



## 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

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### 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

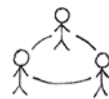
### How to use the Curriculum-Linked Lessons

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.

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### English Lesson Plans

Lesson plans

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

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Lesson plans

### Maths Lesson Plans

<b>Maths Lesson 1</b>	<b>Understanding Architectural Design</b>
<b>Activity</b>	Students carry out an initial investigation to identify scale and structure as aspects of a building's design
<b>Learning Outcomes</b>	The lesson uses Maths to introduce two of the five key elements of architectural design
<b>Programme of Study</b>	Ma3 Shape, space and measures. Understanding properties of shape <b>2b</b>
<b>How to Read Your Building link</b>	C1
<b>Maths Lesson 2</b>	<b>Looking at the Design of our School Grounds</b>
<b>Activity</b>	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
<b>Learning Outcomes</b>	Students gain knowledge and understanding of shapes by looking at the school grounds in relation to the main building
<b>Programme of Study</b>	Ma3 Shape, space and measures Understanding properties of shape <b>2b</b>
<b>How to Read Your Building link</b>	C9
<b>Maths Lesson 3</b>	<b>The Waste We Create</b>
<b>Activity</b>	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
<b>Learning Outcomes</b>	Students decide how best to present and organise their findings to communicate information about the waste used in their school environment
<b>Programme of Study</b>	MA4 Handling data Decide how best to organise and present findings <b>1f</b>
<b>How to Read Your Building link</b>	D3

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### Science Lesson Plans

Lesson plans

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

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### Geography Lesson Plans

Lesson plans

<b>Geography Lesson 1</b>	<b>Designing Out Crime in Our Community</b>
<b>Activity</b>	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
<b>Learning Outcomes</b>	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
<b>Programme of Study</b> <i>How to Read Your Building link</i>	Geographical enquiry and skills 2g D5
<b>Geography Lesson 2</b>	<b>Mapping Materials</b>
<b>Activity</b>	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
<b>Learning Outcomes</b>	The lesson looks at environmental change and sustainable development. Students look at how people may seek to manage the built environment sustainably
<b>Programme of Study</b> <i>How to Read Your Building link</i>	Geographical enquiry and skills 1e D2
<b>Geography Lesson 3</b>	<b>Who Creates the Places in Our Community?</b>
<b>Activity</b>	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
<b>Learning Outcomes</b>	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
<b>Programme of Study</b> <i>How to Read Your Building link</i>	Knowledge and understanding of places 3a C1

### Art and Design Lesson Plans

Lesson plans

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



## 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 at the end of 2010.

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