Design Education CIC
CPD Programme

ARCHITECTURE in the classroom

Continuing our 2014-15 series of two-part twilight CPD programmes for teachers in London who are looking for inspiration and to share their practice.

Workbook #1

Part 1—Inspirational schemes of work
Part 2—Teaching other subjects through architecture
Part 3—Signposting

Design Education CIC is a not-for-profit community interest company. Our mission is to support the next generation of designers and makers.

To find out more, visit our web site at www.designeducation.org.uk, or email us at info@designeducation.org.uk

SUPPORTED BY
MAYOR OF LONDON

Department for Education
Examples of schemes of work

Rebuilding community in Japan post tsunami

What does it mean to create a home?

Year 4
Key stage 2
Rokesley Primary School, London
Half a term: 6 workshops, one half day / week
An international exchange between Tohoku, Japan and London, UK

Lessons:
1. Site investigation
2. Site survey (measuring and drawing a plan)
3. Drawing a proposal for a community building
4. 5. Model making workshops to build the community buildings
6. Bringing together the whole community in a large site model
This Is Our East 20

Mapping the Olympic Park for young people by young people

Year 8
Key Stage 3 Geography & Computing
Chobham Academy, London
Full term: 6 half day workshops, one every other week
Using GIS mapping and 3D viewfinder installations to show the young people's unique take on their local park

Lessons:
1. Exploring the Olympic Park with GIS mapping technology (or simply recording on maps)
2. Making viewfinders on site to show the students' perspectives on the park
3. Doing a sensory walk in the park & recording observations
4. Making a stop gap animation to show the park being used in different ways
5. Learning how to use GIS technology
6. Creating a map of the park for young people by young people

Building Bridges

Design a bridge using only 12 paper straws / 20 sheets of newspaper that bridges a 250mm gap and can hold as much weight as possible

Year 7/8
Key Stage 3
One 3 hour workshop
UCL outreach day: engineering
Design: Engineer: Construct

Designing a community eco-classroom within your school grounds, utilising team work

Year 9
Key stage 3
Graveney School
1 full day workshop

Students were divided into different role eg Architect, Brand Manager, Surveyor, Landscape Designer and challenged to design an eco-classroom in the grounds of their school, to be used by the whole community.

Re imagining Our Neighbourhood

If we were in charge...

The Phoenix School (SEN students)
Year 6 (with whole school for the day of the Arts Festival)
Art and Design
Topic focus: Autumn

Lessons:
1. Exploring a local park with acetate-filled viewfinders on which to draw ideas, and boxes with which to create towers and rooms of different sizes
2. Collaborative drawing of ideas for the park using powder ink dye on canvas
3. Building 3D versions of the ideas using recycled materials. Students chose whether their model was underground (hanging below the suspended canvas), on the ground or halfway in-between
Forgotten Spaces

Propose a new use for a forgotten space in your community

Oaks Park High School, Redbridge
Year 10 Art and Design
Half a term, 6 one hour workshops, one / week
Examples of outputs: public toilets to a barbers; institutional building to a library; disused row of shops to a mixed-use, multimedia community centre

Architecture for Humanity

Uncovering the narrative of a local person / group and proposing how design (at a variety of scales, be that a product or building) can bring positive change

St Francis Xavier Sixth Form College, Clapham
Year 12 Art and Design
6 one hour workshops over half a term
How can good design foster hope?
Art Lenses and Archi-Frames

Create a viewing device to suggest a way to see different sculptures in the City of London

Cayley Primary School, Haggerston School, Hackney City Academy and St Pauls Way Trust School
Keys Stages 2, 3 and 4
4 workshop structure: exploring the area from below; exploring the area from above (if possible to gain access to a high building or viewpoint); drawing an individual viewpoint on an acetate viewfinder; slotting the viewfinders together to create a multiple-viewpoint device.
Open-City Architecture in Schools

Challenging young people to ‘design a...’ following a structure of: inspiring site visit, drawn initial ideas, quick exploratory model making and creating the final design in 3D.

Schools across London
Key Stage 2 and 3
Half a term, 4 to 6 one hour workshops
In collaboration with architects

1. Visiting an exciting building, measuring space, exploring materials and understanding structure

2. Designing in 2D

3. Exploring space in 3D using quick model making techniques with card, scissors and tape or glue.

4. Creating the final design
Building Playhouses

Latymer Activities Week
Year 10, Key Stage 4
Personal Mounments

Design Camp, 2010
Years 7-9, Key Stage 3
6 workshops, starting small scale, and getting bigger
Colour the School

Burlington Danes, Design Camp, 2010
Years 7-9, Key Stage 3
1 full day workshop

IKEA-ville

Design Camp, 2011
Years 7-9, Key Stage 3
Geodesics
Using roll tubes abd plastic rivets
Design Club
Years 7-9, Key Stage 3
1 lesson

Castaway Island
Designing a shelter, imagining being a castaway
Design Club
Years 7-9, Key Stage 3
1 lesson

Designing a new school playground
Rapid paper modelling, folded by quick peer-to-peer crits
Design Club
Years 7-9, Key Stage 3
1 lesson
Part 2: 
TEACHING OTHER SUBJECTS THROUGH ARCHITECTURE

LITERACY

**Subject areas:**
Understanding alternative viewpoints; sharing and listening; visualising the past and projecting the future; negotiating; developing effective communication skills

**Potential outputs:**
Poem based on being a building as it goes through a renovation / change of use
Marketing for a new development / part of town
Newspaper article
Role play / drama sketch / film: eg the protagonists of a new city quarter in a planning debate
Drawing or modelling a building from a book the class are studying

NUMERACY

**Subject areas:**
Recognising symmetry; understanding geometry; reading scales; generating algorithms; calculating area & volume; recognising and describing 2D and 3D shapes - including making nets; describing space; using measures; measuring and drawing acute and obtuse angles.

Teachers are encouraged to embed these experiences in practical contexts and activities so that children can develop an understanding of the kinds of situations where proportional thinking is applicable.

**Potential outputs:**
Geodesic domes
3D geometrical form
2D kaleidoscopic / symmetrical design
Origami
Algorithmic design
Calculating volumes and areas of spaces within the school
SCIENCE

STRUCTURES AND FORCES (PHYSICS)
How buildings and structures transfer force in order to stand up

Outputs:
Building a strong structure
Building a bridge

LIGHT (PHYSICS)
Naturally and artificially lighting a building or place

Outputs:
Creating the filters for different light sources and measuring light allowed through by the filter/shade (comparison to building louvres, tinted glass, double-glazing)
http://sustainabilityworkshop.autodesk.com/buildings/measuring-light-levels

BIOLOGICAL ADAPTATIONS (BIOLOGY)
How buildings function in the same way to respond to various phenomena eg convection currents, solar radiation

Outputs:
Making building skins to insulate test-tubes and measuring heat loss

HISTORY

Subject areas:
Architecture can bring history to life – a physical manifestation of social history
It has also been described as an instigator / controlling force, in effect bringing about, accelerating or restricting change.

Potential outputs:
Analytical annotations: Looking for clues in a building (plan, section and elevation) to tell us about the social history of the place and time eg. Who has power, who serves and is served, what were the aspirations of the people?

Provocative pondering:
How did / does the buildings impact on society, who does it bring together, who does it segregate, what does it promote / represent?
GEOGRAPHY

**Subject areas:**
Identifying and describing what places are like; recognising and explaining patterns made by individual physical and human features in the environment; drawing maps and plans at a variety of scales; understanding how cities are made; recognising how places fit within a wider geographical context; migration of people and its effect on physical and social geography; understanding how people can improve the environment or damage it; learning how decisions about places and environments affect the future quality of people’s lives; recognising how and why people may seek to manage environments sustainably.

**Potential outputs:**
- Analogue mapping via qualitative and quantitative observations
- GIS mapping
- Planning a new eco-town, thinking about transport to and from home and work (can these be combined?) and cycles of production and reuse

COMPUTING

**Subject areas:**
Designing programs that accomplish specific goals, including controlling or simulating physical systems; using logical reasoning to explain how some simple algorithms work; selecting, using and combining a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

**Potential outputs:**
- 3D printing a building by modelling it digitally (sketch up or rhino)
- Laser-cutting a landscape by drawing it digitally (CAD)
- Laser-cutting components which fit together to make a building by drawing them digitally (CAD)
- Stop-frame animations
- Films

DESIGN & TECHNOLOGY AND ART & DESIGN

**Subject areas:**
Architecture can form the main brief or scheme of work for both these topics and meet ALL learning outcomes.

**Potential outputs:**
- Limitless!
Part 3: SIGNPOSTING

Model making

A Basic Guide to Modelmaking; Martha Sutherland; 1999, Norton
Designing with Models; Criss B Mills; 2000, Wiley
The Elements of Pop-up; David Carter and James Diaz; 1999, Simon & Schuster

Algorithmic Design
http://code.algorithmicdesign.net (includes the codes needed to make them)

Making nearly anything!
http://www.instructables.com

Housebuilding for Children – six different houses that children can build by themselves; Les Walker; 1979 (UK metric edition; Architectural Press), 2007 (US imperial edition; The Overlook Press)

Kids Build!
http://kidsbuild.org/

Jude Pullen – an obsessively detailed series of videos about card modelling
https://www.youtube.com/watch?v=_E6UbAs2sCs

Paper Toys (free cutouts of various famous buildings)
http://www.papertoys.com/

Pretzschendorf Primary School – curiously sinister collection of paper buildings – don’t play the video!

Canon – lots of paper buildings with full colour plans

Sustainability

My Green School
Key Stage Two lesson plans teaching sustainability through English, Maths, Art, Science and Geography (Open-City)
http://open-city.org.uk/education/schools/MyGreenSchool.html

Sustainability
http://sustainabilityworkshop.autodesk.com/building-design/concepts
Architectural lesson plans

Shaping Places; Kent Architecture Centre and Solent Centre for Architecture and Design; 2003-2005

Art and the Built Environment: A Teacher’s Approach; Eileen Adams & Colin Ward; Longman, 1982

Space Place, Eileen Adams The Lighthouse, Glasgow; 2000

Schoolyards to Skylines
A paid-for pdf document with ideas for KS1 and 2 (Chicago Foundation)

About.com -Top 10 Free Lesson Plans & Activities
http://architecture.about.com/od/teachersaids/tp/lessonplans.htm

Times Educational Supplement
http://www.tes.co.uk/ (but you will need to register to download the resources)

London Grid for Learning: Open-City
film resource of educational tours of buildings with architects
http://www.lgfl.net/curriculum-resources/Pages/Open-City.aspx

Building information

E-architect
High quality images of buildings, listed by place and typology
http://www.e-architect.co.uk/world-buildings

The Architecture Pack; Ron van der Meer & Deyan Sudjic; 1997, Van der Meer Publishing

The V&A and RIBA Collections
http://www.vam.ac.uk/content/articles/v/vam-riba-collections/

Architecture organisations and opportunities

Open City
An architecture education charity - competitions and lesson plans
http://open-city.org.uk/education/index.html

Learning by Design in Massachusetts
http://www.lbDMA.org/

The National Building Museum (US)
http://www.nbm.org/families-kids/

The Building Exploratory
http://www.buildingexploratory.org.uk