made plans to build their own railway lines to export their coal (possibly through Malawi) to the deep water port of Nacala on the northern coast of Mozambique.

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your view to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

NATIONAL FARMERS' UNION OF MOZAMBIQUE

Your data

60% of the population of Mozambique are farmers.

85% of people living in extreme poverty rely on small holdings to survive.

Although your members work hard they have significant challenges to face:

- The climate
- High levels of ill health
- Natural disasters
- 65% of farm work is done by hand
- Less than 50% of all women (lots are farmers) can read

The central and northern provinces of Mozambique have more fertile soils and more rainfall than other parts of the country. Here farmers produce surpluses of crops to sell.

The southern provinces suffer from a drier climate, poorer soils and natural disasters such as droughts and floods occur more frequently – this is where your poorest farmers live.

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your view to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

INTERNATIONAL UNION FOR CONSERVATION OF NATURE

Your data

You have been shown the map opposite of Cameroon produced by Kew's scientists, using data from field surveys in Cameroon, West Africa.

You have noticed that there is a lack of major overlap between 'protected areas' and areas identified by scientists as having the greatest concentration of threatened species, particularly in the west and southwest of the country.

Kew's research work in Cameroon has led to the government creating five new protected areas in this country.

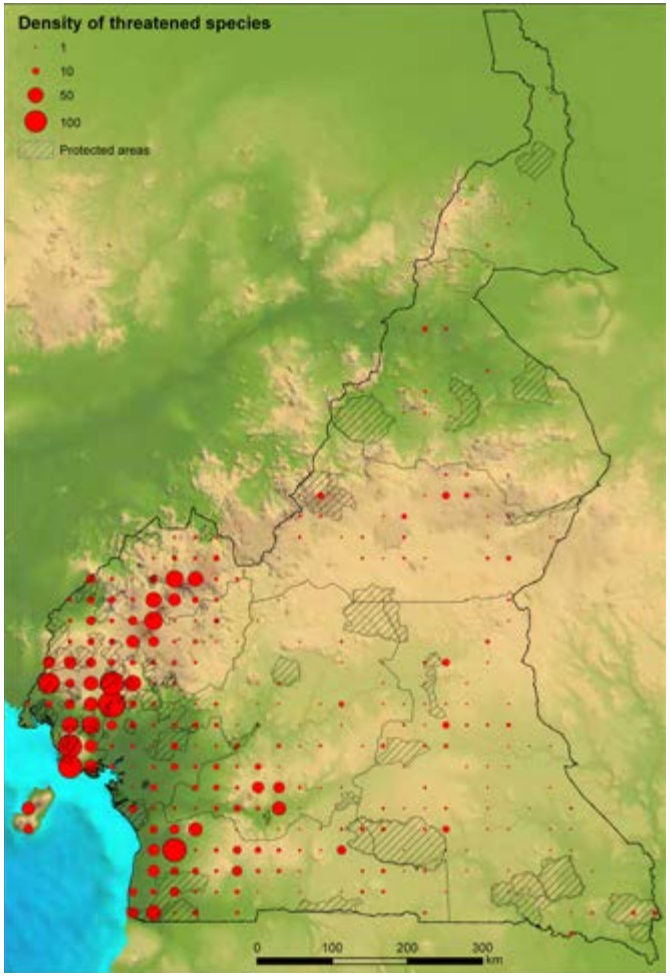
You back Kew's current efforts to do the same in Mozambique.

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your view to the class.



MAP SHOWING DISTRIBUTION OF THREATENED PLANT SPECIES AND PROTECTED AREAS IN CAMEROON

Image Source: Kew's partners on the Crop Wild Relatives project – CIAT of Colombia

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

THE INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (UN AGENCY)

Your data

The majority of people who live in rural areas in Mozambique survive on $1.25 a day or less – they live in absolute poverty.

Your 2014 report states that agricultural productivity in Mozambique was low.

Plants that are the wild relatives of some food crops have been successfully used to produce more drought or flood resistant crops benefitting farmers around the world. Mozambique would benefit from these cross-breed seeds too.

Your fund has also invested in new projects to create more employment in the fishing industry in Mozambique, with some success.

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your view to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

KEW SCIENCE TEAM

Your data

Below is a map of sites where the wild relatives of everyday crops grown in Mozambique have been found by Kew scientists, using research data from around the world. Each dot represents a site of a specific 'crop wild relative' plant amongst 29 different plants that your research team has identified as potentially useful for farmers.

What is a crop wild relative?

Crop wild relatives are plant species that are important for the future of farming. Their wide diversity and their relatively close genetic link to farm crops make them an important source of unique characteristics for crop improvement. They have been successfully used in plant breeding programmes for many years boosting crop:

- yields
- nutritional content
- resistance to pests and diseases
- and tolerance of drought/flood

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new coal mines and gas fields in Important Plant Areas?

You will need to present your view to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.4: MOZAMBIQUE ROLE-PLAY CARDS CONTINUED

INTERNATIONAL GAS COMPANY

Your data

In 2012, natural gas reserves were discovered in Mozambique, which have the potential to dramatically change the economy.

Mozambique's offshore and onshore reserves are estimated to be the 4th largest in the world.

Natural gas is projected to add $39 billion to the Mozambican economy over the next 20 years.

Your view

How should Mozambique develop its economy to benefit its people?

More specifically, what is your view of a plan to develop new gas fields in Important Plant Areas?

You will need to present your views to the class.

LESSON 1: KEW – THE GLOBAL REACH OF LOCAL CONSERVATION

RESOURCE 1.5: WHAT IS THE VALUE OF IMPORTANT PLANT AREAS?

Important for what or whom?

Historically areas of the world were given the title of 'important plant area' based on 3 different sets of criteria. Scientists investigating an area should ask…

CRITERIA HEADING	KEY QUESTION
A: Threatened species	Are there a large number of threatened species in this place? (May be globally, nationally or regionally threatened.)
B: Botanical richness	Are there a large number of species (in total) given the main vegetation type or habitat? Are some species endemic (they occur nowhere else)?
C: Threatened habitat	Does this place include a threatened habitat or vegetation type?

Time for a change

Increasingly, conserving biodiversity at all costs is seen as a luxury the world's poor can't afford:

'Given the pressure on land for urbanisation, food and fuel, we'll never get beyond 15% protected areas… that's where some biodiversity will remain. Elsewhere, the biodiversity that we have to maintain is the biodiversity we identify as being important for us and for human wellbeing.'

(Kathy Willis, Director of Science at RBG, Kew on BBC Radio 4 in 2015)

The new criteria for IPAs is likely to pose the additional question to scientists: 'Does the site contain an exceptional number of useful / culturally valuable species.'

- What do you think 'useful or culturally valuable' might mean? Give examples of plants that support your ideas.
- What might be the benefit of protecting areas known to be the home of wild relatives of crops?

LESSON 2
LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

BIG IDEA

More housing is needed to support London's current rate of growth. Where should those houses be built? Is the answer: in the Metropolitan Green Belt?

LEARNING OBJECTIVES

All students will be able to use maps to find out about and describe the location of the Metropolitan Green Belt and common land uses within it.

Most students will be able to explain why the Green Belt was created, why it might be built on in future and whether they agree with this.

Some students will be able to weigh up arguments for and against the development of areas within the Green Belt, give their opinion on this issue and support this with a range of geographical data.

RESOURCES

Resource 2.1: What's going on in the Green Belt?

Resource 2.2: Where is the Metropolitan Green Belt?

Resource 2.3: Why is Miss Marple expecting new neighbours?

Resource 2.4: Sorting out the mystery

Resource 2.5: Thinking of buying a plot of land in South Bucks?

Resource 2.6: Copenhagen's five fingers plan

YOU WILL ALSO NEED

Internet access will allow students to investigate Denham Country Park and Denham Village using the Earth and Street View of Google Maps.

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

KEY LANGUAGE

KEY WORD	EXPLANATION
Urban sprawl	The uncontrolled spread of urban development into neighbouring regions.
Metropolitan	A metropolitan area is a region that includes the densely populated urban core of a city and its less-densely populated surrounding areas, for example, Greater London. It is a much larger area than the city.
Greenfield site	Land that has not been previously developed, it may be agricultural land, for example, or parkland.
Brownfield site	Land that has been previously developed for settlement or industry.

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

SETTING THE SCENE

HOUSES ON THE NORTH SIDE OF CLARENCE WAY

Our growing capital

London's population is growing and the cost of housing is increasing rapidly, as demand for homes outstrips the supply. The capital has also seen significant investment in property from foreign investors which has also fuelled a significant rise in house prices. A report from the London Mayor published in 2015 stated that 'The affordability of home ownership is at its worst ever level in London… London's average house price was £495,000 in early 2014, more than five times its level in 1970 even after adjusting for inflation.'

With a population of 8.17 million at the 2011 census, London is already Europe's largest city. But the population is forecast to rise to over 9 million by 2021 and almost 10 million by 2031, based on the predicted growth of jobs in the South East of England outstripping other regions.

London is already densely populated. 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. The issue of where London's additional workers (and moreover its key workers) will live is a real one facing planners. Also, it is, obviously, of interest to young people growing up in the city today.

History of the Green Belt

In 1875 campaigner Octavia Hill, who helped found the National Trust 20 years later, called for a Green Belt of land to be protected around London to stop the city sprawling over the surrounding countryside. At the time nothing happened. The idea of a Green Belt was further promoted in a publication by Lord Brabazon, later the Earl of Meath, in 1901. He was also the founder of the Metropolitan Public Gardens Association, which was and still is an organisation focused on the opening up of green spaces including garden squares and cemeteries, giving access for all. And in 1919 the London Society developed the concept in its Development Plan of Greater London. The Green Belt idea was inspired by city 'beltways' in the US, where wide highways encircled new settlements as befitted a planning policy developed around the motor car, as well as a trend in European cities to take down out-moded city walls and replace them with a circular park. In Vienna this feature was known as the Ringstrasse park and was planned out in the late nineteenth century. But in the UK, it wasn't until the 1947 Town and Country Planning Act that the law supported such a move. It required local authorities by law to survey their administrative areas and devise a land development plan for them. Local authorities finally had the power to designate areas outside their ownership as Green Belt land.

OCTAVIA HILL, C 1899
John Singer Sargent © National Portrait Gallery

Purpose of the Metropolitan Green Belt

Government policy states that the greenbelt should only be built on in 'exceptional circumstances'. The purpose of the ring of open space that surrounds the city is two-fold: as stated, to protect the countryside from the encroaching sprawl of the Greater London conurbation; but also to assist in urban regeneration, focusing planners on the need to recycle derelict land within the existing envelope of the city.

The recreational value of London's Green Belt cannot be underestimated. For example, ten million people live within an hour of the Chilterns Area of Outstanding Natural Beauty (AONB) and it is one of the most popular areas in Europe for walking, cycling and horse-riding. The Chilterns receive 55 million leisure visits a year (Tourism South East, 2007).

'Green Belts provide countryside close to 30 million people in England, including 30,000 km of public rights of way, 89,000 ha of Sites of Special Scientific Interest (SSSIs) and 220,000 ha of broadleaf and mixed woodland.' (CPRE, 2015)

Voices for and against the Green Belt today

A debate about the Green Belt was sparked by a London Society paper published in 2014 entitled 'Green Sprawl: our current affection for a preservation myth?'. In it, planning professional, Jonathan Mann calls for us to look again at the purpose of the Metropolitan Green Belt. He argues that London's requirement for new homes is deliverable 'without too significantly impacting upon the overall size of the city's Green Belt'.

'Today the city is served by 516,000 hectares of Green Belt land; an area large enough to accommodate some 20-50 million houses. We have capacity on brownfield sites within the city limits and opportunities to densify existing areas but need to critically consider every option if we're to deliver over 1,000,000 new homes alongside jobs and associated infrastructure by 2030.' (The London Society, 2014)

Organisations for and against limited development of the Green Belt responded to this report, including the Campaign for Rural England (CPRE) who were opposed and Homes for Britain, a group that includes the Home Builders Federation and the Royal Town Planning Institute, who supported a review of planning restrictions in the Green Belt.

SATELLITE VIEW OF LONDON
Image by NASA

Is it all green?

The Metropolitan Green Belt is now three times the size of London itself having been extended a number of times in different directions. It extends up to 35 miles out in places.

Critics of the expanded Green Belt around London suggest that restricting planning around Greater London isn't as environmentally-friendly as it sounds. Across the South East, monoculture arable land is regularly sprayed with pesticides and insecticides. Such farming practices do not promote biodiversity. And commuters into London travelling across the greenbelt inevitably travel further than if they were able to live on the outskirts of London. Copenhagen's five fingers plan for the city's expansion along transport corridors separate by green wedges is cited as a model of interest to London's planners, combining access to open spaces and jobs in the city centre.

Critics of the enduring policy of protecting an unbroken belt of open space around the capital suggest that London's brownfield resource just isn't sufficient to accommodate London's booming workforce. Many sites have already been redeveloped. So, where are London additional workers to live? Or will new technologies reduce the need for people working for London businesses to be in London?

National context

England has 14 green belts, covering 13% of total land.

Nationally, the number of new homes being approved on greenbelt land in England has increased five-fold in the last five years. In 2009–10 planning permission was granted to 2,258 homes, while in 2014–5 the figure rose to 11,977.

Almost two-thirds of people think the green belt should not be built on, according to a 2015 survey conducted for the Campaign to Protect Rural England.

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

ACTIVITIES

STARTER

What is the Green Belt?

Use colour copies of Resource 2.1: What is going on in the Metropolitan Green Belt? (page 34) to launch the mystery theme. Students could annotate the colour images, working in groups or pairs. Were there any surprises with regard to the common land uses shown in the Green Belt? Is the land all green?

And where is it?

Students can use atlases or online maps to aid the completion of the map featured in Resource 2.2 Where is the Metropolitan Green Belt? (page 36) and describe the pattern of Green Belt land (using compass directions, scale, names of counties and boroughs).

This website is also a useful resource for the online interrogation of the pattern of Green Belt land in Britain as a whole:

telegraph.co.uk/news/earth/greenpolitics/planning/9708387/Interactive-map-Englands-green-belt.html

MAIN 1: MISS MARPLE MYSTERY

Working in groups or pairs, students should cut up Resource 2.3 Why is Miss Marple expecting new neighbours? (page 37) and sort the statements under common themes or headings. They will need to discuss emerging themes during the reading process. Are there any cards they might discard as irrelevant or red herrings?

Students can use Resource 2.4 Sorting out the mystery (page 39) to organise the sorting of statements and/or record the results.

Giving students access to an online map such as Google Maps will give them the opportunity to investigate Denham and its surrounding environment using Earth and Street View.

Once the 'mystery' has been solved, ask students to divide the statements into arguments 'for' and 'against' development in the Green Belt. Which are facts, and which are opinions?

Does this final sort inform their choice of which statements they would use to justify their own opinion on whether or not a million new homes for London's workers should be built in the Green Belt?

Differentiation

Higher ability students could be given Resources 2.5 Thinking of buying a plot of land in South Bucks? and Resource 2.6: Copenhagen's five fingers plan (page 41), in addition to the mystery cards (These extra resources could be introduced part way into the mystery). You might also ask students to rank cards in terms of how important or influential they think the fact or opinion is.

Students who require additional support could be given mystery cards 1–15 only.

Plenary

Give your opinion

A class vote, with three volunteer speakers presenting to the class for just a minute on:

- Why develop the Green Belt around Denham?
- Why protect it?
- Could the Danish teach Brits a thing or two about city planning?

Homework idea

EITHER Write a report weighing up the arguments for and against building a million new homes for London's workers in London's Green Belt. Give your opinion and provide evidence to support it.

OR Design a poster promoting either the views of those against development in the Green Belt or organisations for development, including key facts to support their view.

Assessment opportunities

- Prior knowledge and understanding of Green Belt land and the planning process – check
- Skills assessment – describing a pattern
- Targeted questions during mystery activity
- Assessment of homework task

Suggested follow-up

Investigate patterns of land use further by studying the Green Belt Atlas, published as part of the London Society (2014) paper:

Jonathan Manns, Green sprawl: our current affection for a preservation myth? London Society (2014)

londonforum.org.uk/reports/Green_Belt_analysis_by_Jonathan_Manns_for_The_London_Society.pdf

Lesson 3 in this unit builds on the idea of planners prioritising brownfield sites, as it examines the transformation of Queen Elizabeth Olympic Park in Stratford in preparation for the London 2012 Olympic and Paralympic Games and its subsequent transition as a home for new communities in East London.

Further reading

Paul Cheshire, Are they Green Belts by Accident? Spatial Economics Research Centre blog

spatial-economics.blogspot.co.uk/2015/05/are-they-green-belts-by-accident.html

Green Belt myths: CPRE's guide to what you need to know, Campaign to Protect Rural England (2015)

cpre.org.uk/what-we-do/housing-and-planning/green-belts/in-depth/item/3027-green-belt-myths

Paul Cahasan & Ariellle Farina Clark, Copenhagen, Denmark: The 5 Fingers Plan, Greater Copenhagen Authority Plan (2003)

depts.washington.edu/open2100/Resources/1_OpenSpaceSystems/Open_Space_Systems/copenhagen.pdf

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.1: WHAT'S GOING ON IN THE GREEN BELT?

1. What can you spot in the Metropolitan Green Belt west of London? Label any human and physical features (don't worry if you don't know exactly where they are).
2. Describe these places, are they: scenic or ugly, functional or beautiful?

Andrew Holt © Alamy Stock

PCJones © Alamy Stock

Dunstone Images © Alamy Stock Photo

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.1: WHAT'S GOING ON IN THE GREEN BELT? CONTINUED

PCJones © Alamy Stock Photo

Brian Agius © Alamy Stock Photo

Stan Kujawa © Alamy Stock Photo

Elmtree Images © Alamy Stock Photo

Dunstone Images © Alamy Stock Photo

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.2: WHERE IS THE METROPOLITAN GREEN BELT?

Can you complete the labels on the map to show the location of some commuter towns to the west and northwest of the city? The first one has been done for you:

Watford 2

High Wycombe

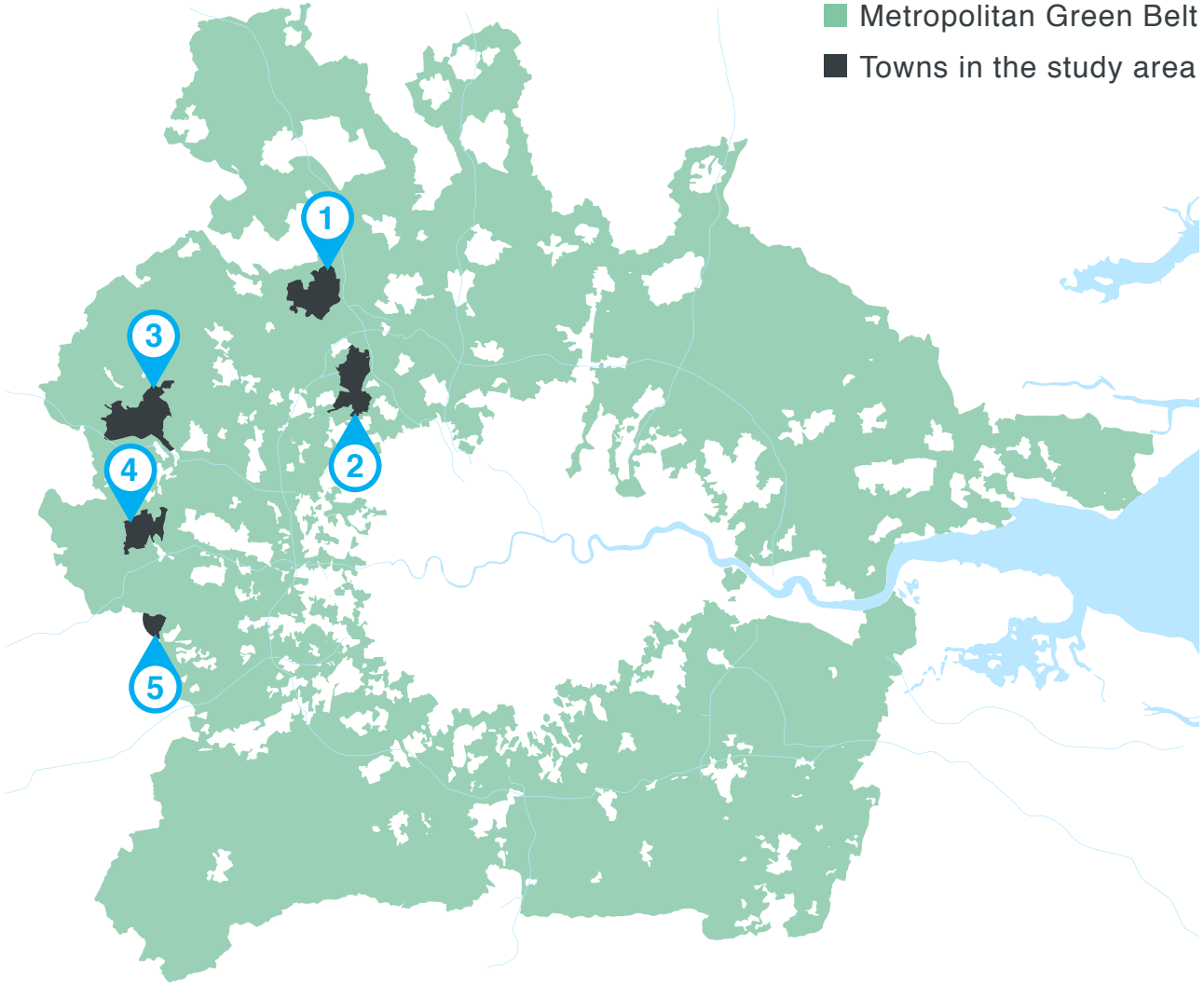
Maidenhead

Bracknell

Hemel Hempstead

Nationally, Green Belt land:

- prevents the unrestricted sprawl of large built-up areas
- prevents neighbouring towns merging into one another
- safeguards the countryside
- preserves the setting and special character of historic towns
- encourages the recycling of derelict and other urban land



LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.3: WHY IS MISS MARPLE EXPECTING NEW NEIGHBOURS?

1. Misbourne Cottage is located on Village Road, Denham.	2. A report by the National Housing Federation has found that Londoners must earn £100,000 per year before they can afford a home.	3. Actress Margaret Rutherford starred as Miss Marple in the 1960s film Murder Ahoy! In the film, Miss Marple's home was Misbourne Cottage, Denham.	4. Green Belts provide countryside close to 30 million people in England, including 30,000 km of public rights of way.	5. Green Belts only benefit people who own property within them and not the general public.
6. 2011 Census data shows that less than 10% of commuters travel to London by train regularly, despite living within easy walking or cycling distance of a station. Most (over 70%) travel by car.	7. In the face of climate change, the Green Belt will have a more important role. It is needed for carbon storage and its role in preventing flooding.	8. There are no sharks in Denham, Buckinghamshire, but it is home to herons, kingfishers and kestrels!	9. Miss Marple could have walked less than three miles to play golf in three different clubs from her home in Village Road.	10. Arable land in the South East of England is often sown with a single crop. Huge quantities of fertilizers and pesticides are poured onto these fields, resulting in a poor habitat for birds or small mammals.

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.3: WHY IS MISS MARPLE EXPECTING NEW NEIGHBOURS? CONTINUED

11. London's population is growing at the same rate as adding the UK's second city Birmingham every ten years.	12. Green Belt land is protected from development by law, except in 'very special circumstances'.	13. Denham is a village in South Bucks located just north of junction 1 of the M40 motorway. It is in the Green Belt.	14. Miss Jane Marple was an elderly, amateur detective, the invention of author Agatha Christie.	15. London's Green Belt stretches as far as 35 miles beyond the capital.
16. Trains from Denham station take less than 20 minutes to reach Marylebone station.	17. England's Green Belts contain a third of the country's local nature reserves and a fifth of our ancient woodland.	18. Between 2- 5% of London's Green Belt land would have to be sacrificed to build the one million new homes the capital will need in the next 15 years, says London Society.	19. Denham village is twinned with Denham in Shark Bay, Western Australia.	20. Almost two-thirds of people think the Green Belt should not be built on, says survey conducted for the Campaign to Protect Rural England.

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.4: SORTING OUT THE MYSTERY

1. Use the following headings to organise the mystery cards into categories or themes, such as Denham facts. Can you solve the mystery?
2. Next, sort the cards into evidence for or against house-building in London's Green Belt. You might want glue some of these statements onto this sheet.
3. Under each heading try to split the cards into opinions and facts.
4. Give your opinion: should a million new homes needed for London be built in the Metropolitan Green Belt or not? You might give Denham as an example to support your arguments.

Your answer:

ARGUMENTS FOR BUILDING ON THE GREEN BELT	ARGUMENTS AGAINST BUILDING ON THE GREEN BELT

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.5: THINKING OF BUYING A PLOT OF LAND IN SOUTH BUCKS?

South Bucks District Council has become aware of the intensive marketing of plots of land on a number of large areas of land in the Green Belt in South Bucks. The plots are promoted as an investment opportunity with the suggestion that planning permission for housing development will be forthcoming at some time in the future.

Before completing any purchase of land, members of the public are advised that they can check whether the land they are interested in is in the Green Belt. The key document to consider is the Core Strategy adopted in February 2011. In it you will see that the Council is vehemently committed to the protection and enhancement of the Green Belt.

In addition… the Council can meet its development requirements at least to 2026 without the need for the release of any land from the Green Belt for development.

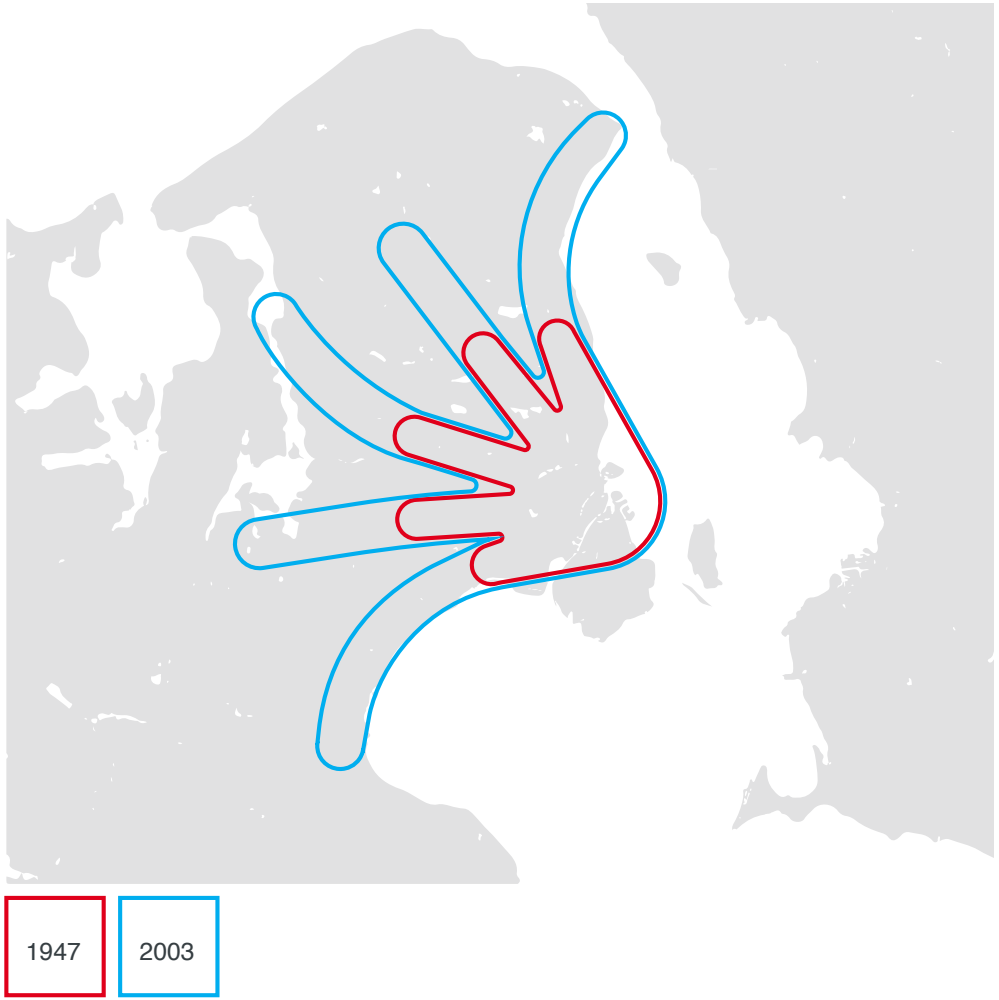
Therefore if the plot of land you are interested in is currently in the Green Belt, it is very likely to remain as Green Belt – in which case the strongest policies of restraint upon development will still apply.

Source: southbucks.gov.uk/article/3889/Green-Belt

UNION CANAL, SLOUGH, SOUTH BUCKS

LESSON 2: LONDON'S GREEN BELT – PROTECTING OR CONSTRAINING?

RESOURCE 2.6: COPENHAGEN'S FIVE FINGER PLAN



Copenhagen is the capital city of Denmark. One third of Denmark's population (1.8 million people) live in Copenhagen's Metropolitan area. The city's expansion has been guided by the five finger plan since the 1940s:

- The public should have easy access to facilities such as green spaces, bike paths, commuter trains and motorways.
- People should have the possibility to enjoy forests and lakes, agricultural landscapes, rivers, streams and fjords and still benefit from the close proximity to the city centre.

The form of the Five Finger Plan makes traffic and transportation of people and goods a much easier task.

Copenhagen's urban areas are confined to five corridors (see map) that are linked by transport networks (rail and road) and extend like fingers from the central core of the city.

Green wedges protected from urban development fill in the space between the urban corridors.

LESSON 3
QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

BIG IDEA

What was Stratford like before, during and after the 2012 Olympic and Paralympic Games? What happened in the transformation of the area now reopened as Queen Elizabeth Olympic Park? What has changed in terms of the area's human and physical features? How might it look in twenty years from now?

LEARNING OBJECTIVES

All students can describe how the environment of Queen Elizabeth Olympic Park has been transformed.

Most students can describe in some detail changes that took place on the site to prepare for the London 2012 Olympic and Paralympic Games and subsequent changes after the Games.

Some can explain, both in terms of transport and housing, how the transformation of the area addresses a number of different elements of sustainability.

RESOURCES

Resource 3.1: My experience of Stratford and Queen Elizabeth Olympic Park

Resource 3.2: After the Games

YOU WILL ALSO NEED

- Access to online maps and the websites of East Village, Queen Elizabeth Olympic Park for all students.

LESSON 3: QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

KEY LANGUAGE

KEY WORD	EXPLANATION
Brownfield	Land that has been previously developed for settlement or industry.
Legacy	The inheritance or gift of a previous generation or in planning terms, a previous initiative or event such as the London 2012 Olympic and Paralympic Games.
Sustainability	The ability or capacity of something to be maintained or to sustain itself, balancing the needs of the physical environment, society and the economy.

LESSON 3: QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

SETTING THE SCENE

An ambitious legacy plan

The redevelopment of Queen Elizabeth Olympic Park post London 2012 Games was always ambitious. In fact, the legacy element of London's bid to host the 2012 Olympic and Paralympic Games is widely recognised as key to the UK's win. Its focus on children was an element of this. Children would be benefactors of the London 2012 Games and could link nations through sport was one factor. More locally, its long-term focus on regenerating one of the poorest areas of the city was significant.

Given, the scale of the investment in the Lower Lea Valley, the results of such huge regeneration project may be felt at a regional, perhaps national level. The London Legacy Development Corporation states its mission as:

"…using this once in a lifetime opportunity to develop a dynamic heart for east London, creating opportunities for local people and driving innovation and growth across the city and the UK." (Transforming East London, LDDC)

Such plans would need to be ambitious given the scale of the task, as Mayor of London Boris Johnson noted:

If, in 1971, 30% of the working population in East London worked in manufacturing, by 2001 this figure was 7.5%. The drama-documentary What have you done today, Mervyn Day? produced by British Indie band Saint Etienne, uniquely captures the air of urban decay and industrial dereliction that characterised the area in 2005, prior to the preparations for the Games. As the band member Bob Stanley puts it:

"…as far as you could see, there were armies of electricity pylons, towering over grubby waterways and barely breathing industrial estates."
(*Olympics 2012 have changed the Lower Lea Valley beyond recognition*, Guardian newspaper, July 2012)

Ambitious for the environment

Queen Elizabeth Olympic Park is 560 acres in size, about the size of Hyde Park and Kensington Gardens combined, and the largest new urban park in the UK for a century.

The site was previously a mixture of greenfield and brownfield land, including Hackney Marshes. The quality of the environment was significantly enhanced by the removal of 52 electricity pylons, which stood up to 65 metres in height. Across the Olympic site, there were many derelict sites to clear, dumping of waste and flying tipping had become common place and a considerable amount of land was contaminated, adding cost to the clean-up job. Though, costly the result, as witnessed by the author along with millions of others, was spectacular. The rainbow of wildflower planting and lush waterfronts directly contrasted with the area's previous run-down incarnation. It had become a pleasant environment to picnic in.But the park wasn't designed to last for the few weeks of the Games. Its architects weren't content with recreation alone, even across a longer timescale.

Queen Elizabeth Olympic Park was designed to benefit the environment in a number of different ways:

- To encourage bio-diversity to flourish
- To tackle the urban heat island effect
- To provide sustainable urban drainage systems, helping to manage changing rainfall patterns.
- To enable new transport routes, linking five new residential neighbourhoods to each other and Stratford City. With new commuter cycle paths, its many paths and bridges, the Park promotes walking and cycling and the health benefits these pursuits will bring residents, along with reduced carbon emissions for the planet.
- Additional transport infrastructure, including better connected stations and improved bus routes, should mean that 'residents will not have to travel by car for their daily needs' (LLDC's Sustainability Guide to the Queen Elizabeth Olympic Park).

Stratford City was planned as a major hub for jobs and homes in the Park. This mixed use development project encompasses:

- Westfield, the shopping centre
- commercial and residential property in the International Quarter
- East Village (formerly the athletes' village). This was the first area of the Park to welcome new residents after the Games, to the new London E20 postcode.

Ambitious for homes and community

Over the period from 2012 to 2030, approximately 8,000 new homes are planned for the area; dividing between the East Village (2,800 homes) and five new neighbourhoods (approx. 6,800 homes):

- Chobham Manor
- East Wick
- Sweetwater
- Pudding Mill
- Stratford Waterfront*

The homes are designed to be 'green' – all homes in these neighbourhoods meet the Government's 2016 Zero Carbon definition. How?

- Home are connected to the low carbon distribution heating system providing affordable heat to residents.
- Green roofs keep things cool, build resilience against flooding and create more open space.
- Smart meters are standard to help you monitor and control your energy use…'

  (LLDC's Sustainability Guide to the Queen Elizabeth Olympic Park)
- Around one third of all new homes will be affordable.

*This is a working title for the Cultural and Education district being created in the former Marshgate Wharf neighbourhood, this will include UCL, V&A, Sadler's Wells, UAL along with residential.

LESSON 3: QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

ACTIVITIES

STARTER: LONDON 2012 OLYMPICS AND PARALYMPIC GAMES AND TODAY'S PARK

Who attended the 2012 Olympic and Paralympic Games? And who has been to the Olympic Park or Stratford City since?

Ask students what they remember about the London 2012 Olympics and Paralympics, both momentous events in the history of the capital. Did they have tickets to see any of the sport?

Find out if any of the class have visited Westfield Stratford City or Queen Elizabeth Olympic Park (since it reopened in 2014), for what purpose and how often. What can they remember about the environment? In fact it is the largest new urban park in the UK for a century.

Resource 3.1: My experience of Stratford and Queen Elizabeth Olympic Park (page 51) may be useful for students to structure their response. Also, ask a few individuals to explain the park's attractions to the rest of the class.

From the front of class, you might explore this interactive map to demonstrate the range of different facilities that lie within the park:
queenelizabetholympicpark.co.uk/the-park/plan-your-visit/interactive-park-map

MAIN 1: THE TRANSFORMATION OF THE LOWER LEA VALLEY

Looking back

Ask students to compare and contrast their contemporary image of Queen Elizabeth Olympic Park with photos or film of the site prior to its transformation.

- Show a short extract of the drama-documentary *'What have you done today Mervyn Day?'* (2005)
  www.youtube.com/watch?v=_NqVZmgHDpM
- Read pages 34 – 35 of Your Sustainability Guide to Queen Elizabeth Olympic Park (LLDC)
  www.queenelizabetholympicpark.co.uk/~/media/qeop/files/public/misc%20documents/lldc_your_sustainability_guide_to_the_queen_elizabeth_olympic_park2030.pdf

or

- Review photos of the site in 2007 and 2011, presented on the RGS-IBG Stratford page.
  www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Planning+your+fieldtrip/Fieldwork+locations/London+2012+Olympic+Park/Olympic+Park+photos.htm

Using one of the above, play spot the difference. Students should jot down as many differences as they can, e.g: In 2005 high-voltage electricity pylons dominated the landscape whereas...

Looking forwards

Reinforce the fact that the site has been transformed and this work is ongoing. Read aloud the text from the *'Destination Queen Elizabeth Olympic Park, 2030'* statement from LLDC's Sustainability Guide on page 7 (reproduced below):

"It's the year 2030. Welcome to Queen Elizabeth Olympic Park.

Arrive by bike, dock at a secure parking station and begin your exploration on foot.

Stroll along the canal paths and watch children kayaking, water taxis returning locals from the city and fishermen sitting on the shaded banks.

Take in the view of London's iconic skyline from the panoramic heights of the ArcelorMittal Orbit viewing platform. Admire the sweep of the Velodrome's curving timber roof across the park, and look down at crowds parking their bikes and hopping off buses as they arrive for a concert at the Stadium.

Explore the community gardens, walk along the wetlands, or wander among the new homes, capped with green roofs, solar panels, and clever ways to catch rainwater. Discover the buildings – as smart as they are stylish – built from sustainable materials, and designed to use energy and water sparingly.

Or just relax in the park with a picnic, listen in to an open-mic session and watch the vibrant community that lives there go by."

Research task

In pairs students should find out more about either:

- New neighbourhoods and housing – see pages 22 – 25 of LLDC's Sustainability Guide pdf
- Transport – see pages 16 –19 of LLDC's Sustainability Guide pdf

Note: Resource 3.2: After the games (page 53) may be of interest, allowing students to piece together the complex of transformation programme planned for the Park.

Ask students:

Beyond the transition from brownfield site to green open space, how is the enhanced transport system (or new housing) helping to 'green' or protect the environment of the Park?

They could feedback to a partner or describe and explain in just fifty words the '2030 vision' of either transport or housing in and around Queen Elizabeth Olympic Park.

Differentiation

There is a wealth of material online about both transport and housing in and around the Park. More able students might benefit from exploring Queen Elizabeth Olympic Park's comprehensive site independently:

queenelizabetholympicpark.co.uk

Plenary

Watch *Welcome to East Village, London E20* (Get Living London, 2014) – a short promotional film about living in East Village (formerly the Athletes Village).

getlivinglondon.com/gll-neighbourhood.aspx

Take a class vote – who would like to live in East Village? Would you have voted in the same way if the place looked more like that landscape featured in *What Have You Done Today, Mervyn Day?* (Saint Etienne 2005).

Homework ideas

Students could develop their response to the sentence starter 'The environment of the Queen Elizabeth Olympic Park has been transformed in a number of ways…' in an extended piece of writing, using their research findings along with those of their partner.

Assessment opportunities

- Prior knowledge of London 2012 Olympic and Paralympic Games site and Queen Elizabeth Olympic Park – check
- Skills assessment – interpreting maps and multiple sources of geographical data
- Assessment of written homework task

Suggested follow-up

Introduce students to the many aspects of sustainability (according to the London Legacy Development Corporation) by reading pages 10/11 of the LLDC's Sustainability Guide and other sections of this document. Students could build up a mind-map of this information, indicating links between different aspects or initiatives undertaken under the 'sustainability' banner.

This activity links into Lesson four's examination of what sustainability means for Greater London as a whole.

Further reading

2005 – 2012

RGS- IBG Background to the 2012 site

Article describes the scale of the economic, environmental and social transformation of the Olympic site in time for the 2012 Games.

www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Planning+your+fieldtrip/Fieldwork+locations/London+2012+Olympic+Park/Background+to+the+2012+site.htm

Post Games

Welcome to East Village, London E20 (Get Living London 2014)

Short promotional film introduces the amenities and environment of East Village and Queen Elizabeth Olympic Park.

getlivinglondon.com/gll-neighbourhood.aspx

youtube.com/watch?v=VIFqcN7RPGM

Chobham Manor E20

Commerical site selling homes in the first of five new neighbourhood areas.

chobhammanor.co.uk

LESSON 3: QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

RESOURCE 3.1: MY EXPERIENCE OF STRATFORD AND QUEEN ELIZABETH OLYMPIC PARK

I have/have not visited the Olympic Park.
(Your visit might have been during or after the Games.)

I have/have not visited Stratford City.

When: _____

_____

_____

Purpose of my visit: _____

_____

_____

Best thing: _____

_____

_____

Worst thing: _____

_____

_____

What I can remember about the environment: _____

_____

_____

FINAL CONSTRUCTION OF OLYMPIC PARK LONDON

LESSON 3: QUEEN ELIZABETH OLYMPIC PARK – A BROWNFIELD SITE GOES GREEN

RESOURCE 3.1: MY EXPERIENCE OF STRATFORD AND QUEEN ELIZABETH OLYMPIC PARK CONTINUED

The environment of the Lower Lea Valley (now the Queen Elizabeth Olympic Park) has been transformed in a number of ways since the 2012 games. Describe what has changed:

LESSON 3: QUEEN ELIZABETH PARK – A BROWNFIELD SITE GOES GREEN

RESOURCE 3.2: AFTER THE GAMES

9 Sept 2012
End of the London 2012 Olympic and Paralympic Games

1 Jan 2013
Olympic Park officially becomes Queen Elizabeth Olympic Park

Spring 2013
First inhabitants move into the East Village (formerly the Athlete's Village)

July 2013
Timber Lodge and Copper Box Arena open

Summer 2013
Work begins on Chobham Manor, a new neighbourhood in the Park

End of 2013
Lee Valley Velopark and Lee Valley Tennis and Hockey Centre open

Spring 2014
South of the Park, London Aquatics Centre, Arcelormittal Orbit and the Podium

2015 – 2016
First full year of events and activities at the Park

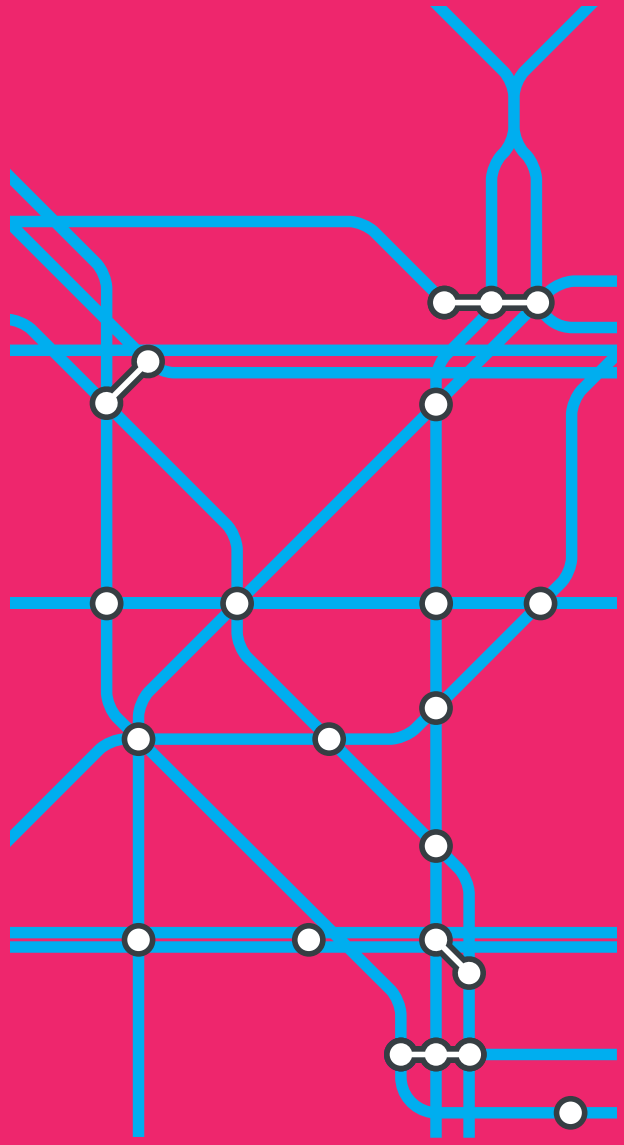
2017
World Athletics Championships at the stadium

2017
Crossrail opens, a new east/west rail route across London through Stratford

Until 2030
Five new neighbourhoods to be built, including 8000 new homes

EXPLORE

In this section a range of fieldwork sessions are suggested that would enable students to explore one of the introductory themes (biodiversity, the Green Belt and urban regeneration) further, following lessons 1–3. Alternatively, schools may choose to investigate their local open space, its value for local people and the quality of its natural environment.



EXPLORE: OPTION 1
BUILD ON ONE OF THE KEY THEMES OF LESSONS 1–3

THE PALM HOUSE AT KEW
Image by Adrian Pingstone

THE GLOBAL REACH OF LOCAL CONSERVATION

(Extends Lesson 1)

Royal Botanic Gardens, Kew

RBG Kew, Richmond, Surrey TW9 3AB

schools@kew.org

Kew offers a range of geography education sessions for students at Key Stage 3, including Ecosystems, Rainforests, Field Studies: Microclimates; and coming in September 2016; Biodiversity.

Maximum capacity of trips:

- Kew can cater for groups of up to 200 pupils at one time, depending on availability
- All Kew education sessions are taught on a 1:15 Kew teacher: pupil ratio
- Sessions are costed depending on your choice of session and number of pupils
- All schools must book on-line and at least 5 weeks prior to visit date

kew.org/visit-kew-gardens/schools

THE FUTURE OF LONDON'S GREEN BELT

(Extends Lesson 2)

Denham Country Park

Colne Valley Park Centre, UB9 5PG

01895 270730
iver.environment@groundwork.org.uk

Denham Country Park is a 69 acre public park and Local Nature Reserve in Buckinghamshire and the London Borough of Hillingdon. It is part of the 42 square mile Colne Valley Regional Park.

Max capacity: 60

Information about the area
colnevalleypark.org.uk

Information on our schools programmes
groundworksouthlearning.org.uk

Iver Environment Centre website
ivernature.com

EXPLORE: OPTION 1

BUILD ON ONE OF THE KEY THEMES OF LESSONS 1–3 CONTINUED

URBAN REGENERATION, BROWNFIELD SITES GO GREEN

(Extends L3)

FSC London East

44 Broadway Street, E15 1XH

020 3130 0469
enquiries.ldn@field-studies-council.org

The FSC offers a range of KS3 sessions including: Social Economic and Environmental impact of the 2012 Olympic and Paralympic Games, A sustainable Lea Valley

Max capacity: 30 (up to 120 pupils per day)

field-studies-council.org/centres/londonregion

The Wetlands Centre

Queen Elizabeth's Walk, SW13 9WT

020 8409 4419
education.london@wwt.org.uk

Max capacity: 35 (you are welcome to book multiple learning sessions across the day)

wwt.org.uk/learn/learn-at-london

ENTRANCE TO WWT LONDON WETLAND CENTRE

EXPLORE: OPTION 2
INVESTIGATE THE ENVIRONMENTAL QUALITY OF A 'GREEN SPACE' NEAR YOU

- First (in class) locate your study area using GIS and find out about it:

  parklifelondon.org

  londongardensonline.org.uk

  gigl.org.uk/online
- Design and carry out a survey of people that use it (in school, or in the park).
- Participant observation: what can you do there?
- Map the resources/different spaces and activities within it.
- Design an activity for younger children to explore this open space.

Further reading

London's Natural Signatures, Natural England (2011)

publications.naturalengland.org.uk/publication/6540238365130752

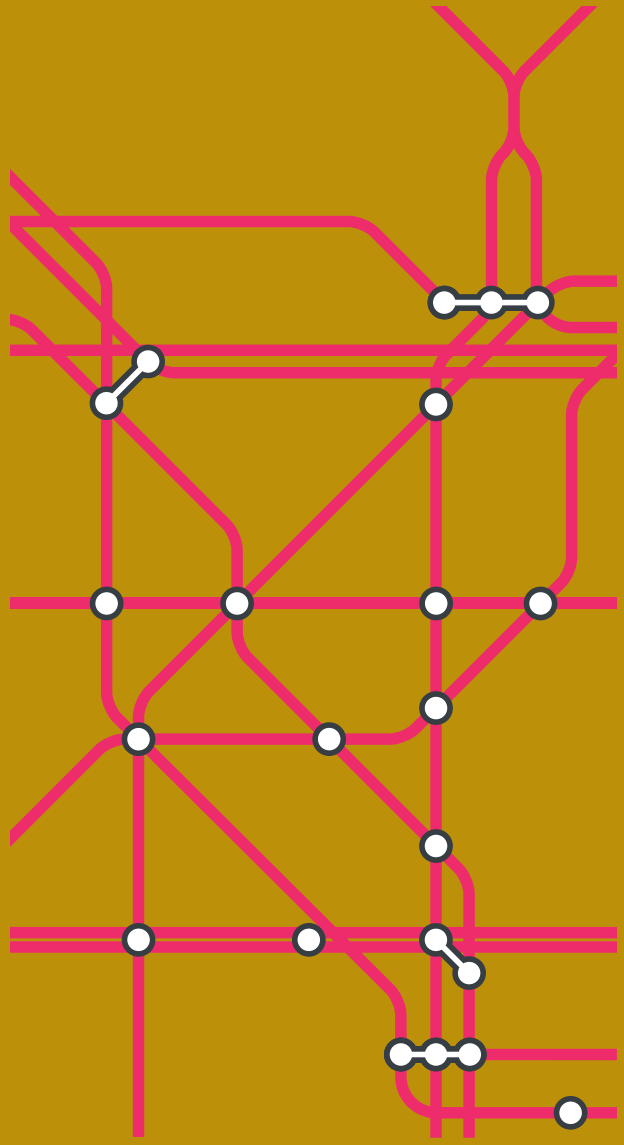
Geography Collective, Mission Explore Can of Worms Kids Press (2010)

missionexplore.net

REGENTS PARK

CONNECT

In this final lesson students have the opportunity to write a manifesto for the proposed Greater London National City Park. Activities also include locating some of London's largest green spaces, investigating the value of such areas to Londoners and an opportunity to reflect on the concept on sustainability.



LESSON 4
GREATER LONDON – A NATIONAL CITY PARK?

BIG IDEA

How green is London, overall? Does it fit the criteria of a National Park? What could being a National City Park mean for London in the future?

LEARNING OBJECTIVES

All students will be able to write a list of manifesto pledges for a Greater London National Park City.

Most students will be able to locate the UK's national parks and some of London's largest open spaces. They will write a list of manifesto pledges, be able to explain their priorities and who would be involved in making them happen.

Some will be able to describe how interpretations of what sustainable development looks like differ. These students will also be able to explain their manifesto for the NPC in some detail, justifying their priorities with reference to evidence gathered across the unit.

KEY LANGUAGE

Resource 4.1: Where are Britain's National Parks?

Resource 4.2: Can you locate London's largest open spaces?

Resource 4.3: Green London: true or false?

Resource 4.4: Grouping your facts and sustainability

Resource 4.5: Write your own manifesto for a NP City

YOU WILL ALSO NEED

Access to the internet for students to explore the National City Park site

nationalparkcity.london

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

KEY LANGUAGE

KEYWORD	DEFINITION
COMMON	A piece of open land for public use.
GARDEN SQUARE	An open space surrounded by buildings, within an urban area. Many of these are private amenities for the use of the residents of the house around the square.
GREENWAY	A strip of undeveloped land near an urban area, set aside for recreational use or environmental protection.
NATIONAL PARK	An area of countryside, occasionally sea or fresh water, protected for the enjoyment of the public and the preservation of wildlife.
REBRAND	To change the image of a company, organisation or place.
ROYAL PARK	Former hunting grounds, formerly-owned by the monarchy, these eight parks are now open to the public and owned by the Crown.
SUSTAINABILITY	The ability or capacity of something to be maintained or to sustain itself, balancing the needs of the physical environment, society and the economy.

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

SETTING THE SCENE

The UK national parks

In total, there are 15 national parks in England, Wales and Scotland. The oldest national park, the Peak District was founded in 1951. The South Downs National Park, inaugurated in 2009, is Britain's newest park. While upland wilderness areas were initially the mainstay of Britain's national parks, both the Broads and the New Forest both broke the mould, in terms of the type of landscape valued and protected in this way.

To become a national park, areas of Britain must have significant recreational value for people as well as being important habitats for wildlife. They are primarily countryside. An estimated 110 million people visit the National Parks of England and Wales every year.

London isn't rural, although large areas of it are green – 47% is physically green (Greenspace Information for Greater London, 2015). And with 1,000km of signed footpaths, 850km of waterways, plus 13,000 species of wildlife, it is an important urban habitat for all. But the question is, how should we protect and celebrate (and improve) London's green spaces?

One in seven London children have not visited a green space in the last year. Many more children enjoy a trip to the park once a year. Stark statistics like this could have long term consequences for the way the city is used by its residents (and developed by its professionals) in the future.

CRIB GOCH, SNOWDONIA NATIONAL PARK, WALES

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

SETTING THE SCENE

The world's first National Park City

'Across London, 8.3 million trees deliver around £95 million of air filtration services annually. This is in terms of avoided direct health damage costs only. Air pollution costs the UK economy £20 billion a year.' (AECOM research for the Greater London National Park City)

The idea of a national park city (NPC) is a new one. Many of the ideas about how to protect and invest in London's green spaces already exist. But the challenge is how to scale these local small-scale initiatives throughout the city and re-connect the whole of London's population with its environment. If mental health conditions cost London £26 million a year and obesity, a further £900 million such investment should pay for itself, according to the organisations behind the proposal for the Greater London NPC.

Sustainability and growth

With a projected population of 10 million by 2030, London has to plan its growth and development with care. The city faces real challenges in maintaining quality of life and high-quality green spaces over the next decade and beyond. A discussion of the NPC proposal prompts a useful reflection on the concept of sustainability and its differing definitions (see figures 1 and 2.)

In figure 1 the three pillars of sustainability (the economy, society and environment) are arranged differently to that of a more conventional model (figure 2); in figure 1 the economy and society are entirely constrained by environmental limits.

Figure 1.

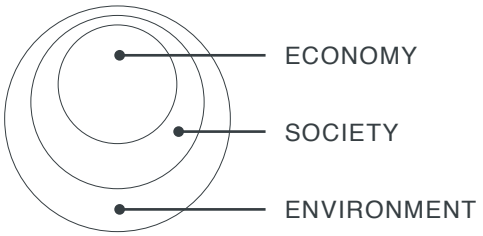
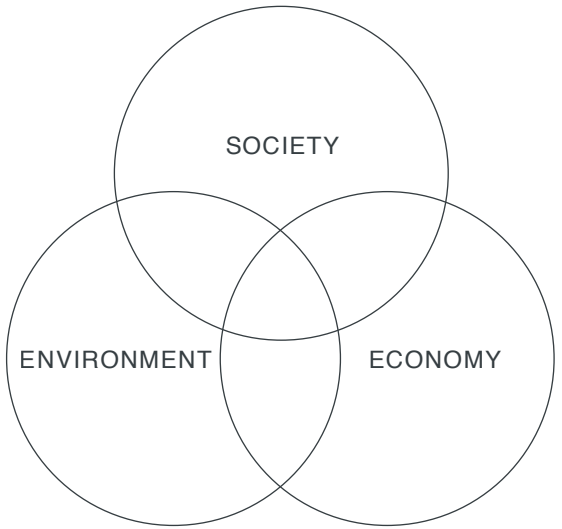


Figure 2.



AERIAL VIEW OF VICTORIA PARK

Popular support and citizen rangers

‘New research shows nine out of ten Londoners want the Capital reimagined as a National Park, and for the London Mayor and local councils to back it.’ (Greater London National City Park press release, 2015)

Drawing on learning in lessons about the Royal Botanic Gardens, Kew, the future of London’s Green Belt and the development of Queen Elizabeth Olympic Park, students will propose a manifesto. How would they like Greater London to look different as the world’s first national park city in five years for now?

Under this new initiative, ‘citizen rangers’ will be recognised for their voluntary contribution – some your students might like to get involved.

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

ACTIVITIES

STARTER

How many of Britain's National Parks can you locate?

Working in pairs, students should try to complete the Resource 4.1: Where are Britain's National Parks (page 69). Can they suggest locations for the three national park images A–C. (Answers: A is Rievaulx Abbey in the North York Moors, B is the New Forest, C is the Pembrokeshire Coast.)

Differentiation

For students who require extra support use this labelled map of the National Parks.

www.nationalparks.gov.uk/visiting/maps

They might instead highlight place they've heard of or visited.

So, how many of London's open spaces can you locate? Students decode anagrams and match place names to London open space locations using Resource 4.2. (page 68 – Image X is Richmond Park, Y is the Diana Princess of Wales Memorial Playground in Kensington Gardens and Z is the Serpentine, Hyde Park.)

How does your locational knowledge of Britain as a whole compare to knowledge of Greater London?

Note: If time constrained you may wish to choose one of these starter activities and use the second as an extension, if needed.

MAIN 1: TRUTHS OR MYTHS ABOUT LONDON?

Students should discuss which of the statements in the Resource 4.3: Green London: true or false cards (page 70) are true and which are false, i.e. urban myths. (Answer: they're all true except statement 9 which is basically nonsense as all water molecules are recycled everywhere!)

When they discover that 12 of these statements are true, introduce the idea that London is, in fact, a very green place, both in terms of its open space and biodiversity, but also in terms of energy use e.g. ease of access to public transport. Display the National City Park map of London on your IWB:

nationalparkcity.london/npc_map

Students could sort the 12 true statements using Resource 4.4: Grouping your facts and sustainability (page 71), by writing the number of the statement within the appropriate sector of the Venn diagram. Suggest that balancing these three different aspects of life in the city is key to its sustainable development.

Differentiation

Question 2 on Resource 4.4 is a good extension activity, encouraging reflection on what the term sustainability means in practice.

Plenary

Students review their manifesto for the new NPC and share their top two ideas with the class for a sustainable green London.

Homework idea

Complete your manifesto, explaining your priorities with reference to evidence gathered across the Green London? unit.

Assessment opportunities

- Prior place knowledge and understanding of Britain's national parks – check
- Targeted questions during manifesto activity
- Assessment of homework task

Further reading

Hannah Fearn, Welcome to the UK's latest national park… London, published in The Guardian (28th April 2015)

theguardian.com/sustainable-business/2015/apr/28/rebranding-london-as-an-urban-park-city-to-reconnect-with-nature

Dan Raven-Ellison, Keynote speech: Why we should make London a National Park City Zoological Society London

soundcloud.com/zsl-1826/dan-raven-ellison-keynote-why-we-should-make-london-a-nationalparkcity

The NCP proposal, Greater London National City Park

nationalparkcity.london

For all of the latest updates on the NCP

nationalparkcity.london/in_the_news

London #629Wards Open Spaces

629wardsopenspacemap.org.uk

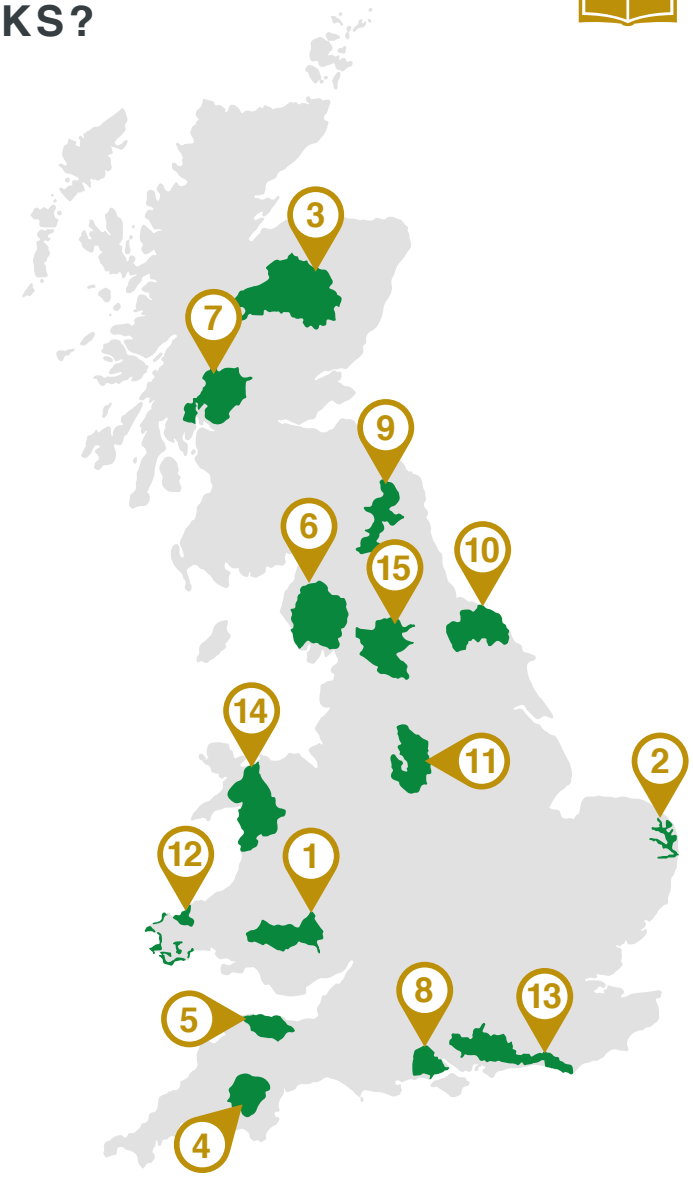
An interactive map of London's wards with tweets and images of London's many green spaces.

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.1: WHERE ARE BRITAIN'S NATIONAL PARKS?

1. There are 15 National Parks in Britain. How many can you name?
2. Use the number key to complete this map of Britain's National Parks.

1	B
2	B
3	Cairngorms
4	D
5	E
6	Lake District
7	Loch Lomond and Trossachs
8	New Forrest
9	N
10	North York Moors
11	P
12	Pembrokeshire Coast
13	S
14	Snowdonia
15	Yorkshire Dales



LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.1: WHERE ARE BRITAIN'S NATIONAL PARKS? CONTINUED

3. Can you guess which three parks images A–C were taken in?

A

B

C

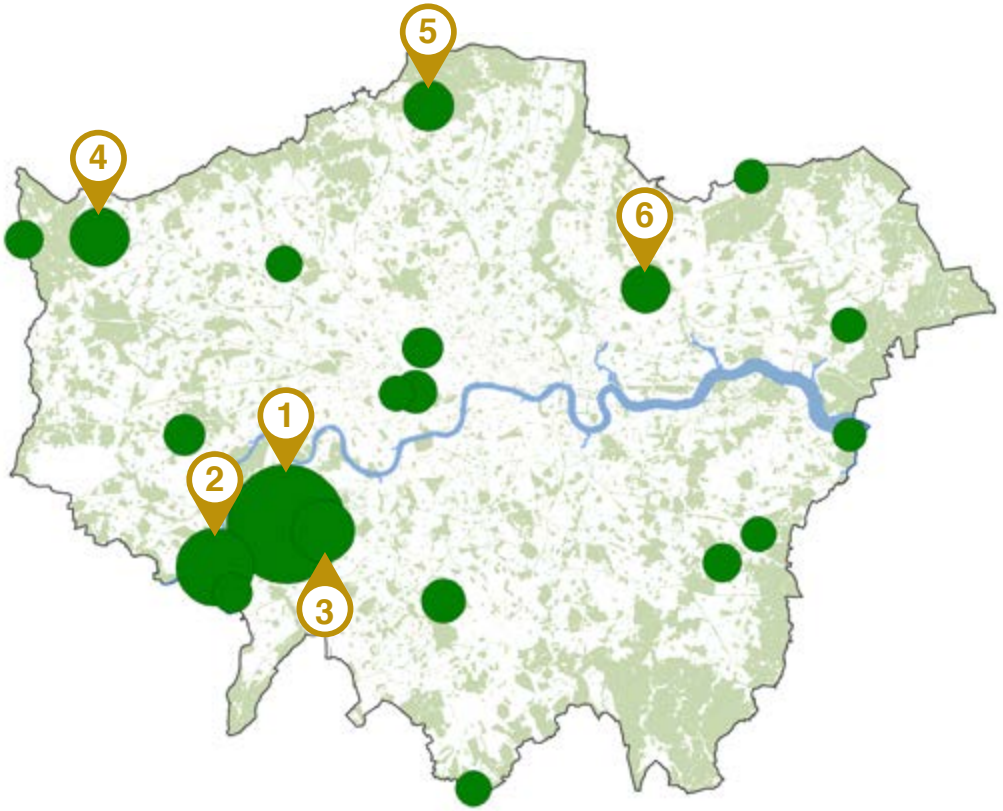
ANSWERS

A: Rievaulx Abbey, North York Moors National Park © Mike Kipling/NYMNPA.
B: Exmoor National Park © Nigel Stone **(CC By-NC-ND 2.0)**
C: Manorbier beach © Pembrokeshire Coast National Park Authority

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.2: CAN YOU LOCATE LONDON'S LARGEST OPEN SPACES?

1. Un-scramble the anagrams to complete the labels of some of London's largest open spaces.
2. Use your answers to the anagrams to label the map, locating London's five largest green spaces.



~~MONDARK RICHP~~

SDOOW PILSIUR

WDAANEST SFTLA

PUSHY BARK

DONCOM BLEWIMMON

PRENT TARK

1 RICHMOND PARK

2 _____

3 _____

4 _____

5 _____

6 _____

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.2: CAN YOU LOCATE LONDON'S LARGEST OPEN SPACES? CONTINUED

3. Where do you think images X, Y and Z were taken in London?

X

Giles Barnard © The Royal Parks

Y

© Anne Marie Briscombe

Z

© Andy Hooper

ANSWERS

X: Richmond Park © The Royal Parks
Y: Diana Princess of Wales Memorial Playground in Kensington Gardens © The Royal Parks
Z: the Serpentine, Hyde Park © The Royal Parks

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.3: GREEN LONDON – TRUE OR FALSE?

Which of the following are facts about London, its people and its environment, and which are just urban myths?

1. There are 300 farms in the capital. Talk about Old MacDonald has a city farm, e-i-e-i oh!
2. London is home to 13,000 species of wildlife, including the water vole, snipe and slow-worm.
3. There are almost as many trees as people in the city.
4. London's trees filter the air we breathe and this filtration service is worth £95 million a year!
5. Almost half (47%) of London is physically green.
6. 30,000 Londoners spend Sunday afternoons digging their allotment.
7. One in seven London children have not visited a green space in the last year. Many more children enjoy a trip to the park once a year.
8. Mental health conditions cost London £26 million a year. Obesity costs the city £900 million – that's almost a billion pounds!
9. If you live in London the water you drink has probably been through seven other people!
10. As our bodies are 70% water, you could say we are made of the River Thames.
11. There are more than 50 London canoe clubs.
12. A third of all private gardens in London are paved over.
13. London councils plan to use DNA testing of dog poo to bring dog mess offenders to justice in the capital.

LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.4: GROUPING YOUR FACTS AND SUSTAINABILITY

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

(The Brundtland Commission of the United Nations, 1987)

Figure A illustrates how we humans are linked to our physical environment: we affect it and it affects us, our society and our economy, both in the short term and the long term. The sustainable development of our city depends on effective functioning of natural, physical systems, for example the water cycle.

1. Try to locate the true statements (from Resource 4.3) within figure A – write the number of each statement in the correct area of this Venn diagram. Statement 1 has been done for you.
2. Another view of the intersection between the natural environment, our economy and society is shown in figure B (right). Which of the two figures, A or B, do you think best describes the way we depend or interact with our physical environment?

Figure A.

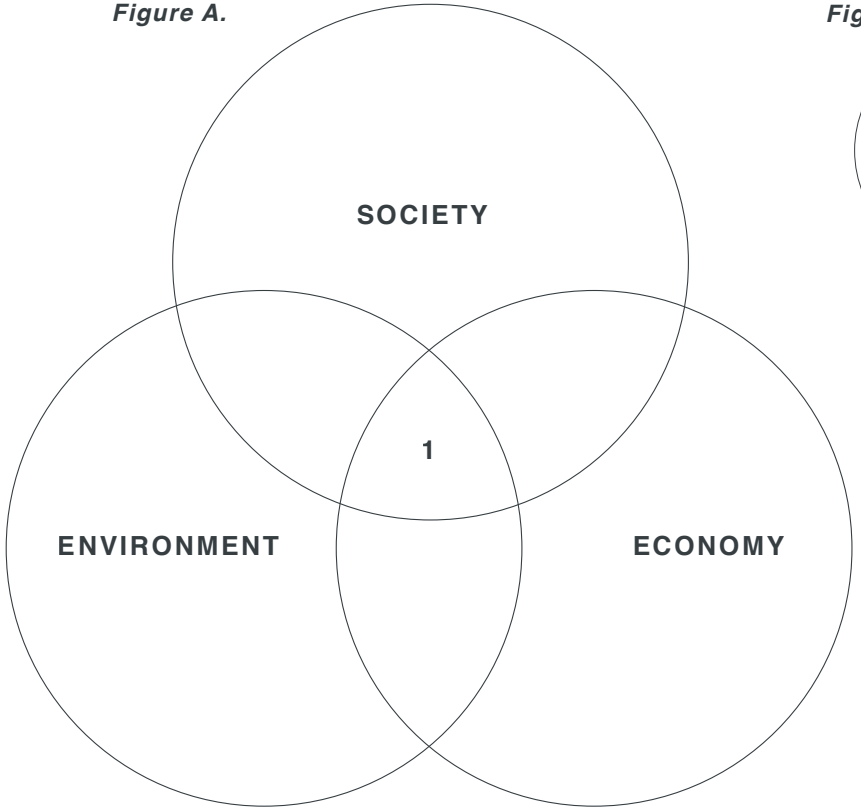
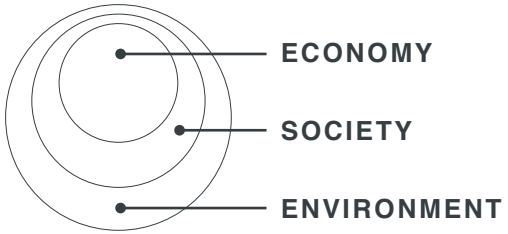


Figure B.



LESSON 4: GREATER LONDON – A NATIONAL CITY PARK?

RESOURCE 4.5: WRITE YOUR OWN MANIFESTO FOR A NATIONAL PARK CITY

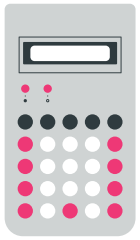
‘Let’s make London the world’s first National Park City. A city where people and nature are better connected. A city that is rich with wildlife and every child benefits from exploring, playing and learning outdoors. A city where we all enjoy high-quality green spaces, the air is clean to breathe, it’s a pleasure to swim in its rivers and green homes are affordable. Together we can make London a greener, healthier and fairer place to live. Together we can make London a National Park City. Why not?’ (Greater London National Park City, 2015)

1. Highlight the different aims of the NPC as stated above. Hint: there are at least five.
2. The people behind the NPC aim to inspire a million projects. Can you help? Write a ten-point manifesto for the Greater London National City Park, inspired by the introduction.
   - A list of 10 things you’d like to see change/reduce/increase in London over the first 5 years of the National Park City.
   - Changes can be large or small targets, on a local scale or city-wide.
   - For each of your ten targets you’ll need to state who will need to help make it happen.

WHAT WOULD YOU LIKE TO CHANGE?	WHO WILL HELP TO CHANGE IT?
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

LINKS TO OTHER LONDON CURRICULUM SUBJECTS

The Healthy London STEM resources explore aspects of London's environment that could be linked to this unit.

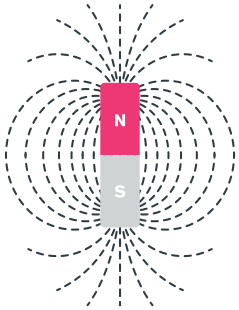


MATHS

Healthy London Air demonstrates how statistics are applied to the real life problem of securing good air quality in the city.

CHEMISTRY

Healthy London Water explores the chemistry that helps meet the challenge of providing London with water that is fit to drink.



BIOLOGY

Healthy London Living Drawing on a number of leading London medical and science centres, sporting events and venues and green spaces, this unit introduces the topics of nutrition and digestion, health and the skeletal and muscular systems.

CREDITS

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

Our collaborators on
the London Curriculum

MUSEUM OF LONDON

Royal Geographical Society with IBG
Advancing geography and geographical learning

Alice Griffiths
Geography teacher & writer

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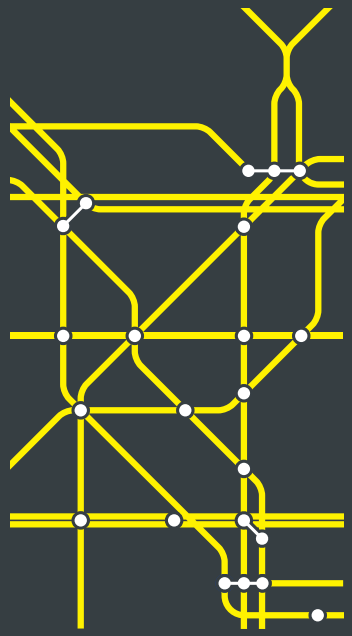
minicom 020 7983 4458



‘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

‘It makes me feel proud to be a Londoner’

Key stage 3 student

‘… the material is new and the approach fresh and exciting. The resources capture real topics of the moment and are presented in a format which is easy for teachers to engage with… although the resources are aimed at KS3 students there is scope for them to also be useful at GCSE.’

Geographical Association Publishers’ Awards 2017