

Teacher Guide

Open-City Education programmes

Open-City's education programmes lead the way in learning about architecture and urban design. We engage teachers with the key issues that shape learning through the built environment. We inspire young people to explore the architecture of our city, equipping them with the creative skills that support learning in and out of the classroom.

There has never been a more important time for young people to learn about sustainable design and the principles of architecture. With this in mind Open-City developed a resource to support teaching and learning through sustainability and to introduce teachers and pupils to the value of planning for a sustainable future, showing how our built environment has an impact on sustainable living.

Open-City's My Green School Initiative

My Green School is an initiative developed by Open-City to give children aged 7 to 11 the opportunity to learn about, and be inspired by sustainable architecture through first hand investigations of their own school building. It began with the *How to Read Your Building* resource providing curriculum linked activities, and led on to the innovative My Green School Eco-Design competition.

This latest interactive resource includes activities and lesson based learning programmes as well as a step-by-step guide to how to investigate eco-architecture at Key Stage 2.

Curriculum-Linked Lessons

Each of these lessons is designed to be delivered over an hour, but there are opportunities to develop each one into a longer session or series of lessons.

English

- E1 Personification of a Building
- E2 A Place for Everyone
- E3 A Learning Tree for Sustainable Design

Maths

- M1 Understanding Architectural Design
- M2 Looking at the Design of our School Grounds
- M3 The Waste We Create

Science

- S1 Marvellous Materials
- S2 Staying Warm and Keeping Cool
- S3 Let's Look at Ventilation

Geography

- G1 Designing Out Crime in Our Community
- G2 Mapping Materials
- G3 Who creates the places in our community?

Art and Design

- A1 Arranging Spaces
- A2 2-D shapes to 3-D forms
- A3 Making Materials

Introduction

Teacher Guide

My Green School Teaching Resource

Through the My Green School Curriculum-Linked Lessons, students are encouraged to explore the main themes of sustainable design through a series of subject based activities, which can be delivered in a whole class setting or as part of Learning Outside the Classroom.

The lessons support curriculum innovation in the delivery of learning about sustainable architecture and are planned to support teaching and learning at Key Stage 2.

Practical activities show how you can embed learning about sustainable design into the whole school curriculum, through teaching across the subject areas of English, Maths, Science, Geography and Art and Design.

Curriculum-Linked Lesson Plan Overviews

On the following pages there are overviews of each lesson including the lesson outcome, programme of study information and a link to the *How to Read Your Building* resource.

The lessons in this Teaching Resource:

- Support delivery of the wider curriculum
- Engage pupils with the key issues and themes of sustainable design
- Support whole school learning about sustainable development

By taking part in the activity based lessons in the My Green School Teaching Resource students will learn:

- How to plan and organise their learning
- To develop creative thinking skills
- To use subject based investigations to explore cross-curricular themes
- How to discuss the role individuals play in shaping a sustainable future

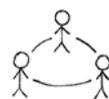
How to use the Curriculum-Linked Lessons

The Curriculum-Linked Lessons are organised to help you plan a series of activities which are aligned to five subjects and programmes of study.

Each section of the lesson is colour coded:

- yellow for the starter
- green for the main part of the lesson
- blue for the plenary

The icons on the slides indicate different types of learning activity:



small group working



individual working



outside the classroom learning



let's use our mini whiteboards

Learning about Architecture

At the end of each lesson invite students to think of key words or a sentence to show what they have learnt about architecture. The Learning Brick can be filled in with a feeling, a thought, an idea, a new word or term, or a drawing of something the group has created.

Each one of these Learning Bricks will form part of a Learning Wall, illustrating student progression and whole class learning in the subject of architecture and design.

Teacher Guide

English Lesson Plans

Lesson plans

English Lesson 1	Personification of a Building
Activity	Students read an example of personification in poetry and then create their own poem
Learning Outcomes	Students write a poem and use the conventions of layout to present their creative work
Programme of Study	EN3 Writing To use features of layout, presentation and organisation effectively 1e
How to Read Your Building link	C3
English Lesson 2	A Place for Everyone
Activity	Students look at learning outside the classroom in their school and then take part in a group discussion to create an ideal learning environment in their school grounds
Learning Outcomes	Students share knowledge about the opportunities for learning outside the classroom at their school and present ideas for an ideal outdoor space
Programme of Study	EN1 Speaking and Listening Group discussion and interaction 3b
How to Read Your Building link	D5
English Lesson 3	A Learning Tree for Sustainable Design
Activity	Design a Learning Tree to show an understanding of sustainability and explore the term in the context of a group discussion
Learning Outcomes	Students learn to explore key terminology for sustainable design and work collaboratively to devise a shared way of presenting learning
Programme of Study	EN1 Speaking and Listening Group discussion and interaction 3a
How to Read Your Building link	D2

Teacher Guide

Maths Lesson Plans

Lesson plans

Maths Lesson 1	Understanding Architectural Design
Activity	Students carry out an initial investigation to identify scale and structure as aspects of a building's design
Learning Outcomes	The lesson uses Maths to introduce two of the five key elements of architectural design
Programme of Study	Ma3 Shape, space and measures. Understanding properties of shape 2b
How to Read Your Building link	C1
Maths Lesson 2	Looking at the Design of our School Grounds
Activity	Students visualise and describe 2-D and 3-D shapes and the way they behave, making precise use of geometrical language Students look at 2-D and 3-D shapes in the School Grounds
Learning Outcomes	Students gain knowledge and understanding of shapes by looking at the school grounds in relation to the main building
Programme of Study	Ma3 Shape, space and measures Understanding properties of shape 2b
How to Read Your Building link	C9
Maths Lesson 3	The Waste We Create
Activity	Students carry out a group based investigation into the waste produced as a class group, so that they understand the part they can play in creating a sustainable school
Learning Outcomes	Students decide how best to present and organise their findings to communicate information about the waste used in their school environment
Programme of Study	MA4 Handling data Decide how best to organise and present findings 1f
How to Read Your Building link	D3

Teacher Guide

Science Lesson Plans

Lesson plans

Science Lesson 1	Marvellous Materials
Activity	Students carry out a scientific enquiry and compile a log of the materials that make up the fabric of the school and the green or grey spaces that surround it
Learning Outcomes	The lesson uses science to allow students to carry out their own observations through collecting data on the materials used in the school environment
Programme of Study <i>How to Read Your Building link</i>	SC1 Considering evidence and evaluating 2i C6
Science Lesson 2	Staying Warm and Keeping Cool
Activity	Understanding the processes of heating and cooling and how they relate to design
Learning Outcomes	Students take part in a scientific enquiry and test ideas, so that they can observe how architects consider heat when designing buildings
Programme of Study <i>How to Read Your Building link</i>	SC1 Scientific enquiry Ideas and evidence in science 1b D3
Science Lesson 3	Let's Look at Ventilation
Activity	Students look at cross-sections to learn about the importance of natural ventilation to the design of buildings
Learning Outcomes	Students use the classroom as a space to learn about ventilation and collate findings to gain skills in how to design buildings
Programme of Study <i>How to Read Your Building link</i>	SC1 Ideas and evidence in science Science is about thinking creatively to try to explain the links between cause and effect 1a D1

Teacher Guide

Geography Lesson Plans

Lesson plans

Geography Lesson 1	Designing Out Crime in Our Community
Activity	To look at examples of the public realm in the local area and design a public space which promotes community cohesion and reduces the impact of crime
Learning Outcomes	The lesson looks at the issue of community in sustainable design and asks students to use decision-making skills to decide what measures are needed to design a safe local environment
Programme of Study <i>How to Read Your Building link</i>	Geographical enquiry and skills 2g D5
Geography Lesson 2	Mapping Materials
Activity	To imagine a journey through the school and to make a list of the materials that have been used in the school's design To map the materials and calculate the transportation miles used in the construction of the building To identify sustainable materials that can be used in the future
Learning Outcomes	The lesson looks at environmental change and sustainable development. Students look at how people may seek to manage the built environment sustainably
Programme of Study <i>How to Read Your Building link</i>	Geographical enquiry and skills 1e D2
Geography Lesson 3	Who Creates the Places in Our Community?
Activity	Students learn about the roles of the people who shape our built environment and how the different professions come together to design and make buildings
Learning Outcomes	Students learn to identify and describe what places are like and how the geography of their community is created by the work of people in a number of job roles
Programme of Study <i>How to Read Your Building link</i>	Knowledge and understanding of places 3a C1

Art and Design Lesson Plans

Art and Design Lesson 1	Arranging Spaces
Activity	To use materials and approaches to communicate observations about shape, and to design an artefact of an eco-school layout
Learning Outcomes	Students use art and design to communicate ideas about the design of spaces and to understand the process of design at the planning stage
Programme of Study	Investigating and making art, craft and design 2c
How to Read Your Building link	C9
Art and Design Lesson 2	2-D shapes to 3-D forms
Activity	Students share ideas about the shapes that can be seen in and around their school building and then create their own shapes to inform the design of an eco-space
Learning Outcomes	Students use art and design to adapt their views and describe how they might develop them further as part of creating a sustainable design
Programme of Study	Evaluating and developing work 3b
How to Read Your Building link	C9
Art and Design Lesson 3	Making materials
Activity	To explore how the materials used in sustainable design are made and explore the use of materials suitable for their own designs
Learning Outcomes	Students use art and design to question and make thoughtful observations about starting points in sustainable design and select ideas to use in their work
Programme of Study	Exploring and developing ideas 1b
How to Read Your Building link	D2

Teacher Guide



How the My Green School Teaching Resource supports the delivery of the wider school curriculum

By carrying out subject based learning and investigations into the subject of sustainable design young people engage with the curriculum and develop skills and learning as part of the general teaching requirements for the primary curriculum.

By taking part in the lessons students will

- Develop aspects of personal, social and health education, so that they understand the impact that sustainability has on their own development and that of others
- Learn about how sustainable design helps to promote pupils social development so that they understand their role in communities and how they can shape a more sustainable built environment
- Learn to understand the concept of community cohesion, so that they feel part of a community at a local, national and international level. The series of lessons show how they can contribute to the design of the built environment and how sustainable architecture can shape the places where we live

- Apply and develop a range of ICT skills across subject areas and develop their ideas about sustainable design through the use of a range of ICT tools
- Learn about the wider environment of their school, including the school grounds and understand that the green and grey spaces of a school are integral to the design of sustainable places

Case Studies

The Mount School, London, Year 5

The Mount School is a single form entry primary school in London.

Their Year 5 class took part in the nationwide My Green School eco-design competition.

Through interviews, the students were asked what they wanted to achieve and explained how learning was organised. Their teacher reflected on whole class learning through the My Green School initiative.



What were we trying to achieve?

We chose to take part in My Green School as we thought it would be something we would enjoy. It's not only learning about sustainable design, but about working as a group which is a good team-building experience.

We have been trying to make ourselves a greener school as part of our whole school improvement plan.

How did we organise learning?

Over the course of the term we picked out useful ideas from the *How to Read Your Building* resource. We used the section about the roles of built environment professionals as a comprehension sheet so that it supported our English learning outcomes. We really enjoyed the activity about designing a house for a celebrity.

On the topic of sustainability we looked at energy and renewable resources. The waste section was useful as we produce a lot of waste in school and we're trying to encourage the whole school to recycle. We talked about community and went through the ideas of how the school can be used as part of the wider community.

For the practical activities such as model-making our teacher bought extra straws and tape and things but we tried to use old cardboard and recycled materials as much as possible to be environmentally-friendly.

How well did we achieve our aims?

It enriches the curriculum because it's something that's very different - it makes students think outside the box and has encouraged team working as well as learning about sustainability. From the creativity of the work they have produced, it is clear how much they have enjoyed it.

School Case Studies

Case Studies

St Mary and St Thomas Aquinas Catholic Primary School, Gateshead, Year 6

St Mary and St Thomas Aquinas Catholic Primary School is a two form entry school in Gateshead. It is one of four schools in the Gateshead area who took part in the My Green School competition with the Gateshead City Learning Centre (CLC).

Here the teachers were asked what they wanted to achieve through their students participating in the My Green School eco-design competition, explain how learning was organised and reflect on whole class learning.



What were we trying to achieve?

Our curriculum topic for the term was sustainability so the My Green School initiative solved our “what are we going to do about eco-design?” question. The *How to Read Your Building* resource inspired us to develop our own activities about eco-design. The whole school has been using elements of the pack to teach eco-design. It’s a solution for schools who want to get an eco-schools award, and that’s brilliant.

How did we organise learning?

We read through the whole resource to get a flavour of it, and to generate ideas. There were lots of interesting parts but because we didn’t have much time, we adapted it. Therefore there is a lot more we could still look at.

Working with a CLC specialising in computing, the slant we took was to focus more on the architecture: decision-making in teams and aesthetics. And we introduced software: 2Simple-2Draw for the plan views of rooms and exteriors and Techsoft Primary design to draw the overall plan view of the school. The students even rose to the challenge of using Pro/ENGINEER CAD software to model the interiors and a laser cutter as a starting point for physical model making.

How well did we achieve our aims?

The information in the pack has definitely increased teacher and our student knowledge and understanding of design, in particular the eco-side of it.

From the CLC’s point of view, it has inspired us to take the idea of eco-schools further. We would like to invite teachers in for staff training to encourage them to each deliver half a day a week for a half-term so we have some more control and idea of what the pupils have done before we come in. If the students have already looked at green school issues for at least one or two hours over the course of the term, we could then focus more on the creative design side.

There is definitely scope for the topic to cover more than one day. We would like to do a day for engineering, a day on design work, and then one where we could build. Certainly we see this working well for years 4, 5, and 6, and maybe even for year 3.



School Case Studies