

# Sustainability and biodiversity - urban fieldwork

## Introduction

London, like many other cities in the world, is being affected by the change in climate and loss of biodiversity. With increased temperatures and maybe heavier rainfall, urban areas will need to mitigate against the impacts of more extreme and erratic weather conditions. However, cities can also be key players in increasing biodiversity within their landscapes which can also reduce some of the impacts of climate change in the process.

This module will explore, through fieldwork, how communities are working together to improve the sustainability and biodiversity of their area through a scheme called South Ken ZEN+. It will also look at the role different stakeholders have in contributing to a more sustainable urban area as well as providing pupils with the opportunity to evaluate how sustainable the area is and offer their own solutions.

South Ken ZEN+ (or ZEN+ for short) is a localised collective response to the current climate and biodiversity crisis in London. It is part of the Exhibition Road Cultural Group - a partnership of leading arts and science organisations in London's original cultural district and aims to improve the local area but working collaboratively with its partners.

The 4 main priorities for ZEN+ are:

- Zero Emissions
- Nature Positive
- Circular Economy
- Sustainable Transport

Although this partnership is within a relatively small area in London, the group's aim is to use it as an example to other areas and show them what is possible through a common collaborative approach.

ZEN+ has 7 main goals which it wants to completely achieve by 2040. These are:

1. Become a net-zero neighbourhood before 2040.
2. Reduce emissions from operations by 50%\* by 2030.
3. Increase urban green space by 20%\* by 2030.
4. Create a significant net gain in biodiversity and ecology connectivity.
5. Reduce waste and recycle at least 75%\* of our business waste by 2030.
6. Increase sustainable and active travel for staff, pupils, residents and 20m+ visitors.
7. Make transport for all\* deliveries and services net zero by 2040.

\* numbers to be reviewed.

Although this module is aimed at GCSE pupils, it can be adapted for Key Stage 3 or A Level work. Many of the activities have been designed using ArcGIS tools. Schools in the UK can access this for free by using the link [here](#) to sign up.

This module also focusses on an area in London but can be adapted to be used areas with similar initiatives or projects closer to school sites.

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## Lesson 1: Introduction

Learning Goals	Resources	Suggested teaching and learning activities	British values through SMSC <sup>1</sup>
1. Identify the location of fieldwork. 2. Explore the roles of stakeholders in the fieldwork area. 3. Identify options to improve sustainability and biodiversity in the fieldwork area.	Teacher Presentation: Lesson 1 Introduction  <a href="#">StoryMap:</a> <a href="#">SouthKenZEN</a>	<b>Starter</b> Ask pupils to brainstorm what they understand from the terms 'biodiversity' and 'sustainability'. Challenge further by getting them to develop their ideas with examples – either their own and/or ones from previous learning. NOTE: they will be returning to this at the end of the lesson so advise them that they need to leave space for this.	Encourage pupils to...show initiative, and to understand how they can contribute positively to the lives of those living and working in the locality of the school and to society more widely
Key questions	Terminology	Main	AfL
What and where is the fieldwork location?  What do you think the roles of the stakeholders are?  How can the StoryMap help you understand the area?  What features can you see on the map?  How could this area improve its sustainability and biodiversity?  What is your perception of the area?  Why is this fieldwork needed?	Biodiversity Sustainability Stakeholders StoryMap Perception	<b>Plenary</b> Based on their score, pupils build upon the brainstorm they started at the beginning of the lesson to identify ways in which South Kensington could improve biodiversity and sustainability.	Adjectives on perceptions will show an understanding of the place through a geographical lens.  Discussion on potential improvements will provide an insight on knowledge and understanding of methods to improve sustainability and biodiversity.
			Specification link(s)
			<a href="#">DfE GCSE Subject content, 2014. Specifically:</a> Locational knowledge Maps, fieldwork and geographical skills Place: processes and change Human geography: processes and change

<sup>1</sup> Adapted from the DfE guidance: [Promoting fundamental British values as part of SMSC in schools](#)

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## Lesson 2: Enquiry question, risk assessment and methodology

Learning Goals	Resources	Suggested teaching and learning activities	British values through SMSC <sup>2</sup>
1. To understand different methods to collect data. 2. To create a relevant hypothesis to fit the investigation. 3. To identify the steps needed to undertake an investigation in the field.	Sustainability and biodiversity – urban fieldwork: Fieldwork ideas booklet.  <a href="#">StoryMap:</a> <a href="#">SouthKenZEN</a>	<b>Starter</b> Present the class with the enquiry question ' <i>how sustainable and biodiverse is South Kensington?</i> '. Pupils write a response to this question based on their previous score supporting their points with evidence.  <b>Main</b> Split the class into 6 groups. Depending upon class size, each will be responsible for a different part of the investigation. NOTE: in most of the sections, there are different data collection methods. Therefore, each section can be split further if there is a large cohort. In groups, read through the tasks for their investigation. They then write a hypothesis to accompany it. A challenge task could be to develop a null hypothesis. Using the StoryMap from last lesson and with guidance (based on time allocated to complete the fieldwork), pupils identify the sites in which they will collect their data. Generate a class discussion on what makes a good method. Pupils write a method for their data collection. Discussion on what a risk assessment is and why it is needed. Pupils identify some of the risks for their data collection and use this to write a shore risk assessment.  <b>Plenary</b> As an exit card activity, pupils identify the equipment they should bring on the fieldtrip.	Encourage pupils to...show initiative, and to understand how they can contribute positively to the lives of those living and working in the locality of the school and to society more widely.  <b>AfL</b> Responses to data collection methods to show understanding of the process of an investigation.  <b>Specification link(s)</b> <a href="#">DfE GCSE Subject content, 2014.</a> <b>Specifically:</b> Locational knowledge Maps, fieldwork and geographical skills Place: processes and change Human geography: processes and change
Key questions	Terminology		
Why is it important to collect data?  How do we collect data?  Where would be a good place to collect the data?  What do you predict the results will be for this investigation?  What are the risks for collecting this data? How do you think you can overcome them?	Method Data collection Qualitative Quantitative Hypothesis Null-hypothesis		

<sup>2</sup> Adapted from the DfE guidance: [Promoting fundamental British values as part of SMSC in schools](#)

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## Lesson 3: Fieldwork

NOTE: The fieldwork ideas provided in the booklet are only suggestions. They can be adapted to meet the needs of the class. In addition, all the relevant administration including risk assessments should be undertaken by the education facility before the visit keeping within the policies of that organisation.

Please use the fieldwork ideas booklet (adapting where needed) to collect data for this lesson.

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**Lesson 4: Writeup** NOTE: This lesson focuses mainly on data presentation and analysis. Conclusions and evaluations can be written as part of a homework task. It would also be advisable to get pupils to share their data centrally before this lesson so that they can use it in class from the start. Having access to ICT software such as excel or google sheets would be beneficial for this lesson. This might also take more than one lesson to complete.

Learning Goals	Resources	Suggested teaching and learning activities	British values through SMSC <sup>3</sup>
1. To reflect on the data collected in the field. 2. To present data in a different format. 3. To analyse the data being shown.	Sticky notes Raw data to be shared with pupils Teacher presentation: Lesson 4 Writeup	<b>Starter</b> Pupils use sticky notes to reflect on their own fieldwork, categorising them into WWW, EBI and 'next time'. Get a collective response for the class to use in their evaluation homework or note down as reference.  <b>Main</b> Presentation about the value of data presentation and how this can be a useful tool in analysis.	Encourage pupils to...show initiative, and to understand how they can contribute positively to the lives of those living and working in the locality of the school and to society more widely.
Key questions	Terminology	Hand out a copy of the collective raw data to all. Pupils work in their fieldwork groups to think about a series of questions on the PowerPoint Provide pupils with a selection of data presentation techniques. Get them to work together to decide which is the one they think is the most appropriate for their data. Check this before they start. If ICT is available, pupils can use software to manipulate the data and present it in the format previously agreed. Have the check list from the PowerPoint projected in the classroom so that they can ensure the data is appropriately labelled.	AfL
Why is it important to present data in different formats? How can I best show this data? How does it link to the hypothesis? What other pieces of data will support my presentation? What patterns is the data showing?	Hypothesis Analysis Data presentation	<b>Plenary</b> Pupils present their graphs then circulate the room using sticky notes to analyse the data being presented of other pupil's work. Prompts for analysis are on the PowerPoint. Pupils can then use these notes as well as their own ideas to analyse the results of their data presentation.	Accurate presentation of raw data. Analysis linking back to the original hypothesis. <b>Specification link(s)</b> <a href="#">DfE GCSE Subject content, 2014. Specifically:</a> Locational knowledge Maps, fieldwork and geographical skills Place: processes and change Human geography: processes and change

<sup>3</sup> Adapted from the DfE guidance: [Promoting fundamental British values as part of SMSC in schools](#)