

● **Our Hut**

**Sublime Structures in Crystal
Palace Park:
Education Resource 2019**



Sublime Structures in Crystal Palace Park

Education Resource:

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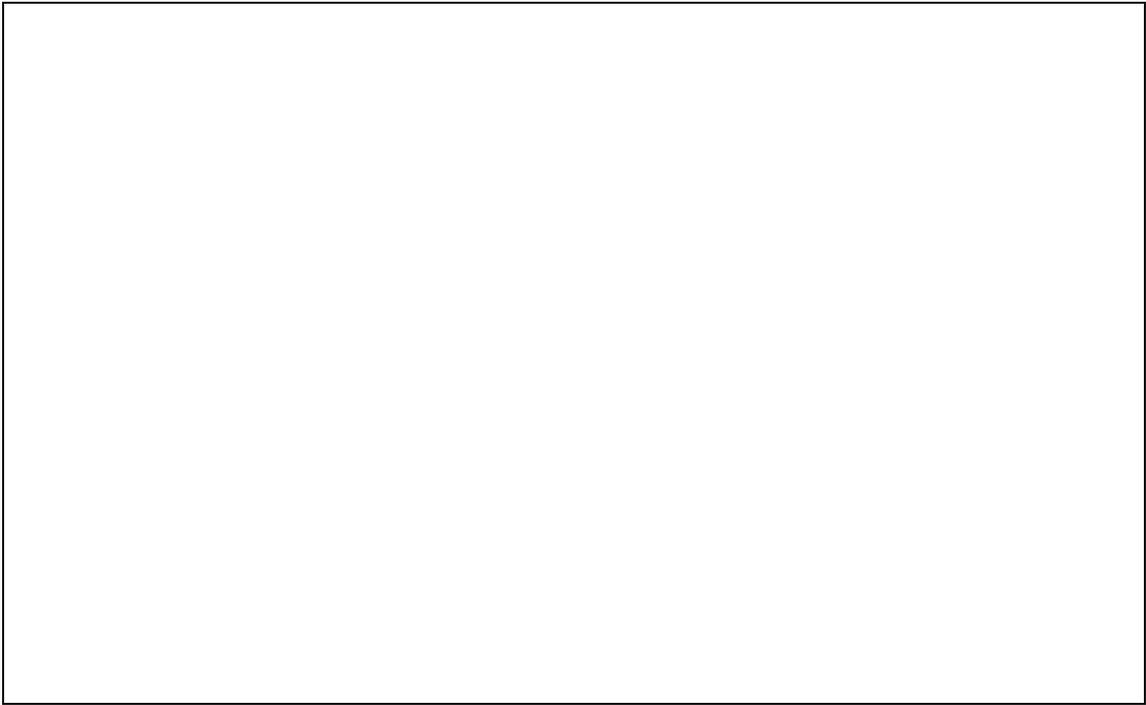
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Sublime Structures in Crystal Palace Park

Education Resource:

Introduction

Sublime Structures in Crystal Palace Park Project

The Sublime Structures in Crystal Palace Park Project, devised and run by Our Hut, aimed to enable local young people and families to discover and celebrate the extraordinary legacy of design and engineering innovation found within the park, through school and community workshops as well as a family orienteering pack and this online teaching resource. The project was funded by the National Lottery Heritage Fund and Bromley Council.

Our Hut designed this programme of creative heritage workshops for Key Stages 1, 2 and 3 to help local primary and secondary schools engage with the sublime structures of Crystal Palace Park and delivered them in 2018 at Rockmount Primary School, James Dixon Primary School and Sydenham School.

Our Hut

Our Hut has extensive experience of providing architecture and built environment projects to primary and secondary schools, community groups and the general public. Our Hut became a charity in 2011 and aims to equip future generations to get involved in and take responsibility for shaping positive sustainable environments. We inspire and educate through programmes of interactive workshops about architecture and the built environment. This work opens young people's eyes to the world around them, develops their sense of aspiration and links to all areas of the curriculum. Recent projects have focused on Brixton Town Centre, Peckham and New Covent Garden Flower Market. For examples of our work see www.ourhut.co.uk

Schools Resource

This resource has been created by Our Hut to enable other schools in the local area to carry out a similar heritage project focused on Crystal Palace Park. It consists of lesson plans and useful resources for the activities – where the resources are provided they have been included in the resources list for each session in bold. Examples of many of the outputs have been included in the Examples slide show.

Suitability

This scheme of work is most suitable for Key Stages 1, 2 and 3 and within this age range can be adapted to suit the older or younger ends of the scale. As the students tend to work in teams it is sensible to arrange them into mixed attainment groups. The plans for each key stage are included separately. Key Stage 1 and 2 workshops are arranged over 5 half day sessions and Key Stage 3 plans are for a half day in the park followed by a whole day on the creative project at school.

Additional Educational Needs Provision

We worked with children within each school with a range of special educational needs and employed modifications where necessary to enable all children to access and enjoy the project. In some cases the children worked with a one-to-one assistant carrying out the same tasks as the rest of the class, or a modified form of the tasks and in other cases the children were supported by the group structure and the open-ended nature of the majority of the activities. Teachers will know the specific needs of children in their class and can adapt activities as necessary. In working with children with additional educational needs on this project teachers can take the opportunities it affords to:

- **Promote 'active learning'** e.g. modelling appropriate learning strategies:

facilitating choice and risk taking in learning; making explicit links between out-of-school knowledge and school learning.

- **Promote participation and engagement** e.g. facilitating collaborative learning and peer tutoring; engaging in 'real-life' problem solving, citizenship; access strategies for participation and engagement, forge community links
- **Respond to personalised learning styles and preferences** e.g. visual / auditory / kinaesthetic modes of learning;

Before Starting

If you don't already know Crystal Palace Park well we would suggest that it is a very good idea before starting the project to familiarise yourself with it and decide on a route for your visit with the students. There is much information available about the park and we have included some sources under 'Further Information'. Have a look at the 'Project Examples' slide show that has been included with the resource to show you how many of the activities work.

Scope and Timings

The full scheme of work was delivered in five half-day sessions over half a term. Timings given are based on how long we spent on an activity and are just a guide to help you decide which parts you want to include and anything you prefer to leave out – the plans are very adaptable. However, we would say that it is very important, if you possibly can, to take the students to visit the park even if they feel that they know it well already. When they are really looking and drawing they see all sorts of things they never noticed before.

Creative Outcomes

We have included plans for the outputs we created, the 'Time-travel' model of the park at KS1, the Heritage or Sports Pavilion design project at KS2 and the Central Axis Regeneration project at KS3, but it would be possible to use these ideas and scale back the outcomes using a flat card map for the KS1 project or producing 2D designs for the KS2 and KS3 projects - whatever suits the budget and available adult resource.

Exhibition/Display

At the end of the project we would recommend showing the outcomes in a school display and ideally inviting parents, which will help to engage the whole school community with Crystal Palace Park.

Further Information

For more information about:

- Our Hut www.ourhut.co.uk
- Crystal Palace Park:
 - Research articles on Our Hut website
 - Crystal Palace Museum www.crystalpalacemuseum.org.uk/
 - Crystal Palace Foundation www.crystalpalacefoundation.org.uk/
 - Friends of Crystal Palace Subway <http://www.cpsubway.org.uk/>
 - Friends of Crystal Palace Park <https://crystalpalacepark.org.uk>

Images

We would like to thank Kevin Ireland and The Serpentine Gallery for use of images in these resources.

Sublime Structures at Crystal Palace Park

Project Plans: Key Stages 1, 2 and 3

Main Aims

The overall aim of the workshops will be to help pupils to engage with and learn about the architecture and structures of Crystal Palace Park from the building of the Crystal Palace to the present day, focusing particularly on specific identified buildings, as well as related heritage themes, while exploring their own creativity through the workshop outputs.

Specific objectives will be to:

- increase the children's engagement with their local park
- investigate the heritage of Crystal Palace Park focusing on the engineering of Crystal Palace and the educational themes of discovery and invention which inspired Paxton's original design
- investigate the heritage of sport in CPP: activities based on historic sports in the park and current provision at the National Sports Centre
- explore architectural and engineering concepts through investigation of the buildings/structures in the park
- provide inspiration for the children's own creative work

National Curriculum Links

Maths:

Shape, pattern, symmetry, measurement

Design and Technology:

Introduction to architecture, engineering, design and 3D making

Art:

Pattern, drawing, designing from nature, how art and design both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation.

Geography:

Location, maps, cities

History:

Local area history focusing on Crystal Palace Park and its buildings/structures, sports heritage in the park

Literacy:

Presenting, speaking and listening; and stories

Science:

Structure, construction, materials

Key Stage 1 Session Plans

Sublime Structures in Crystal Palace Park Project Plan: KS1

Session 1: Introduction, Architectural analysis, Structure challenge

Objectives

- to introduce the Crystal Palace Park project
- to increase understanding of architecture and engineering
- to build architectural vocabulary and understanding of historical styles
- to investigate the history of CPP
- to practise making skills

Outcomes/Outputs

- Introduction of project
- Increasing architectural vocabulary
- analysis and evaluation of architecture/structures in CPP
- Increasing understanding of heritage of CPP
- Construction of towers

Resources

- **Buildings Analysis Slide show with picture of Ronchamp chapel and then Crystal Palace buildings/structures**
- Photos of interiors/exterior stuck on large sheets of paper including Crystal Palace, CP transmitter, NSC – interior and exterior, Dinosaurs, Concert stage, from slide show
- Large Felt pens
- 6X A2 sheets of paper with Crystal Palace Park in middle
- **Then and Now Map Sorting: 6X historic map and 6X present day map 6X Collection of structures images to place on appropriate map**
- Water tower demonstration:
 - Plastic squash bottle with bottom cut off
 - Plastic tubing
 - Funnel
 - metre rules
 - Plastic basin or tray
- **Water Towers Slide Show**
- Construction materials:
- Transmitter type towers:
 - canes
 - string
 - gaffer tape
- Watertower type towers:
 - Card and plastic packaging
 - Masking Tape
 - scissors
 - Pritt sticks
- Knives (adults only)

Activities

- **Introduce project (10 minutes):** working on architecture and the built environment. *What is architecture? What buildings do you like/dislike?* Discuss in pairs
- **Activity 1: CPP Buildings Analysis (30 minutes):** Show picture of **Buildings Analysis slide show** - Ronchamp chapel on whiteboard and ask children to describe it: *What do you think it is for? What is it made of? When might it have been built? How might you feel if you went inside? What adjectives would you use to describe it? Do you like it? Why/why not? What shapes can you see?* For reference: it is a church built in France in the 1950s by a Modernist architect, Le Corbusier. It is made of concrete – even the roof, which is why it could be made the shape it is!
- Explain to students that they will be working in groups to analyse a building or structure (*What is a structure?*) from a picture and then we'll put them on the wall with comments around them for everyone to look at. All members of the group can write comments round the picture
- Give each group a picture – Each group of 5/6 to have a different picture of a building or structure from CPP on an A3 sheet and pens
- Groups analyse with help from adults
- Feedback: Show pictures on slide show as each group feeds back main points about their building
- *Who knows where their building or structure is or was?* Establish that they're all in Crystal Palace Park and explain that our project will all be about the park with a visit in the next session
- **Crystal Palace Park Knowledge Gathering (15 minutes)**
- Give each group an A2 sheet with Crystal Palace Park written in the middle and ask them to write down all the things they know about the park as well as what they like or dislike about it

Feedback – Talk about Great Exhibition and Paxton and move to Sydenham Hill *Why isn't Crystal Palace there now?* Show Pathe film clip of the fire in 1936 burning the palace down <https://www.youtube.com/watch?v=tzSM38hCIPc>

Then and Now Map Sorting Exercise (15 minutes)

- Explain that each group will have two maps – one showing CPP as it was when first built – *when was that?* (1854) and the other showing how it is today. They will also have small photos of the buildings/structures in the park and asked to put them on the maps according to which one they would appear on – e.g the Crystal Palace, water towers and fountains would be on the 1850's map and the NSC and stadium would be on the present day map but the dinosaurs and Crystal Palace Station would be on both

- Show final slide and discuss

Water Towers and Water Features (15 minutes)

- Look at the C19 map and ask what is the main thing that's in the grounds then but isn't now? Talk about the fountains and water basins. Show the water towers – what were these for?
- Explain that the water for the fountains needed to be stored at the top of the towers so that the gravitational force would make the water jets rise high in the fountains
- Explain that we're going to demonstrate how the water went from the towers to make the fountains work
- Show equipment – funnel attached to long piece of plastic tubing, jug of water, plastic basin or tray, metre rule *what are we going to do with this?*
- *What do you think will happen? How could we make the fountain higher? Why should it work?*
- Ask students to help by one holding the funnel up and another holding the bottom of the tubing in the basin/tray with its end turned upwards. Then pour the water from the jug into the funnel
- Demonstrate the fountain with different amounts of water and holding the funnel at different heights
- Discuss how holding the funnel higher makes the jet of water coming out of the end of the tube, ie the fountain, go higher due to the force of gravity – relate this to the original water towers and why they had to be high up on the hill with the water tanks at the top

Tower Construction challenge (45 minutes)

Introduction

- Explain that we'll be doing a challenge to build towers – half the groups will build a tower using canes – think about the transmitter and the other half will be building from the junk they've brought in – think about the water towers in the original plan
- Show **Towers Slide Show** for inspiration
- Explain that the children will be working in their teams and tell each team which type of tower they'll be making
- Canes: think about shapes and how to make them tall but strong
- Junk: Think about the shape – round, square, triangular? Make them as strong and tall as possible. They should fix the boxes and other packaging together with masking tape
- **Plenary:** Look at the towers and talk about how successful they are and why – what shapes have been used, is the base sturdy, what could be improved etc

Sublime Structures in Crystal Palace Park Project Plan: KS1 Session 2: Visit to Crystal Palace Park

Objectives

- to introduce children to architecture/structures in CPP
- to encourage children to look at and analyse the different elements of the buildings /structures through specific tasks
- to collect drawn and photographic images of buildings in CPP
- to practise drawing skills

Outcomes/Outputs

Children

- visit and learn about CPP
- Visit CPP Museum
- carry out specific tasks to analyse the architecture and structures of CPP
- make drawings/take photos
- Look at and discuss the local built environment

Resources

- Lost Valley of London film
<https://www.youtube.com/watch?v=tLXlqc7tlmg>
- **Map of Crystal Palace Park** on whiteboard
- Extract from *Fanny and the Monsters* by Penelope Lively, describing how she first saw the dinosaurs
- Clipboards
- Maps and coloured pencils for marking specific study sites
- Concertina books
- Pencils
- Sharpeners/rubbers
- Sharpie pens
- Cameras/phones/iPads
- 5 X large paper
- Felt pens

Activities

Introduction to Trip (30 minutes)

- Show CP dinosaurs film – Lost Valley of London
- Explain we're going to visit CPP and we'll be looking for clues to the heritage of the park and have specific tasks to do
- Talk about Paxton's ideas for the educational role of the park and also how it has always been a place for spectacle and entertainment
- Show map of the park and say we'll be visiting:
 - Class 1: the dinosaurs and lake – ask someone to show us where it is on the map
 - You could read an extract from *Fanny and the Monsters* by Penelope Lively to give the idea of Victorians seeing them for the first time
 - Class 2: The station and the stage– ask someone to show us where they are on the map
- Explain that everyone will have a copy of the **Map of Crystal Palace Park** and they will be able to mark the things we find on it
- When in the park we will be doing drawings, concentrating on including all the features and details. They can also make notes about the building or structure and take photos
- All children to be given clipboards with map and concertina books to record their buildings/structures
- If possible all teams to have Ipads to photograph their building/other interesting elements

Walk to CPP

- On walk point out interesting buildings to children and talk about materials, shapes, symmetry

Visit

- Once inside the park point out as many features as possible - you could walk along the Upper Terrace along the site of the Crystal Palace to look at the sphinxes and the landscape noting the replica section of CP then down through the main axis to the NSC and the stadium looking at the statue of Sir Joseph Paxton on the way
- Walk through park to dinosaurs (Class 1) or Station/Stage (Class 2) and then spread out to do their recording of different aspects – drawings, photographs and notes
- Collect in pre-arranged place and walk back to school

together

- **Back in classroom:**
- Give each team a large sheet of paper and then ask them to discuss and record in drawings and words what they have learnt about the park generally and also what they have learnt about their specific building/structure. They can also describe their feelings about the park and their specific task
- Feedback – each group to present their feedback to the class

Sublime Structures in Crystal Palace Park Project Plan: KS1 Session 3: Historical analysis, Drawing activities

Objectives	Outcomes/Outputs	Resources
<p>Objectives</p> <ul style="list-style-type: none"> to explore the history of CCP through its buildings and the activities that have taken place there. especially sport to investigate buildings through drawing <p>Activities</p> <p>Introduction (10 minutes)</p> <ul style="list-style-type: none"> Explain that we're going to be looking at the history of Crystal Palace Park this session Show Maps of Crystal Palace Park through the ages Slide Show from before the park was created to present day and ask how things have changed. You will probably want to choose a few key maps rather than showing all of them. Main changes: North and South fountain basins filled in for use as sports grounds in late C19, Crystal Palace burned down in 1936, Water towers removed in WW2, National Sports Centre and stadium built in 1960s Why isn't the Crystal Palace there any more? Show Pathe footage of fire https://www.youtube.com/watch?v=oF3vVv9fC34 <p>Then and Now Activity (25 minutes)</p> <ul style="list-style-type: none"> Show first slide in CPP Then and Now Slide Show - 2 pictures of views from CPP – one present day and the other of the same place in the past on whiteboard– what do these pictures show? How are they different/similar? when do you think the first picture was taken? Explain that children are going to work in teams of 3/4 and each team will have two pictures – one from the present day and one from the past, again Then and Now and they are going to work as detectives again to work out what has changed and what has stayed the same Give each team pairs of pictures printed from CPP Then and Now Slide Show on to A3 paper When they find what has changed and what has stayed the same they should write the points around the pictures Feedback showing pictures on whiteboard – discuss sport activities and entertainment shown and explain more about how park was used <p>Timeline (50 minutes)</p> <ul style="list-style-type: none"> Show an example of a timeline on whiteboard and explain that we're going to make a timeline for CPP Children work in teams of 3/4 to create a timeline using the Timeline Chronology document and Timeline Archive photos and writing comments on their timeline strip Feedback <p>Time Traveller Postcards (20 minutes)</p> <ul style="list-style-type: none"> Class 1: Dinosaurs <ul style="list-style-type: none"> Explain that we'd like children to pretend to be someone who visited the Dinosaurs when they were first made, like Fanny in the story. They are going to write a postcard describing what it was like to someone visiting the park today Re-read the excerpt from Fanny and the Monsters or 	<p>Outcomes/Outputs</p> <p>Children</p> <ul style="list-style-type: none"> engage in a range of activities to explore the history of CPP 	<ul style="list-style-type: none"> Maps of Crystal Palace through the ages – Slide Show Pathe footage of fire https://www.youtube.com/watch?v=oF3vVv9fC34 CPP Then and Now Slide Show 10 Pairs of Then and Now pictures from CPP printed from slide show on A3 paper with space to write comments Example of Timeline on whiteboard – source from internet Long paper for timelines Timeline chronologies – KS1 version Timeline Archive photos to populate timeline for teams to work from – KS1 version Pritt sticks scissors felt tip pens Examples of period dress for postcards/through the ages drawings 30 blank postcards Pens Pencils coloured pencils Extract about original gardens to read Drawing paper Biros

an excerpt from an original source to give them the idea

- Class 2: Station/Concert bowl
 - Explain that we'd like children to pretend to be someone who travelled to the Crystal Palace when it was first built by train and to write a postcard about what it was like to someone nowadays
 - Read contemporary sources
- Give out postcards and coloured pencils for children to draw front of postcard as well as people in Victorian costume
- Children draw front and write back of postcard

Plenary: Show postcards and read some out

Sublime Structures in Crystal Palace Park Project Plan: KS1

Session 4: Creative project

Objectives

For children

- to introduce the creative project
- for children to create a 'time-travel' tableau of CPP
-

Outcomes/Outputs

Children

- take part in a carousel of activities
- Create 'time-travel' tableau of the park

Resources

- **Buildings Analysis Slide Show** from Session 1
- Park Base – 3D or flat card – made in advance using **Map of Crystal Palace Park for Model-Making**
- Train Carriage example
- Train carriage materials: small boxes with open tops, tech card, dowels, wheels, card, people in period dress
- Buildings/structures materials: card, pictures
- Grounds: templates for trees to cut out of card and slot together, silver foil, cellophane and tissue for fountains, lakes
- People: people in period dress from Victorians onwards
- Coloured pencils
- felt pens
- Glue guns (adults)
- Double-sided tape
- Hacksaws
- Bench hooks
- Knives (adults)
- scissors
- Pritt sticks

Activities

The design project has been described as we did it but it can be scaled back and adapted to suit time and budget restraints. We made a large 3D base model which was contoured to reflect the changing heights in the park – you may want to enlarge the map and lay it on a flat sheet of card as your base

Design Project Introduction (30 minutes)

- Explain that over the rest of the project we are going to be creating a 'Time-travel' model of Crystal Palace Park including buildings, structures and sculptures from every part of the park's history from when it was first opened in 1854. *What will we include?* Ask children to talk in pairs/groups to remember the buildings and then write up their suggestions on a flipchart.
- Explain that there will be a time-travel train going round the park to see the different things – *who will be riding on the train?* Passengers can be everyone from the dinosaurs to people from Victorian times up to the present day
- Show the base for the model with the park marked on it and explain that both classes will be creating models for it:
 - Class 1: Crystal Palace, Transmitter mast, stadium
 - Class 2: Station, stage, NSC, water tower
- Show **Buildings Analysis Slide Show** from Session 1
- Everyone will be making train carriages with dinosaurs and people from Victorians to modern day people sitting inside
- Activities will be carried out as a carousel so everyone will get a chance to do everything but visiting one table at a time – show examples and demonstrate activities

Activities Carousel (1 hour, 30 minutes)

- Time-travel train: children can work in pairs to make a train carriage from small boxes with tech card attached, dowel axles and wheels. They then make the passengers to go inside
- Buildings/ structures:
 - Class 1: Crystal Palace, Transmitter mast, stadium
 - Class 2: Station, stage, NSC, water tower
 – children to work with adults to make the buildings. Have pictures to work from
- Grounds: Lakes, fountains, Dinosaurs, trees
- People: People dressed in costume from all different times from Victorians onwards

Clearing up (5 minutes)

Plenary (10 minutes)

- Feedback on work produced so far

Sublime Structures in Crystal Palace Park Project Plan: KS1 Session 5: Model-making		
Objectives For children <ul style="list-style-type: none"> to finish the 'time-travel' tableau of the park To discuss the work 	Outcomes/Outputs Children <ul style="list-style-type: none"> Finish activities Discuss the work and project 	Resources <ul style="list-style-type: none"> 'Time-travel' Model in progress Train Carriage example Train carriage materials: small boxes with open tops, tech card, dowels, wheels, card, people in period dress Buildings/structures materials: card, pictures Grounds: templates for trees to cut out of card and slot together, silver foil, cellophane and tissue for fountains, lakes People: people in period dress from Victorians onwards Coloured pencils felt pens Glue guns (adults) Double-sided tape Hacksaws Bench hooks Knives (adults) scissors Pritt sticks Drawing paper Pencils Pens Coloured pencils Carbon paper sandwiches – carbon paper sandwiched between A4 drawing paper and A4 photocopy of a structure in CPP from Pictures for drawing activities Slide Shows
Activities Introduction (5 minutes) <ul style="list-style-type: none"> Remind children of the time-travel park project and explain that we'll be finishing today Ask children to start with an activity they haven't yet done Finishing activities (1 hour 45 minutes) <ul style="list-style-type: none"> Time-travel train: children can work in pairs to make a train carriage from small boxes with tech card attached, dowel axles and wheels. They then make the passengers to go inside Buildings/ structures: <ul style="list-style-type: none"> Class 1: Crystal Palace, Transmitter mast, stadium Class 2: Station, stage, NSC, water tower – children to work with adults to make the buildings. Have pictures to work from Grounds: Lakes, fountains, Dinosaurs, trees People: People dressed in costume from all different times from Victorians onwards Extra Activities <ul style="list-style-type: none"> If children finish all the activities they can: <ul style="list-style-type: none"> draw the time-travel park Do a carbon paper drawing – see 'Resources' for information on making Carbon paper sandwiches. Demonstrate how to do the drawing by following outlines on top of photocopy of image from Pictures for drawing activities Slide Shows with biro – blue lines will be transferred from carbon paper to drawing paper – see example in Examples Slide Show Plenary: Discuss the model and the changes in the park from when it was built – what would they most like to see if they were on the time-travel train?		

Key Stage 2 Session Plans

Sublime Structures in Crystal Palace Park Project Plan: KS2

Session 1: Introduction, Architectural analysis, Structure challenge

Objectives

- to introduce the Crystal Palace Park project
- to increase understanding of architecture and engineering
- to build architectural vocabulary and understanding of historical styles
- to investigate the history of CPP
- to practise making skills

Outcomes/Outputs

- Introduction of project
- Increasing architectural vocabulary
- analysis and evaluation of architecture/structures in CPP
- Increasing understanding of heritage of CPP
- Construction of towers

Resources

- **Buildings Analysis Slide show with picture of Ronchamp chapel and then Crystal Palace buildings/structures**
- Photos of interiors/exterior stuck on large sheets of paper including Crystal Palace, CP transmitter, NSC – interior and exterior, Dinosaurs, Concert stage, from slide show
- Large Felt pens
- 6X A2 sheets of paper with Crystal Palace Park in middle
- **Then and Now Map Sorting: 6X historic map and 6X present day map 6X Collection of structures images to place on appropriate map**
- Water tower demonstration:
 - Plastic squash bottle with bottom cut off
 - Plastic tubing
 - Funnel
 - metre rules
 - Plastic basin or tray
- **Water Towers Slide Show**
- Construction materials:
- Transmitter type towers:
 - canes
 - string
 - gaffer tape
- Watertower type towers:
 - Card and plastic packaging
 - Masking Tape
 - scissors
 - Pritt sticks
- Knives (adults only)
- Film clips from the internet showing:
 - Crystal Palace with the water towers
 - The Crystal Palace Transmitter

Activities

- **Introduce project (10 minutes):** working on architecture and the built environment. *What is architecture? What buildings do you like/dislike?* Discuss in pairs
 - **Activity 1: CPP Buildings Analysis (30 minutes):** Show picture of **Buildings Analysis slide show** - Ronchamp chapel on whiteboard and ask children to describe it: *What do you think it is for? What is it made of? When might it have been built? How might you feel if you went inside? What adjectives would you use to describe it? Do you like it? Why/why not? What shapes can you see?* For reference: it is a church built in France in the 1950s by a Modernist architect, Le Corbusier. It is made of concrete – even the roof, which is why it could be made the shape it is!
 - Explain to students that they will be working in groups to analyse a building or structure (*What is a structure?*) from a picture and then we'll put them on the wall with comments around them for everyone to look at. All members of the group can write comments round the picture
 - Give each group a picture – Each group of 5/6 to have a different picture of a building or structure from CPP on an A3 sheet and pens
 - Groups analyse with help from adults
 - Feedback: Show pictures on slide show as each group feeds back main points about their building
 - *Who knows where their building or structure is or was?* Establish that they're all in Crystal Palace Park and explain that our project will all be about the park with a visit in the next session
 - **Crystal Palace Park Knowledge Gathering (15 minutes)**
 - Give each group an A2 sheet with Crystal Palace Park written in the middle and ask them to write down all the things they know about the park as well as what they like or dislike about it
- Feedback – Talk about Great Exhibition and Paxton and move to Sydenham Hill *Why isn't Crystal Palace there now?* Show Pathe film clip of the fire in 1936 burning the palace down <https://www.youtube.com/watch?v=tzSM38hCIPc>
- **Then and Now Map Sorting Exercise (15 minutes)**
 - Explain that each group will have two maps – one showing CPP as it was when first built – *when was that?*

(1854) and the other showing how it is today. They will also have small photos of the buildings/structures in the park and asked to put them on the maps according to which one they would appear on – e.g the Crystal Palace, water towers and fountains would be on the 1850's map and the NSC and stadium would be on the present day map but the dinosaurs and Crystal Palace Station would be on both

- Show final slide and discuss

Water Towers and Water Features

- Look at the C19 map and ask what is the main thing that's in the grounds then but isn't now? Talk about the fountains and water basins. Show the water towers – what were these for?
- Explain that the water for the fountains needed to be stored at the top of the towers so that the gravitational force would make the water jets rise high in the fountains
- Explain that we're going to demonstrate how the water went from the towers to make the fountains work
- Show equipment – funnel attached to long piece of plastic tubing, jug of water, plastic basin or tray, metre rule *what are we going to do with this?*
- *What do you think will happen? How could we make the fountain higher? Why should it work?*
- Ask students to help by one holding the funnel up and another holding the bottom of the tubing in the basin/tray with its end turned upwards. Then pour the water from the jug into the funnel
- Demonstrate the fountain with different amounts of water and holding the funnel at different heights
- Discuss how holding the funnel higher makes the jet of water coming out of the end of the tube, ie the fountain, go higher due to the force of gravity – relate this to the original water towers and why they had to be high up on the hill with the water tanks at the top

Tower Construction challenge (45 minutes)

Introduction

- Explain that we'll be doing a challenge to build towers – half the groups will build a tower using canes – think about the transmitter and the other half will be building from the junk they've brought in – think about the water towers in the original plan
- Show **Towers Slide Show** for inspiration
- Explain that the children will be working in their teams and tell each team which type of tower they'll be making
- Canes: think about shapes and how to make them tall but strong
- Junk: Think about the shape – round, square, triangular? Make them as strong and tall as possible. They should fix the boxes and other packaging together with masking tape
- **Plenary:** Look at the towers and talk about how successful they are and why – what shapes have been used, is the base sturdy, what could be improved etc

Sublime Structures in Crystal Palace Park Project Plan: KS2 Session 2: Visit to Crystal Palace Park

Objectives	Outcomes/Outputs	Resources
<ul style="list-style-type: none"> • to introduce children to architecture/structures in CPP • to encourage children to look at and analyse the different elements of the buildings /structures through specific tasks • to collect drawn and photographic images of buildings in CPP • to practise drawing skills 	<p>Children</p> <ul style="list-style-type: none"> • visit and learn about CPP • carry out specific tasks to analyse the architecture and structures of CPP • make drawings/take photos • Look at and discuss the local built environment 	<ul style="list-style-type: none"> • Pathe films/ Lost Valley of London film • Map of Crystal Palace Park on whiteboard • Clipboards • Maps and coloured pencils for marking specific study sites • Drawing paper • Pencils • Sharpeners/rubbers • Sharpie pens • Plastic bags for collecting plant examples • Cameras/phones/iPads • 5 X large paper • Felt pens
<p>Activities</p> <p>Introduction to Trip (30 minutes)</p> <ul style="list-style-type: none"> • Show CP dinosaurs film – Lost Valley of London or Pathe footage of Palace https://www.youtube.com/watch?v=tLXlqc7tlmg • Explain we're going to visit CPP and we'll be looking for clues to the heritage of the park and have specific tasks to do • Show map of the park and say we'll be visiting: <ul style="list-style-type: none"> • Class 1: The station and the area where the Palace stood – ask someone to show us where it is on the map • Class 2: The National Sports Centre, Stadium and Skatepark • Explain that everyone will have a copy of the map and they will be able to mark the things we find on it • Explain that we will be visiting particular structures and buildings in the park and recording them, for example: <ul style="list-style-type: none"> • Class 1: Crystal Palace Station, Crystal Palace footings and sphinxes, Terrace steps and arcades, Example structure, Watertower remains, Transmitter mast • Class 2: National Sports Centre exterior, NSC interior, sports stadium, skateboard park • – they should do drawings, concentrating on including all the features and details. They can also make notes about the building or structure and take photos • We will also be looking at plant structures – something that Paxton did when he designed the Crystal Palace and we'll be collecting some examples in the park • Tell the children which detective team they're in and which adult(s) they'll be with • All children to be given clipboards with map and drawing paper to record their buildings • If possible all teams to have Ipads to photograph their building/other interesting elements <p>Walk to CPP</p> <ul style="list-style-type: none"> • On walk point out interesting buildings to children and talk about materials, shapes, symmetry <p>Visit</p> <ul style="list-style-type: none"> • Once inside the park point out as many features as 		

possible

- Walk through park their specific buildings/structures and do their recording –drawings, photographs and notes
- If there are enough adults split class into groups to record different buildings looking particularly at shapes, materials and structure
- Collect in pre-arranged place and walk back to school together
- **Back in classroom:**
- Give each table a large sheet of paper and then ask them to discuss and record in drawings and words what they have learnt about the park generally and also what they have learnt about specific buildings/structures. They can also describe their feelings about the park and the buildings in it
- Feedback – each group to present their feedback to the class

Sublime Structures in Crystal Palace Park Project Plan: KS2

Session 3: Historical analysis, Drawing activities

Objectives	Outcomes/Outputs	Resources
<ul style="list-style-type: none"> to explore the history of CCP through it's buildings and the activities that have taken place there, especially sport to investigate buildings through drawing 	<p>Children</p> <ul style="list-style-type: none"> engage in a range of activities to explore the history of CPP 	<ul style="list-style-type: none"> Maps of Crystal Palace through the ages – Slide Show Pathe footage of fire CPP Then and Now Slide Show 10 Pairs of Then and Now pictures from CPP printed from slide show on A3 paper with space to write comments Example of Timeline on whiteboard – source from internet Long paper for timelines Timeline chronologies – KS2 version Timeline Archive photos to populate timeline for teams to work from – KS2 version Pritt sticks scissors felt tip pens examples of period dress for postcards/through the ages drawings 30 blank postcards Pens Pencils coloured pencils Pictures for Drawing Activities Slide Show resources: copies of pictures of Crystal Palace showing structure and waterlily Drawing paper Tracing paper Plants for drawing – leaves with strong structures e.g. cabbage leaves work well
<p><i>In this session it is important to do the structural leaf drawings as this leads into the project for Sessions 4 and 5 so we would advise prioritising this above the 'Time-travel postcards if there isn't time for both.</i></p> <p>Activities</p> <p>Introduction (10 minutes)</p> <ul style="list-style-type: none"> Explain that we're going to be looking at the history of Crystal Palace Park this session Show Maps of Crystal Palace Park through the ages Slide Show from before the park was created to present day and ask how things have changed. You will probably want to choose a few key maps rather than showing all of them. Main changes: North and South fountain basins filled in for use as sports grounds in late C19, Crystal Palace burned down in 1936, Water towers removed in WW2, National Sports Centre and stadium built in 1960s Why isn't the Crystal Palace there any more? Show Pathe footage of fire <p>Then and Now Activity (25 minutes)</p> <ul style="list-style-type: none"> Show first slide in CPP Then and Now Slide Show - 2 pictures of views from CPP – one present day and the other of the same place in the past on whiteboard– what do these pictures show? How are they different/similar? when do you think the first picture was taken? Explain that children are going to work in teams of 3/4 and each team will have two pictures – one from the present day and one from the past, again Then and Now and they are going to work as detectives again to work out what has changed and what has stayed the same Give each team pairs of pictures printed from CPP Then and Now Slide Show on to A3 paper When they find what has changed and what has stayed the same they should write the points around the pictures Feedback showing pictures on whiteboard – discuss sport activities and entertainment shown and explain more about how park was used <p>Timeline (50 minutes)</p> <ul style="list-style-type: none"> Show an example of a timeline on whiteboard and explain that we're going to make a timeline for CPP Children work in teams of 3/4 to create a timeline using the Timeline Chronology document and Timeline Archive photos and writing comments on their timeline strip Feedback <p>Time Traveller Postcards (20 minutes)</p> <ul style="list-style-type: none"> Class 1: Crystal Palace <ul style="list-style-type: none"> Explain that we'd like children to pretend to be someone who visited the Crystal Palace when it was there – it can be at the beginning or later – they may 		

have gone to see the exhibition or to see a firework display or one of the other entertainments. They are going to write a postcard describing what it was like to someone visiting the park today

- Read an excerpt from an original source to give them the idea
- **Class 2: National Sports Centre**
 - Explain that we'd like children to pretend to be someone who visited the NSC when it was first built or to be someone who attended a sporting event. They are going to write a postcard describing what it was like when it first opened to someone visiting today/what the sporting event was like
- Show Pathe film of NSC
- Give out postcards and coloured pencils for children to draw front of postcard as well as people in Victorian costume for Class 1
- Children draw front and write back of postcard

Structural Drawing activities (30 minutes)

- Give out copies of photos showing the structure of Crystal Palace and the photo of the Waterlily Victoria Amazonica which you will find in the **Pictures for Drawing Activities Slide Show**
- Explain that Paxton got the idea for the structure of Crystal Palace from looking at the structure of the giant Waterlily Victoria Amazonica, that is so strong it can hold the weight of a child – Paxton tried this out with his daughter!
- Ask children to copy or trace the structure of the palace or the leaf
- Give out drawing paper, tracing paper, pencils and pens
- Give out plants/leaves and ask the children to draw the structure of the plants in as much detail as possible, explaining that these will be used for their own creative project next session. They can draw as many as they like

Sublime Structures in Crystal Palace Park Project Plan: KS2

Session 4: Creative project

Objectives	Outcomes/Outputs	Resources
<p>For children</p> <ul style="list-style-type: none"> to introduce the architectural process to explain the brief for children to design a building to the brief to start to represent ideas for pavilions as models 	<p>Children</p> <ul style="list-style-type: none"> develop understanding of the architectural process plan park pavilion designs Start to make models of the pavilions 	<ul style="list-style-type: none"> Brief on whiteboard Example materials Plant structure drawings from last session Slide show Information Pavilion/Sports Pavilion Brief X10 Information Pavilion/Sports Pavilion Design planning sheet X 10 Coloured pencils felt pens Model making materials including baseboards, dowels, card, cellophane etc Card for scale figures for models Glue guns Double-sided tape Hacksaws Knives (adults) scissors Pritt sticks
<p><i>The children will be working in design teams for the rest of the project collaborating on their design and model-making. We generally find that groups of 3 work best. The children will need a lot of adult support so it is a good idea to get as many other adults into the class as possible!</i></p> <p>Activities</p> <p>Design Project Introduction (30 minutes)</p> <ul style="list-style-type: none"> Explain that over the rest of the project we are going to be architects – <i>What do architects do? Who pays for the building?</i> Introduce 'client' and explain that our client is the council who look after the park and want some new small pavilions - they've given us a brief <i>What is a brief?</i> Show the Information Pavilion/Sports Pavilion Brief and explain that the Council would like a series of pavilions to be sited around CPP <ul style="list-style-type: none"> Class 1 Information Pavilion: to encourage people to learn about the park and science/history generally in the spirit of Paxton's original park as a place for learning. Class 2 Sports Pavilion: relating to sport in the park in some way Each group should take inspiration from the plant structure drawings in their designs Ask children to sit in their design teams They will need to plan their design, but first we will show them a slide show of inspiring buildings including small kiosk/pavilion buildings <p>Planning (30 minutes)</p> <ul style="list-style-type: none"> Ask children to discuss ideas for their building including how they will make it interesting as well as practical Tell children we are looking for good group work <i>What do you need to do to work well in a group?</i> When they are planning each group should decide on a use for their pavilion remembering <ul style="list-style-type: none"> Class 1: it should have an educational aspect to it – it could be somewhere to find out about the wildlife of the park, the history of buildings in the park, somewhere to do an activity e.g an art club, a bird hide Class 2: it should have some relation to sport in the park – it could be somewhere to keep sporting equipment, it might have information about all the historic sport in the park, it might have a specific purpose e.g. be for a sport they would like to see CPP, be a place for fishermen, be for the skateboarders etc They should also decide where in the park it will be sited and mark it on their map Explain and give out Information Pavilion/Sports 		

Pavilion design planning sheets and ask children to put down ideas.

Model-making (60 minutes)

- Remind children that when architects design buildings they need to show their ideas as drawings and models: *What is a model? Why do we need it?* Show example
- Show materials and explain modelling tips e.g. how to cut with hacksaw, joining with glue gun, scoring card with a sharp knife (only to be done by adults)
- Help groups to get started on models

Clearing up (5 minutes)

Plenary (10 minutes)

- Feedback on where groups have got to with their models and what they need to do to finish them next session

Sublime Structures in Crystal Palace Park Project Plan: KS2
Session 5: Model-making

Objectives

For children

- to finish their Pavilion models
- To present their designs to the class

Outcomes/Outputs

Children

- Finish models
- Present their designs to the class

Resources

- Design Planning Sheets
- Models
- Model making materials including dowels, card, cellophane etc
- Card for scale figures for models
- Glue guns (adults)
- Double-sided tape
- Hacksaws (adults)
- Knives (adults)
- scissors
- Pritt sticks
- felt tip pens
-

Activities

Finishing models (1 hour 45 minutes)

- Explain that we're going to finish the models today and present them to the class
- Teams finish models

Presentation (40 minutes)

- Each team presents their work and ideas to the class

Key Stage 3 Session Plans

Sublime Structures in Crystal Palace Park Project Plan: KS3
 Session 1 Half Day: Introduction, CPP analysis, Drawing

Objectives

- to introduce the Crystal Palace Park project
- to increase understanding of architecture and engineering
- to investigate the park and its structures
- to investigate the history of CPP
- to analyse the current main axis of the park and start to generate ideas for regeneration
- to draw specific structures in the park

Outcomes/Outputs

- Introduction of project
- Increasing architectural vocabulary
- analysis and evaluation of architecture/structures in CPP
- Increasing understanding of heritage of CPP
- Drawings of buildings/structures in CPP

Resources

- **Then and Now Images of park from of Aerial Views Slide Show in plastic pouches X10**
- Clipboards
- **Main axis Regeneration Brief**
- **Main axis analysis questions**
- **Walkway Plan of main axis for analysis**
- Drawing paper
- pencils
- pens

Activities

Before going to the park explain to the students that they will be investigating the park and analysing it to feed into a creative project which will be carried out back at school. They will be working in groups of 6 to 8 – arrange the groups beforehand. We would really recommend a visit to the National Sports Centre, but you will need to arrange access to the inside before your trip

- **Start at top entrance**
- **Introduce project (10 minutes):** Project specifically about the architecture and structures in Crystal Palace Park. Explain that we're going to start by walking to where the Crystal Palace stood – what was the Crystal Palace? When was it built? Why isn't it there now? Who designed it?
- Walk down steps next to Museum and look at remains of South Water Tower, then walk along path and stop at replica corner of Crystal Palace structure – ask students what they think it is – explain that it is a replica of the structure of the palace. What is it made of? What other materials would have been in the original building? Explain that this design would have been repeated throughout the structure of the palace in bays
- **Walk to top of Terrace steps looking down central axis into park (10 mins):** Explain how far the Crystal Palace extended does anyone know what the view might have been like when the park was first designed? Give out Then and Now images from **Aerial Views Slide Show** – one set between 3 - and discuss how the park has changed.
- **Present Brief (10 mins):** Explain that our brief for Thursday's design project will be to work in groups to come up with a regeneration scheme for the main axis that we can see and further past the National Sports Centre which we'll be looking at later. That might include small buildings, sculptures, new surfaces and there may be a unifying theme
- Ask students to get into their pre-arranged groups
- **Main axis analysis (1 hour):** Show **map of main axis** and explain that we're going to walk down the main axis

and analyse it as we go thinking about materials, shapes, what we like, what we don't like, what needs improving, how it makes us feel and all this should be annotated on the map. The groups should work together discussing their reactions to what's there and beginning to have ideas for their regeneration scheme

- Give out **Main axis analysis questions** and explain that they can be used as a prompt for the groups to discuss their reactions to the main axis
- All start at bottom of Italian Terrace steps and walk to steps beyond NSC discussing the different elements of the route and annotating the map
- **Meet at NSC (5 mins):** Discuss the building – what is it made of, what shapes can you see etc
- **Draw outside of NSC (15 minutes)**
- Look inside NSC at structure
- **Return to School**

Sublime Structures in Crystal Palace Park Project Plan: Y8
 Session 2 Full Day: Crystal Palace Park Regeneration Design
 project

Objectives	Outcomes/Outputs	Resources
<ul style="list-style-type: none"> to introduce the architectural process to explain the brief for students to design a regeneration scheme to the brief to represent ideas for the as models 	Children <ul style="list-style-type: none"> develop understanding of the architectural process plan park main axis regeneration designs Make team models of the schemes 	<ul style="list-style-type: none"> Main axis Regeneration Brief on whiteboard Slide show including example model (final slide) Main axis Regeneration Brief X12
<p><i>Before starting the model-making you will need to prepare the baseboards for the Regeneration Schemes. You can use the Walkway Plan and enlarge it to whatever size you think appropriate for your model-making. If you would like the students to focus on a particular area for their scheme you could just enlarge that part. To give the students an idea of scale it would be a good idea to make a scale figure at the right size for the size of your walkway</i></p> <p>Activities</p> <p>Design Project Introduction: (30 minutes)</p> <ul style="list-style-type: none"> Remind students of the Main axis Regeneration Brief to create a regeneration scheme for the main axis of the park Explain that the students will be working in three groups of eight to design the whole scheme but that they will divide into pairs to create the different elements of the scheme e.g. a building, sculptures, interventions, ways to frame views of the park, new floor surfaces, tunnels etc – the whole scheme should come together to make the experience of walking down that walkway interesting and enjoyable Show the Main axis Regeneration Brief on the whiteboard Ask students to sit in their design teams They will need to plan their design, but first we will show them a slide show including inspiring small kiosk/pavilion buildings, public sculptures, seating <p>Planning (40 minutes)</p> <ul style="list-style-type: none"> Ask students to discuss ideas for their schemes including how they will make it interesting as well as practical – give out 4 Regeneration scheme design planning sheets to each group Looking at the questions on the planning sheet and the plan they should discuss what elements need to be changed/added to make the scheme work – they should think about floor surfaces, seating, sculptures and buildings – each group should include at least one small pavilion type building or shelter They should quickly decide which element each pair are doing and where their intervention will be sited on the plan Together they should draw on the plan to show how it will be when regenerated – they can change the floor surfaces and add in new elements such as seating, sculpture, pavilions etc Once the overall plan is decided show the baseboards 		<ul style="list-style-type: none"> Regeneration scheme design planning sheet Coloured pencils felt pens Walkway Plan for whole scheme x3 Model baseboards – 3 sections x3 Model making materials including small Perspex baseboards, dowels, card, cellophane, fabric, string etc Card for scale figures for models Glue guns Double-sided tape Hacksaws Knives (adults) scissors Pritt sticks

with the three key sections and explain that pairs should decide where their intervention(s) go on the boards – they may work on just one of the boards or on more than one if they are doing floor surfaces or a repeating element

- Ask students to put down ideas on planning sheets

Model-making Introduction (10 minutes)

- Remind students that when architects design buildings they need to show their ideas as drawings and models: *What is a model? Why do we need it?* Show example model final slide on slide show
- Mention good team working
- Show materials and explain safety issues and modelling tips e.g. making tabs at the bottom of card walls so they stick to the base easily, scoring card to fold cleanly for stairs etc, using glue guns, using hacksaws

Model-making (1 hour)

- Help groups to get started on models

Lunch

Model-making (1.5 hours)

- Explain that we will finish the regeneration scheme models and then we'll present them to each other
- Ask groups to discuss where they've got to and
- Continue with model-making

Clearing up (10 minutes)

Presentations (20 minutes)

- Each group has 5 minutes to present their schemes and then we'll all discuss them