

GREEN ENTREPRENEURS EUROPE



MODULE 2: LESSONS FROM NATURE

Option 6 Sustainable towns & cities



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This booklet is developed for the project "Green Entrepreneurs Europe".

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WELCOME!

This 'Green Entrepreneurs Europe' 'Lessons from Nature' module is designed to help prepare today's young people to take responsibility for the life choices they make. We believe that taking responsibility for our surroundings, for who we are and what we are going to do will help us to discover the possibilities for personal and professional development. A willingness to engage in activities and new ventures is a defining factor of what we call "green entrepreneurship."

For teaching the 'Lessons from nature' part of the GEE course, you have a choice of modules. This module is 'sustainable towns & cities, with a geography focus. Your other options are: 'overview module', 'waste = food', 'diversity gives strength' and 'plastics' (2 day course).

The Green Entrepreneurs Europe course will be taught in 5 different European countries. It has been developed to encourage cross-curricula links, allowing teachers from different subject areas and indeed cultures to collaborate. It is aimed at Secondary Schools. It is pitched at KS3 but could be adapted to KS4/ KS5.

Over the next few pages you can find the lesson plan for this 'Lessons from nature' module. 'Assessment for learning' techniques are integrated into the learning pack. Required resources and ideas for differentiation can be found at the end of the booklet.

Legend

- | | | | |
|---|--------------------------------------|---|--------------|
|  | Students guided by teacher |  | Research |
|  | Students working independently. |  | Safety |
|  | Reflection |  | Knowledge |
|  | Exploration through senses/ feelings |  | Skills |
|  | Video |  | Competencies |



MODULE 2: LESSONS FROM NATURE: SUSTAINABLE TOWNS & CITIES

MODULE CONTENT

Welcome to the cycle of activities included in the "Lessons from Nature" module. Complete in: **1 school day or equivalent.**

In this module, students will build on the skills and concepts covered in the introductory module 'what might change?' Students will go outside to experience first hand what is meant by 'sustainable development'. They will develop methods to measure sustainability and test this out.

Students will take a critical look at developers claims and look for empirical evidence of sustainability. They will reflect on what they have found and discuss ways of improving sustainability further. This thought process will aid them in the development of their own sustainable product or service.

Students will gain an insight into the regeneration at Stratford- a useful grounding for Geography GCSE.

CONNECTIONS WITH OTHER MODULES

Previous module (1-What might change?): students reflected on their own ecological footprint and learnt the key terms: entrepreneur, linear economy, circular economy.

This module (2- Lessons from nature: Sustainable towns and cities): students use the key terms and make comparisons between 'normal' development and sustainable development. Students reflect on what we can learn from nature. Students experience real examples of sustainable development and start to think about how to make existing products and service sustainable.

Next module (3-Changing perspectives): students learn how to create a business plan and apply this to analysing existing green companies and their products.



INTRODUCING SUSTAINABILITY

PART 1: INTRODUCTION



This should be done before the trip-either in the morning before leaving, or at the end of the previous session.



5 minutes what is sustainability? Students write down their understanding of the word 'sustainability' in their booklets (lessons from nature pages). A commonly used definition is: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". (1)

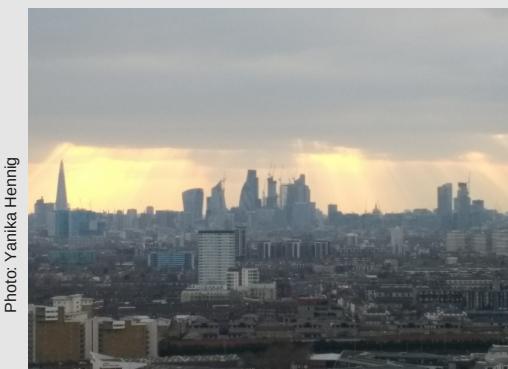
Afl: combine ideas in a thought shower



2 mins Circular economy video on the 'sharing' economy
city
https://www.youtube.com/watch?v=W_SeeWXX8nE



8 mins 'Worlds most sustainable city'- quite long so may only want to watch first bit. Entertaining presenters.
<https://www.youtube.com/watch?v=pHRdMAwoyN8>



Travel to Stratford, London. (A site visit should be done beforehand for familiarisation purposes and to enable the completion of a site risk assessment).

Walk to the Olympic Park, starting at the Orbit. There are public toilets near the Orbit and plenty of seating, making this a good introduction spot.

1 Brundtland Gro Harlem Oslo, 1987 ,Report of the World Commission on Environment and Development: Our Common Future <http://www.un-documents.net/our-common-future.pdf>



SUSTAINABLE TOWNS AND CITIES



10- 15 mins London Olympics 2012 intro. Ask students to share what they know about the 2012 Olympic development. Can they name any of the venues around them? Give students a brief overview of the 2012 Olympic development (see Welcome leaflet in resources section). Key points to mention are that sustainability was a key concept- the idea being that the games left a lasting legacy: the world-class sporting venues would be continued to be used and open to the public; new housing would be created which meets sustainability guidelines eg less carbon emissions produced during building and using less water; there would be good public transport links and it would be pedestrian friendly etc. Explain that the students will be walking around the Olympic park and one of the areas of accommodation (East Village) to look for evidence of the sustainability to see how successful they think it has been.



Photos: Yanika Hennig



20 mins What makes a sustainable city? In pairs students think about what elements a sustainable city would have, concentrating on the 4 areas shown in their booklets (environment, buildings, transport and community). To start them off, examples are: transport- public transport is provided and close by/ electric cars encouraged (with charging points provided). Community- provisions of shops/ schools/ nurseries/ community centres/ libraries/ doctors surgeries etc. Buildings- designed to be well insulated and energy efficient, good recycling and food waste facilities, wheelchair accessible etc. Environment- habitat provision, e.g. trees, grasslands, rivers and ponds. Quiet areas for wildlife. Bird/ bat boxes. Wild areas etc.



AfL: students have ideas for all 4 elements written in their booklets

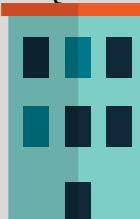
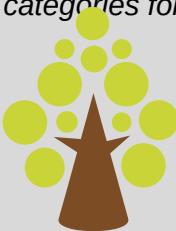


CRITERIA FOR SUSTAINABILITY: OLYMPIC PARK

 **25 minutes Environmental Quality Survey (EQS).** Explain what an 'environmental quality survey' is. Working in groups of around 4-5 and using their ideas just developed, students decide on categories that they could use to assess the sustainability of a site. Emphasise to students that this is primary data collection, so it must be things that they can see. e.g. for community and well being it could be: play- areas are provided for children, it couldn't be: there is a good sense of community (unless they can find empirical evidence for this). Students fill out the blank categories in their EQS tables in their booklet- the same categories should be used for both sites.

Afl: students have sensible categories for their EQS tables.

Images: Canva.com



 **1 hour Fieldwork, QEOP.** Go through how to do a service tally (in booklet). Give out a map of the area to the groups. (pg 78 'Sustainability guide Olympic park is a good one as it shows the international station and East Village). Explain that they will need to know where they are on the map, as in the afternoon they will have to find their way around. In each group, half the students should be tracing the route onto map and the other half completing the service tally.

 Lead students on a walk around the Olympic park, taking in as many of the venues as you can. They should be continuously **service tallying and plotting their route.** As you go around, point out the venues and explain how they are still being used (Orbit- viewing platform & slide; Aquatic centre: public swimming pool also used by local schools for swimming lessons; Copper box- sports centre, gym and community fitness program; Here East Loughborough University, area for start up businesses & BT Sport; Velodrome- open to public to take a spin, cafe. Finish at the Olympic rings.





CRITERIA FOR SUSTAINABILITY: EAST VILLAGE



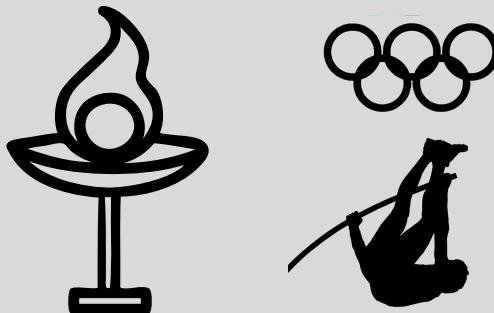
The Olympic rings is a good position to point out the wetland area (straight in front of you). In spring and summer the bank is alive with wildflowers. Mention the river clean up (see pg 35 in Sustainability guide for images of the 'fridge mountain' by the river). **Students complete their EQS** thinking about their walk around the park (so not just the spot they are currently in). *Afl: complete service tallies, route correctly mapped, completed EQS.*



10 mins Olympic rings. Student choose one of the venues to sketch in their booklets on the lesson from nature page.



20 mins Optional Activity: annotated field sketch at the Olympic rings.



Images: Canva.com

You could have lunch now and do the East Village section this afternoon. Otherwise, continue to East Village.



20 mins East Village From the Olympic rings head towards Timber Lodge, then cross the road and walk into East Village.



Ask students if they know what it was used for during the Olympics. East Village was the athletes village. Flats were retro-fitted so they could be rented and sold. Walk around East Village, taking in the shops and cafes around Victory Square, the school and health centre. Mirabelle gardens is an interesting section to walk down as many different building designs can be seen there. As before, students fill out their service tally and plot their route.



INVESTIGATING SUSTAINBLE TRANSPORT, BUILDINGS, ENERGY AND ENVIRONMENT

10 mins First impressions: before students complete their EQS for East Village, ask them to write down their feelings about East Village in their booklets on the 'lessons from nature' double-page. How would they describe it and how does it make them feel? This is normally an interesting discussion point as some students will comment on how neat and clean and new it looks, whereas others may describe it as soulless/ boring/ quiet. An interesting side-angle to discuss is rental prices. These can easily be found Zoopla or similar.

Afl students can describe their sense of place

15 minutes EQS and discussion Students complete their EQS for East Village and compare their scores for the 2 sites. Are there differences? Why?

Lunch- there is outdoor seating in Victory Park and plenty of seating just down the hill from Timber Lodge in the park.

45 mins- 1 hour Investigating sustainability. Split students into the number of groups that you have adults for. Each group will investigate an aspect of the area's sustainability: energy & transport or buildings & surroundings. If you have less than 2 groups, just chose the topic that you like. In the students' booklets are written the claims made by the development organisations regarding sustainability. Students will need to walk around the park and East Village to see what evidence they can find to support these claims. They could take photos, write descriptions or draw diagrams in their evidence gathering. It's a good idea to plan the meeting point at the end near to where you are getting your transport home.

Before they go off, students need to plan their routes on their maps, thinking about where the end meeting point is and what they want to look at.

Afl: students have answered the questions in their booklets.



WHAT MORE CAN BE DONE?



- **30 mins Sharing findings.** Groups speak to each other to see what they found out. Students write other groups answers in their booklets.
- *Afl: students have information on both areas (transport & energy and buildings & surroundings) filled in in their booklets.*
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- **10 mins Inspired by sustainability.** Ask student to write in their booklets (In double page) what inspired them about what they saw.
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- **Plenary**
- **10- 15 mins What could be improved?** For example, street lighting may have energy efficient bulbs, but what material is the structure of the street light made from? How could it be improved? (e.g. recycled material/ designed so it's fully recyclable afterwards). Or there are lots of buses, what fuel do the buses run on? etc
- *Afl: ideas in booklets (In pages)*

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Resources all paper resources are in the Learning materials section section of the GEE website, under 'resources'.

- **Booklet**
- **Sustainability guide Olympic Park.** This has a good map and useful information about the sustainability aspects.
(http://www.queenelizabetholympicpark.co.uk//media/qeop/files/public/miscdocuments/lldc_your_sustainability_guide_to_the_queen_elizabeth_olympic_park2030.ashx?la=en)
- **Welcome brochure.** Useful background information
(<http://www.queenelizabetholympicpark.co.uk//media/qeop/files/public/publications/92066055qeopwelcomebrochureapril2012.ashx?la=en>)
- **Documents area of the QEOP website.** More background and interesting reading. (<http://www.queenelizabetholympicpark.co.uk/our-story/publications/documents>)
- **Zoolpa website:** print out rental & purchase prices for East Village.



MODULE 2: DIFFERENTIATION

DIFFERENTIATION

What makes a sustainable city

Support: if students are struggling with the concept of sustainability, they could think of it in terms of good- i.e. what would a city with a 'good' environment looks like? Good community etc.

Environmental Quality Survey (EQS)

Support: do this as a class activity and all use the same criteria.

Extend: students should be encouraged to think critically about their chosen criteria, e.g. is it just presence/ absence of green spaces that is important- how about quality/ user group, i.e. are some aged at young children, some at adults? etc

Service tally

Extend: students come up with other categories- blank spaces left for this..

Following route on map

Support: pre-draw the route on the map. Students should work out where they are on the drawn route.

First impressions

Extend: if you are happy for students to use their phones, get them to tap in 'Mirabelle Gardens' (or whichever road you are stopped at) on Zoopla and look at rental and sale prices. (If not then have this information pre-printed). Tell them the comparable price of of a flat where they live. How does this fit in with the idea of 'sustainable development'?

Investigating sustainability

Support: This task is self-differentiating- most of the questions can be easily answered. There is a stand of bikes as you come onto the Olympic park near to Timber Lodge. The energy centre is the tall brown building behind the Copper Box

Extend: students should say 'how ' these things are being implemented, e.g. what has been done to prioritise pedestrians, how is it different to a typical town centre. They should also give their opinion on how successful they think these sustainability measures have been.



MODULE 2 EVALUATION & REFLECTION

REFLECTIONS

At the end of this module, students should make sure that they have added new vocabulary and terms to their glossary page.

Encourage students to start writing down any ideas or inspirations they have for their own businesses in their booklets.

LEARNING OBJECTIVES

By the end of the module 2, students will:



explore an iconic case-study for sustainable development.



start to make comparisons between systems in the living world and how industry can be redesigned following natural principles.



be able to list some examples of sustainable developments. Some students will be able to describe how these developments reduce negative effects on the environment.

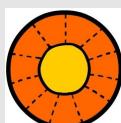


have used different techniques to assess sustainable development within a community.



have acquired the skills and be inspired to work on their own business idea.

NATURAL PRINCIPLES



RUN ON SOLAR
INCOME



MULTIPLE BENEFITS