MAYOR OF LONDON

THE LONDON CURRICULUM

KEY STAGE 2

REBUILDING LONDON

THE LONDON CURRICULUM

PLACING LONDON AT THE HEART OF LEARNING

The capital is the home of innovations, events, institutions and great works that have extended the scope of every subject on the school curriculum. London lends itself to learning unlike anywhere else in the world. The London Curriculum aims to bring the national curriculum to life inspired by the city, its people, places and heritage.

To find out about the full range of free resources and events available to London schools please go to:

www.london.gov.uk/london-curriculum.

I have someone I'd like you to meet…
This is Fen the Fox from Fenchurch Street.
He likes to creep about the city,
To inspect and explore the buildings so pretty.
Join him on his journeys to discover
The secret world of London uncovered.
Look out for him along your way,
He might have something interesting to say!

HOW TO USE THIS PACK

This pack is designed to be flexible, to give you control over what you teach and when. The resources in this learning pack all sit within the Rebuilding London theme and promote cross-curricular teaching.

This learning pack includes activity plans which address learning objectives across the following subject areas:

◆ **Dance** (Topic: The building blocks of dance: Hand Jive)

◆ **Computing** (Topic: Building through coding)

◆ **Geography; History** (Topic: World War II and the Great Fire)

◆ **Geography; Citizenship; Literacy** (Topic: Observing and improving local buildings)

◆ **Design & Technology; Geography; Science, Art & Design** (Topic: Building a sustainable London)

This learning pack is designed so that you can pick and choose between the topics; you're free to teach whichever topics you'd like and in whichever order you'd like. Each activity plan displays an approximate duration time and highlights specific KS2 learning objectives relating to the activities described.

The activity plans relating to specific topics often follow on from each other, so we'd recommend that you teach these in succession. However, you may choose to teach different topics in whichever order you wish, for example, you might want to teach Building a sustainable London before The building blocks of dance: Hand Jive.

The topic-based activity plans follow a similar structure to the lesson plans produced in our Key Stage 3 resources. There are three distinct phases of learning:
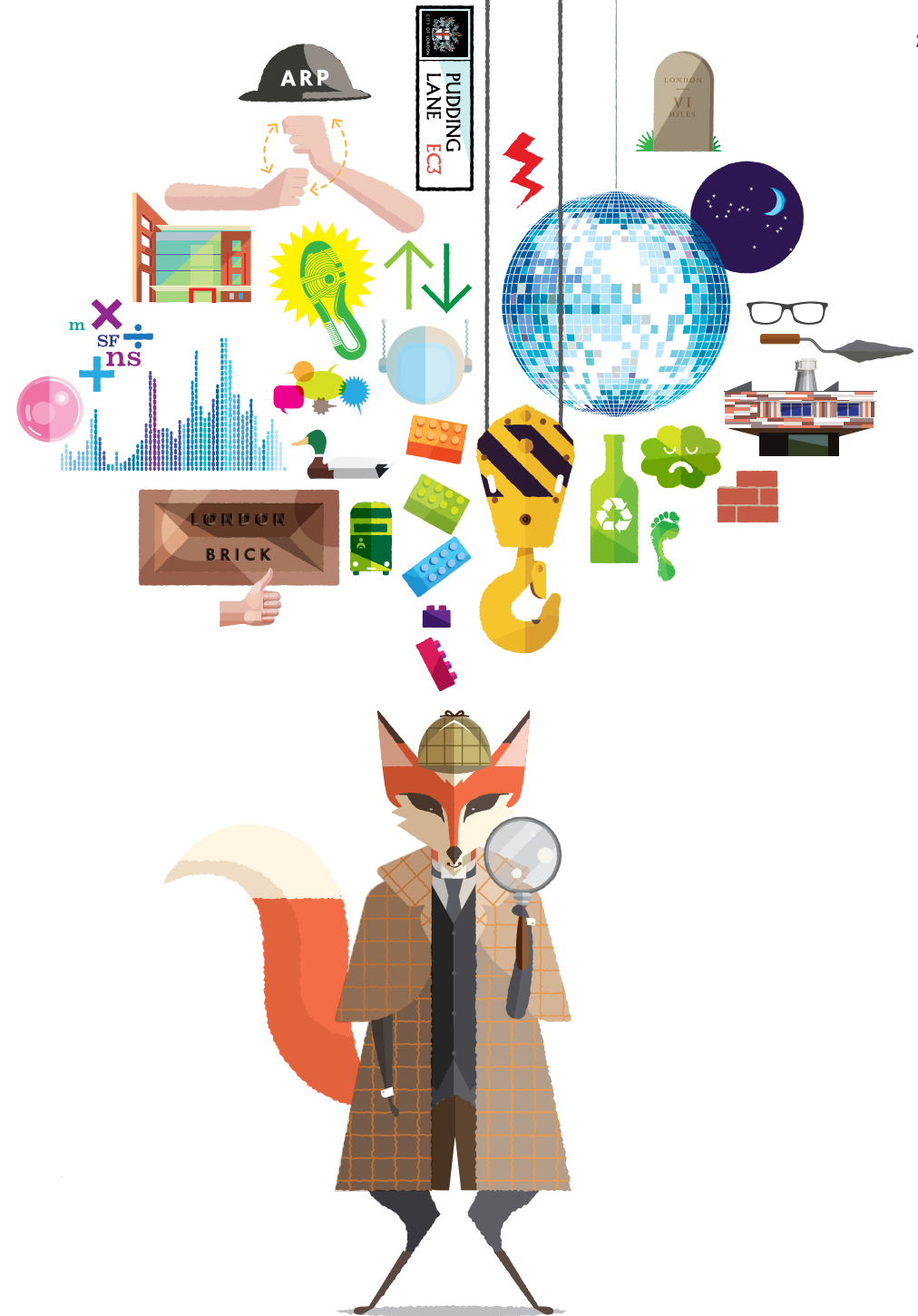
◆ **Discover**
(Presenting and analysing background information relating to the given topic)

◆ **Explore**
(Contextualise learning from the Discover activities by exploring the concepts in action through a London-based visit)

◆ **Connect**
(Task-based activities which connect the background information analysed in the Discover activities with the contextual understandings gained on the visit in the Explore activities)

REBUILDING LONDON

London's buildings are the envy of the world. From the historic Tower of London, founded in 1066, to the Shard, London's 95-storey skyscraper, our city is home to some of the most recognisable and most diverse buildings on the planet. Building has always been active in London, particularly after times of great tragedy. London's rebuilds after World War Two and The Great Fire of London were vast and required the help of some world-class Architects.

You'll learn about those fascinating rebuilds in this unit. You'll also learn about modern building in London, focusing on how we build for a sustainable future. Some of the most interesting modern building in London is happening through technology. You'll follow Fen on his quest to learn how to build basic coding sequences online and in the classroom. Finally, you'll explore the building blocks of Dance, through learning and performing London's own dance – the 'Hand Jive.' Join Fen on his exciting exploration of the buildings that make London the great capital that it is.
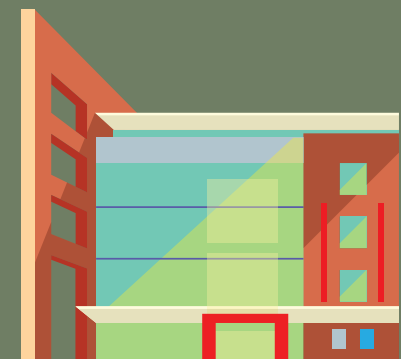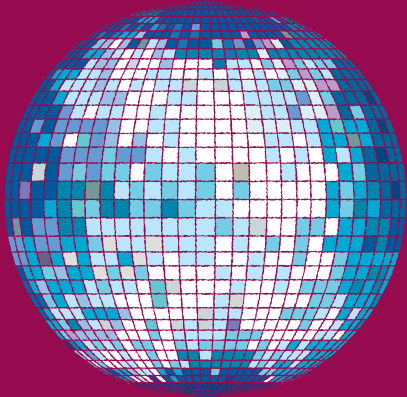
CONTENTS

BUILDING BLOCKS OF DANCE

DANCE
Learning objectives

For pupils to be able to:

◆ perform dances using a range of movement patterns

◆ develop flexibility, strength, technique, control and balance (for example, through athletics and gymnastics)

ROCK 'N' ROLL

BUILDING BLOCKS OF DANCE: HAND JIVE

HAND JIVE
DISCOVER

The basics of Hand Jive

Duration: 60 mins

Setting the scene

Explain that, in this topic, students will be taught about the background of the dance 'The Hand Jive'. Pupils will learn that the dance originated in London and will then learn the basic building blocks of the dance. Once the pupils are familiar with the dance, they will be given the opportunity to put on a performance of the dance for an audience.

Ask students if they have ever heard of the hand jive, or if they think they have even seen it performed (they may share that they've seen it performed in *Grease*). If they have, ask for volunteers to demonstrate some of the moves that they remember from the dance.

Activity part 1

Share the information in Factsheet 1, hand jive in London (page 11) with the pupils. Then play a clip of a hand jive being performed.

You may choose any clip that you wish, however, a couple are listed below:

www.bbc.co.uk/programmes/p006whdf

www.youtube.com/ watch?v=fY5pmzmiDO8

As a class, discuss the style of the music that they were shown. What movements did they notice? What dynamics were applied to the movements?

HAND JIVE
DISCOVER

Activity part 2

Move to the hall, or a room with plenty of space to for students to move around.

Play a Rock 'n' Roll / Jive up tempo piece of music and ask children to move around to the music as a warm up. They might want to be creative or copy some of the movements that they remember from the jive video that you showed them earlier in the lesson.

Encourage children to try twisting, mashed potato, thumbs pointing backwards and slicing hands.

Examples of music that you might like to choose include:

Born to Hand Jive,
from the Grease Soundtrack

**www.youtube.com/
watch?v=fY5pmzmiDO8**

Tutti Frutti,
Little Richard

**www.youtube.com/watch?v=C_
C9q4tuwXI**

After a couple of minutes stop the track and gather the children around you, for a demonstration.

Model the 4 key movements that make up the hand jive routine:

1. Kicks and steps (repeat 3 times)
2. Kicks and grapevine (repeat 3 times)
3. Hand jive
4. Twist

You can find descriptions of these 4 movements in the Activity Sheet 1: Hand Jive – Key Movement Guide' (page 13) kindly provided for the London Curriculum by DDMIX.

Repeat the modelling of each movement until the children can copy you effectively. Then re-play the music and ask children to repeat the four movements that you taught them, in any order that they wish, using as much of the space available as possible.

Finally, to warm down, ask children to slowly demonstrate the four key movements that they've been taught this lesson to a partner.
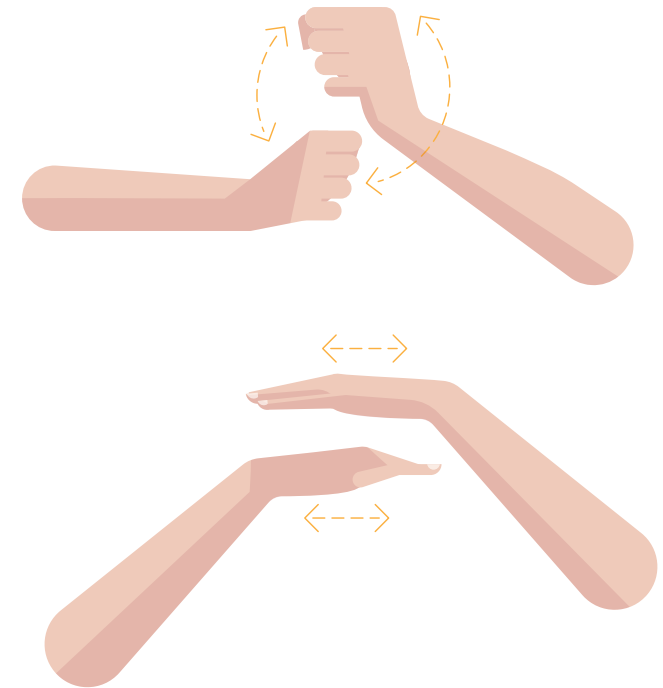
HAND JIVE
EXPLORE

London is home to an array of different dance styles and has a rich dance history.

For your Explore visit, we recommend that you either take your students to a dance performance/recital, or to a museum that will give them a sense of how Dance has changed in London and across the UK over time.

Some recommended visits are listed here:

Sadler's Wells Theatre
Rosebery Avenue
EC1R 4TN

Sadler's Wells is one of the most highly respected dance venues across the world. It presents a year-round programme of dance of every kind – from hip hop to ballet and flamenco. Simply visiting the building itself would be inspiring as a trip.

Sadler's Wells has a learning team who may be able to assist you with specific learning requests. You can email them through this address:
learning@sadlerswells.com.

They will also be able to advise you on which productions may be best suited to younger audiences.

We strongly recommend that you contact the theatre before attending to make sure that you get the most your of your visit.

www.sadlerswells.com

SADLERS WELLS THEATRE
Tarquin Binary, Wikipedia Commons

HAND JIVE
EXPLORE

Dance Exhibition:
Victoria and Albert Museum
Cromwell Road,
SW7 2RL

VICTORIA & ALBERT MUSEUM
Junho Jung, Wikipedia Commons

The V&A's Theatre and Performance collection encompasses the history of dance from the 17th century to the present day. It includes many different forms of dance from music hall to ballet and also covers the history of Black and South Asian dance in the UK.

The V&A has a large learning team, whom we strongly recommend that you contact before going on your visit, to make sure that you're making the most of the facilities of the museum. All school visits must be pre-booked at least 3 weeks in advance. Please contact:

Schools Liaison Assistant
Tel: +44 (0)20 7942 2000

Email: schools@vam.ac.uk

As well as museum/theatre visits, you may wish to take the students to watch a dance performance. We recommend that browse your local theatres to identify any dance performances suitable for children when you're looking to book a visit. Time Out magazine and website also have a good 'Kid's Theatre in London' section which will give up to date information on current performances that are suitable for young audiences.

www.timeout.com/london/theatre/kids-theatre-in-london

HAND JIVE
CONNECT

PERFORMING THE HAND JIVE

Duration: 40–60 mins

Setting the scene

This lesson should all take place in the hall, or an area of school with lots of space for movement.

Recap on the four movements learned during the Discover lesson:

◆ Kicks and steps (repeat 3 times)

◆ Kicks and grapevine (repeat 3 times)

◆ Hand jive

◆ Twist

Once you have modelled the steps and children are confident with the movements, then you can move on to performing the routine.

You can find a video of the full routine, modelled by DDMIX founder Darcey Bussell CBE, on the London Curriculum website.

View this video as a whole class, to familiarise pupils with what the routine should look like, from start to finish.

Then play the video a second time, with pupils joining in with the movements so that they dance the whole routine in its entirety.

After pupils have performed the entire routine as a class, encourage them to create their own routines, using the four movements in the hand jive routine. The might like to add in others that they performed during the Discover lesson, for example mashed potato or slicing hands.

Pupils to work in groups of 2–5 to create and practice their own hand jive routines. Leave time at the end of the lesson for each group to perform their routines to the rest of the class/whole school if possible.

THE LONDON CURRICULUM
KEY STAGE 2

REBUILDING LONDON
DANCE

BUILDING BLOCKS OF
DANCE: HAND JIVE

11

FACT SHEET 1: HAND JIVE IN LONDON

The hand jive is a dance that is often associated with music from the 1950s, mainly 'Rhythm and Blues' music.

Many women wore what are called 'poodle skirts' in the 1950s, so many pictures and videos of hand jive performances show women wearing these skirts to dance in.

The poodle skirt was often white and often featured elaborate decoration. Many displayed large appliqué cats, squirrels, guitars, or catchy phrases like "See You Later Alligator." The poodle skirt became a lasting icon of the 1950s especially for teenagers; however women wore them too with more mature appliqués such as the Eiffel tower, telephone, and martini pictured opposite.

I'm not so sure these outfits would suit *me*!

What do YOU think?

VINTAGE DANCERS

THE LONDON CURRICULUM
KEY STAGE 2

REBUILDING LONDON
DANCE

BUILDING BLOCKS OF
DANCE: HAND JIVE

12

FACT SHEET 1: HAND JIVE IN LONDON

The hand jive was first observed and recorded in London, in 1957 by photographer Ken Russell, in the basement of The Cat's Whisker coffee bar in Soho. Mr Russell said that the basement was so crowded that people were unable to dance freely, so he saw them using their hands to jive to the music.

The hand jive involves a complicated pattern of hand movements and claps, using various parts of the body. These patterns are then repeated to form a dance. The movements are intended to look and sound like percussion instruments.

One of the most famous hand jives is in the musical *Grease*. The routine the actors perform is called *Born to Hand Jive*.

THE HAND JIVE, STEP BY STEP

THE LONDON CURRICULUM
KEY STAGE 2

REBUILDING LONDON
DANCE

BUILDING BLOCKS OF
DANCE: HAND JIVE

13

ACTIVITY SHEET 1: HAND JIVE – KEY MOVEMENT GUIDE

DDMIX DANCE FITNESS

KEY MOVEMENT GUIDE

DDMIX *for schools*

HAND JIVE

3 KICKS 3 STEPS

- Kick left leg then join feet (counts 1, 2)
- Kick right leg then join feet (counts 3, 4)
- Kick left leg, 3 steps on the spot left, right, left (counts 5, 6, 7, 8)
- Repeat all, kicking the right leg first (counts 1–8)
- Repeat all (2 counts of 8) 4 times in total.

Ways to develop the movement:
Add a hop as you kick the leg.
Tips: Encourage the children to flick from the knee.

3 KICKS AND GRAPEVINE

- Kick left leg then join feet (counts 1, 2)
- Kick right leg then join feet (counts 3, 4)
- Kick left leg, 3 steps travelling to the left – step side with left foot, behind with right foot and side with left foot (counts 5, 6, 7, 8)
- Repeat all kicking the right leg first. (counts 1–8)
- Repeat all (2 counts of 8) 4 times in total.

Ways to develop the movement:
Get the feeling of falling into the side step after the kicks.

HAND JIVE

- Standing with feet apart – 2 claps with arms high above the head (counts 1, 2)
- Bend knees and 2 thigh slaps (counts 3, 4)
- Wave right hand over left palms facing the floor (counts 5, 6) Wave left hand over right palms facing the floor (counts 7, 8)
- Repeat (counts 1–8)

TWIST

- Standing with feet apart knees slightly bent and both heels lifted slightly off the floor.
- Twist heels to the left, right, left and clap (counts 1, 2, 3, 4)
- Twist heels to the right, left, right and clap (counts 5, 6, 7, 8)
- Repeat all (counts 1–8)

Ways to develop the movement
Add a step to the twist movement and travel forwards on the first count of 8 and travel backwards on the second count of 8.

© Diverse Dance Mix 2017

BUILDING THROUGH CODING

COMPUTING

Learning objectives

For pupils to be able to:

◆ use sequence, selection, and repetition in programmes; work with variables and various forms of input and output

◆ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programmes

◆ select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
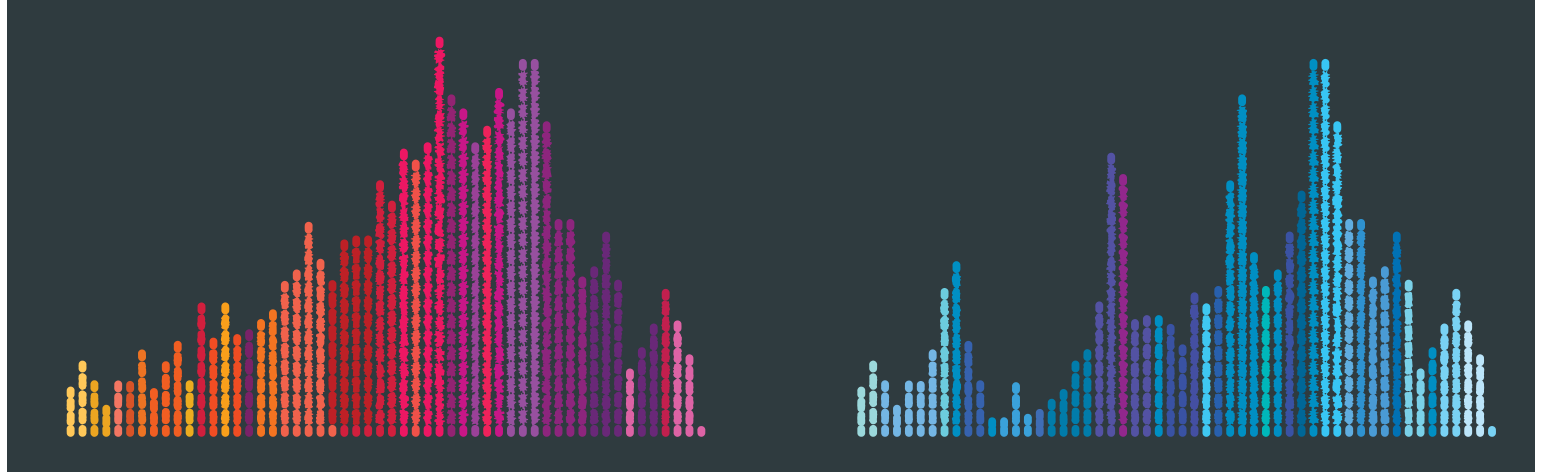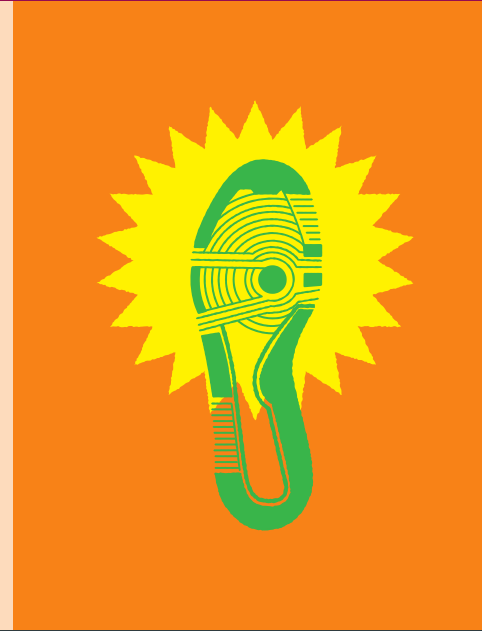
BUILDING THROUGH CODING

BUILDING THROUGH CODING
DISCOVER

CODING WITH SIX BRICKS

Activity 1, duration: 10 mins
Activity 2, duration: 20 mins
Activity 3, duration: 30 mins

Setting the scene

This activity will introduce the children to the basic building blocks of coding; you won't need to use a computer to complete these activities.

Note:
Children will need to have access to six LEGO® (or similar) bricks each, of different colours. You might like to ask children to bring in some of their own LEGO® bricks in preparation for this lesson, if you don't have a huge amount of it in the school. Ask children to find six bricks each, they can be any colours that you choose, but each child must have six bricks of the six different colours you have chosen.

To open children's minds as to how we can code, explain that we are going to start without any technology at all. Sequences exist wherever we look, from recipes for our favourite dishes to the drum loop on our favourite pop song. They are patterns. They are the way things occur in a clear and logical order. When we code, we create sequences. In fact, we are all potential coders and musicians once we know how to create a sequence.

BUILDING THROUGH CODING
DISCOVER

CODING WITH SIX BRICKS continued

Activity 1: Introduction to coding

Clap, clap, stomp

This is a simple perceptual efficiency exercise that introduces sequencing through physical, visual and auditory memory exercises.

1. Start with one brick facing up – show its position and let the children know what sound this represents (you may choose the sound, e.g. a clap)

2. Move the same brick to a different position, facing down – introduce another action or sound e.g. stomp

3. Now lay out all your bricks in a row – some facing up, others down (see picture)

4. Give each position (up and down) a sound, stomp or clap – and 'translate' your visual pattern into movement and sounds

5. Count the children in with a 1, 2, 3, 4 and take them slowly through the sequence

6. Try a couple more times getting faster and faster

Go to this video link for a tutorial on the activity explained left, which will help you with modelling the actvitiy:
https://vimeo.com/157717585

Extension ideas:

◆ Can you make the sequence more complicated by introducing other brick positions?

◆ Try to create one sequence followed by the opposite layout underneath. Run through the top sequence and straight into the one underneath.

BUILDING THROUGH CODING

DISCOVER

CODING WITH SIX BRICKS continued

Activity 2: My masterpiece

1. Ask the children to create their own Six Brick sequence and write it down on a blank piece of paper. This can be done by tracing the bricks – it should be coloured in.

2. Ask them to create a key indicating what action or sound each position represents, e.g. stomps/claps/sounds

3. Encourage children to perform their sequence to the class

Activity 3: Battle of the Bands

Start this activity by asking if any of the children are musicians. Then explain to them that everyone can be a musician and this activity will show them how.

Group children into small groups of 3–4 and ask them to create their own "song" using the same sequencing principles taught in Activities 1 and 2. They can use as many bricks as they like, use any actions and sounds that they like and can even use the sequences they created in Activity 2. They also have to think of a band name.

One approach that always has fun results is getting the group to go through their own individual sequences from Activity 2 at the same time. This is exactly how songs are recorded using tracks. Or you might like to ask the class to line their Activity 2 examples up, one group after the other and learn each other's parts.

The activity ends with each group performing their song to the class. If there is space, it is always fun to create a stage-type area and for the teacher to act as the show host, introducing the bands with a fake microphone.
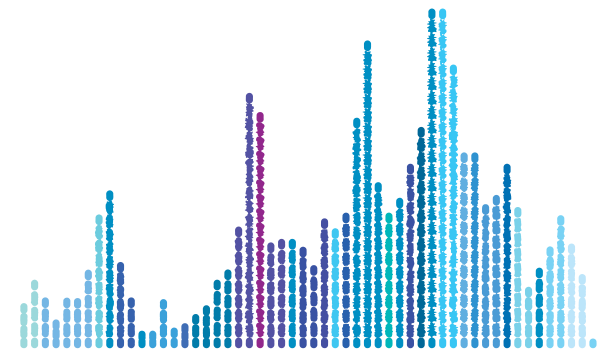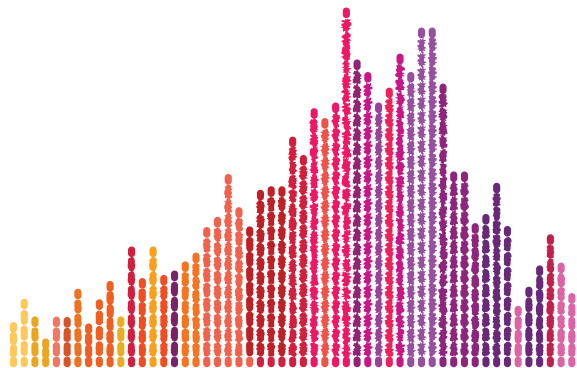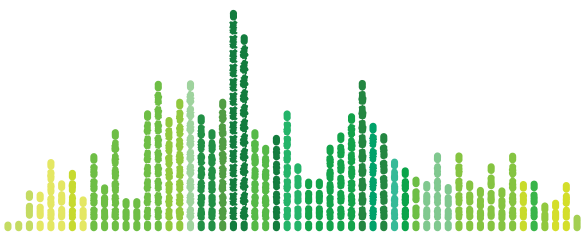
BUILDING THROUGH CODING

DISCOVER

LEGO®'s BITS AND BRICKS

Duration: 40–60 minutes

Setting the scene

This session makes use of LEGO® Education's *Bits and Bricks* free online coding programme. It is a good idea to familiarise yourself with the content of the programme before the lesson, and to read the instructions below thoroughly so that you know the background to the programme, and the sequencing of events.

Visit **www.lego.com/en-us/campaigns/bits-and-bricks/v2**

For more information on Lego's six bricks programme visit this link: **www.legofoundation.com/en-us/programmes/communities/six-bricks**

The aim of the programme is to help Bit stop the Teravirus from spreading through the Kingdom of Cybit.

Teacher note
This activity works for groups of 1–2 children with one computer per group.

20–30 minutes would be enough to get relatively far into the coding game, but of course this depends on pupils' level of confidence with creating sequences.

Before you start children off on the coding game, share the Factsheet 1: Bits and Bricks – The story and instructions (page 24). This will give pupils an introduction and background to the story behind the game, and will give them detailed instructions, in phases, that they can follow during independent working.

Then set students away to work on the computers independently/in pairs for approx. 30 minutes.

BUILDING THROUGH CODING

EXPLORE

LEGO® ACTIVITY DAYS AT THE INSTITUTE OF IMAGINATION

Question: What is a LEGO® activity day?

In collaboration with the Institute of Imagination, the day will give schoolchildren the chance to explore coding, critical thinking, collaboration and problem solving all through learning through play activities. The Institute of Imagination is an organisation dedicated to providing children and communities with a climate where ideas can thrive and makers can develop.

A space where people with a shared passion and interest in all things creative and innovative get together and explore, create and share ideas.

During your visit, children will get the chance to run some building and programming activities with LEGO® Education WeDo 2.0 and have a tinker with all the other wonderful tools in the space.

The days will be led by LEGO volunteers and members of the Institute of Imagination.

Note

The remainder of this Explore section presents some examples of activities that your school can expect to undertake during your visit to the Institute of Imagination. The day will be staffed by LEGO® employee volunteers, so you will not be expected to have detailed knowledge of these activities in advance of your visit.

institute of imagination

http://ioi.london

BUILDING THROUGH CODING
# EXPLORE

GETTING STARTED ACTIVITIES

The following all use LEGO® Education's WeDo, with all activities running off a tablet or computer set up. These are given as examples of activities that your children will access, if you book on to a LEGO® Activity Day.

To book your LEGO® Activity Day you must be registered with the London Curriculum. Visit the London Curriculum website to find a link to booking.

Activity 1: Milo the Science Rover

Duration: 10 minutes

This activity will allow children to explore the pre-built 'Milo' models, provided by the LEGO® Activity Day team. The children will learn to program the model using the sample program shared with them on the day. Children will experience changing the parameters of the program so that they can create their own experiments and programming blocks.
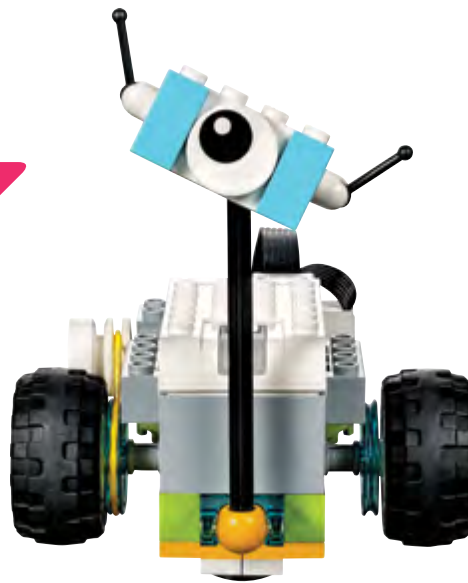
Activity 2: Milo's Motion Sensor

Duration: 15 minutes

In this activity, pupils are introduced to the use of the Motion Sensor to detect the presence of a special plant specimen. The premise of this activity is that rovers have been sent to remote locations need to have sensors so that they can complete tasks without the need for constant human attention.

Activiy 3: Milo's Tilt Sensor

Duration: 15 minutes

In this activity, pupils will be introduced to the use of the Tilt Sensor to help Milo send a message to the base. The program string will trigger two actions, depending on the angle detected by the Tilt Sensor. If tilted down, the red LED will light up; if tilted up, a text message will appear on the device.

BUILDING THROUGH CODING
EXPLORE

OPEN PROJECTS

For the remainder of the WeDo 2.0 session, children will be given time to build an open project based on the one of two topics. These are:

Clean the Thames

London Wildlife Crossing

Activity 1: Clean the Thames

This project will encourage children to design a LEGO® prototype for a device that could help remove plastic from the Thames. Pupils will experiment with their prototypes to create their own solutions, modifying any basic model as they see fit. There will be an opportunity for pupils to present their models, explaining how they have designed the prototype to collect certain types of plastics. They can use research and portfolio documentation to support their explorations and ideas.

Activity 2: London Road Wildlife Crossing

This project is about designing a LEGO® prototype to allow an endangered animal species to safely cross a road or other hazardous areas in London. Pupils will explore existing wildlife crossings, especially local examples such as underpasses and cattle crossings. They will then design and build a wildlife crossing for their chosen type of animal. Pupils will present their ideas, take photographs of them and may even create a short video for discussion back in the classroom.

BUILDING THROUGH CODING
CONNECT

CLASSROOM CODING PROJECT

Duration: 60–90 mins

Setting the scene

Recap on the learning so far in this unit. Can children describe what a sequence is? How do you create sequences and what are they used for?

Explain that this lesson will encourage children to create their own sequences to overcome a problem. They will need to design a solution to the problem and map it out, using a grid that will be presented to them.

Activity: Creating your own coding challenge

Part 1
To set the scene, and ensure everyone is aligned, run through the example displayed on the Activity sheet 1: Coding in the Classroom: An Example (page 27). This will give the pupils more of an understanding of what the project entails.

Part 2
Group children into small groups of 4–5. Based on the coding within Bits and Bricks and WeDo v2.0, have each group design a coding challenge similar to Bits and Bricks. The challenge must be based on a real-world problem/theme in London e.g. overcrowded cities; littering; flooding etc.

Each group must research their chosen theme, identify a problem and build a challenge around this. If the class was able to visit the Institute of Imagination and interact with LEGO® Education WeDo 2.0, then the project theme can be one of the Open Projects from the visit.

Once the children have decided on the issue they are looking at, they need to plan a series of obstacles on Activity sheet 2: Creating your own Coding Challenge (page 28) that highlight the problem that needs to be tackled. For example, for littering they might set up a grid with a number of squares of rubbish to collect and deposit.

Then, in an open space within the school, use masking tape to create a large version of the grid. Each square should be roughly 40–50 cm^2.

Each group then presents their challenge to each of the other groups. Using LEGO® bricks or a similar medium, each group must then code a sequence of movements that will get one of their team through each of the challenges. You might like to use Beebots if you have them in school, to navigate through the grid. Each team has two attempts to solve the problem.

FACT SHEET 1: BITS AND BRICKS – THE STORY AND INSTRUCTIONS

The story so far…

The Kingdom of Cybit is a happy and friendly place floating on a digital cloud in Cyberspace. It is populated by 'Bits' – little LEGO® robots who solve puzzles and learn programs. Cybit is ruled by King Bit and his daughter, Princess Bittina, who protects the secret of CODEX – the digital building blocks that help Bits solve puzzles.

One day, a mysterious container appears on Cybit. The container opens suddenly, unleashing the TERAVIRUS.

The TERAVIRUS spreads quickly. It changes every Bit it finds into Badbots. The TERAVIRUS starts to infect all of Cybit. Even King Bit became infected.

Bit and Princess Bittina narrowly escape Bad Byte, but the TERAVIRUS is out of control! To avoid the TERAVIRUS, Bit goes into shutdown… can you reboot him and save Cybit?!

FACT SHEET 1: BITS AND BRICKS – THE STORY AND INSTRUCTIONS CONTINUED

Introduction to Bits and Bricks

Level 1

Help Bit to the finish line by coding a sequence that helps him move through Cybit.

Code his movements by clicking on the blank sequence at the bottom of the screen. Choose from moving straight or turning and select the number of steps you'd like Bit to take.

Level 2

Well done getting this far! Bit needs help again getting to the finish line. But beware of springboards that make Bit jump and trapdoors that take Bit to another land.

If you do fall down a trapdoor, code Bit to get out by getting him to another trapdoor.

Code his movements by clicking on the blank sequence at the bottom of the screen. Choose from moving straight or turning and select the number of steps you'd like Bit to take.

FACT SHEET 1: BITS AND BRICKS – THE STORY AND INSTRUCTIONS CONTINUED

Introduction to Bits and Bricks continued

Level 3

Help Bit to reach Bittina.

Code his movements by clicking on the blank sequence at the bottom of the screen. Choose from moving straight or turning and select the number of steps you'd like Bit to take.

Portals will instantly teleport you to another portal of the same colour. This might be on the same level, or another part of Cybit.

There's another special building block you might like to try called Chat. You can make Bit giggle, talk and whistle as you solve puzzles.

Watch out for tiles that are infected by the TERAVIRUS. Walking on them will reboot Bit and you will have to start again.

If you managed to complete Level 3, move on to the next level and see how far you can get beyond that. Watch out for "lever" blocks which are introduced in Level 8.

ACTIVITY SHEET 1: CODING IN THE CLASSROOM – AN EXAMPLE

The following activity sheet gives you an example of a team coding challenge that you can use to give you a structure for creating your own coding challenge.

Example: There has been a severe drought. Please rescue the fish by placing it into a pond and reach the finish line without falling into quicksand or ponds.

Follow the instructions below to find the solution to the problem.

Example process

1. Team A presents Team B with the challenge.

2. Team B designs a sequence using the symbols from previous coding exercises. A designated "explorer" must not be shown the challenge.

3. Once Team B is ready with their code, they designate an "explorer" to take the sequence and navigate through the grid.

4. If Team B's "explorer" fails at any point, Team A must shout out.
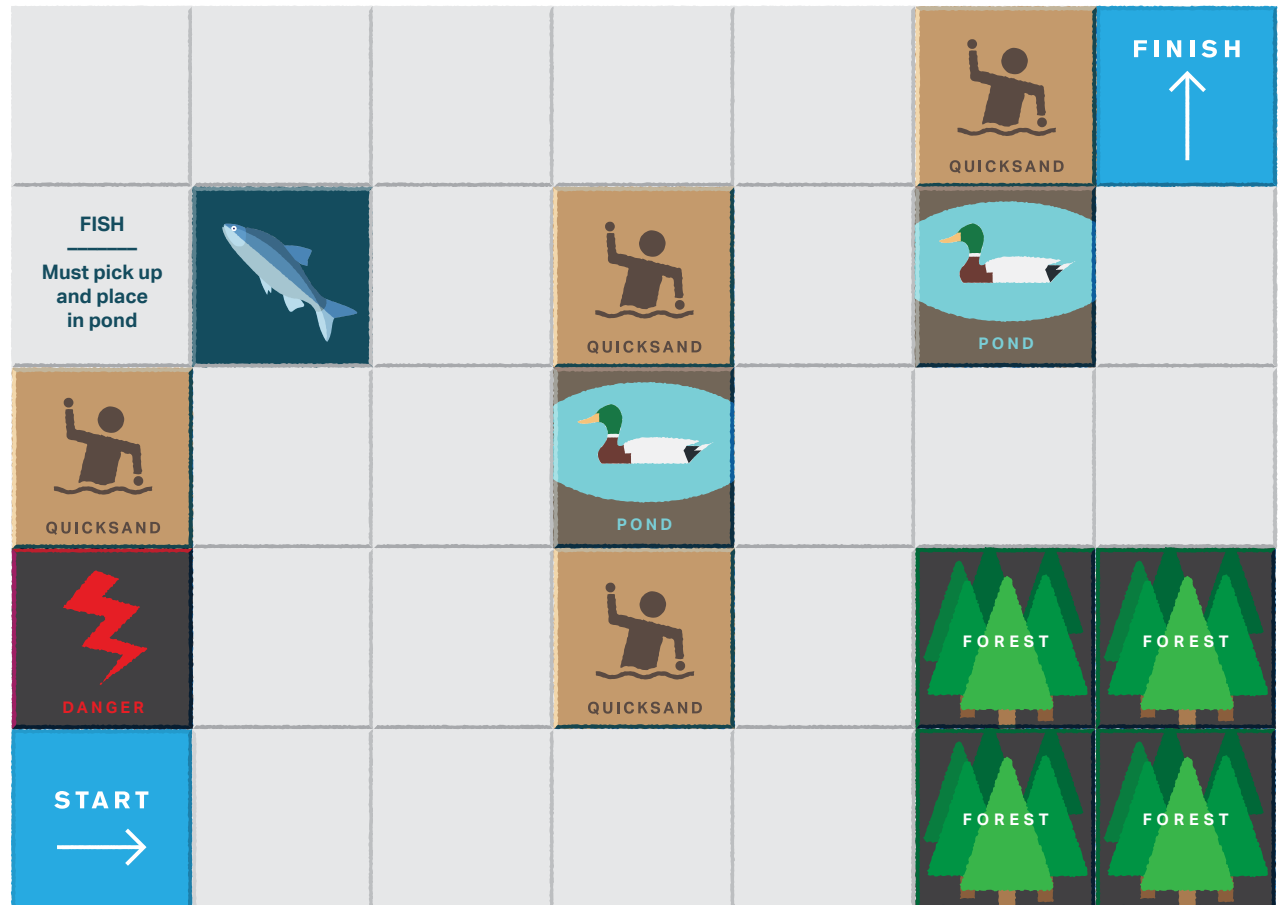
ACTIVITY SHEET 2: CREATING YOUR OWN CODING CHALLENGE

Use the blank grid on page 29 to create a challenge for a team in your class.

You might like to add the following squares into the grid to make the challenge more difficult:

You can add in any squares that you want, but they must relate to the problem the team are tasked with solving.

What is the problem the team will have to solve? (e.g. you must rescue the fish and put them into the pond; you must rescue the lost bear and put him back into the forest).

Instructions:

1. Team A presents Team B with the challenge of their choice.

2. Team B designs a sequence using the symbols from previous coding exercises. A designated "explorer" must not be shown the challenge.

3. Once Team B is ready with their code, they designate an "explorer" to take the sequence and navigate through the grid.

4. If Team B's "explorer" fails at any point, Team A must shout out.

5. Team B has two attempts to complete the challenge.

QUICKSAND

FOREST

GRASSLAND
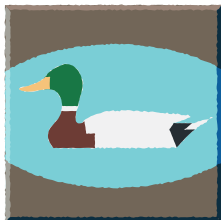
POND

DANGER SQUARE
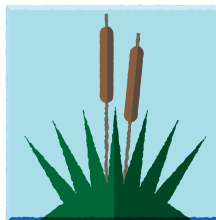
MARSHES

ACTIVITY SHEET 2: CREATING YOUR OWN CODING CHALLENGE CONTINUED

FINISH

START

WWII AND THE GREAT FIRE

GEOGRAPHY
Learning objectives

For pupils to be able to:

- identify land-use patterns and understand how these have changed over time

- use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods

- interpret a range of sources

- communicate geographical information in a variety of ways

HISTORY
Learning objectives

- understand how our knowledge of the past is constructed from a range of sources

LONDON
— VI —
MILES

LONDON
BRICK

CITY OF LONDON
DIRIGE

PUDDING
LANE EC3

WORLD WAR II AND THE GREAT FIRE

WORLD WAR II AND THE GREAT FIRE

DISCOVER

REBUILDING LONDON AFTER THE GREAT FIRE

Duration: 45 – 60 mins

Setting the scene

This unit looks at how London was rebuilt after two events that decimated large parts of the city. The Great Fire of London and, 274 years later, World War Two both caused enormous damage and required rebuilding of large parts of the city as it was at each time.

The Great Fire of London is one of the most famous events in the city's history. Starting in Pudding Lane on 2nd September 1666, it destroyed large parts of the city. The timber buildings burned quickly and many people lost their homes. There were many designs for a new city, including one by Sir Christopher Wren, who designed St. Paul's Cathedral.

Share the information in Fact sheet 1: The site and situation of London (page 38) with pupils so that they get a sense of the Geography of London, and of how major events have altered its Geography.

LONDON BEFORE THE GREAT FIRE
Original publisher James Robins & Co, 1825. Britsh Library, Flickr

WORLD WAR II AND THE GREAT FIRE

DISCOVER
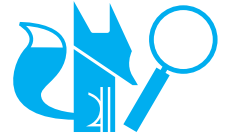
REBUILDING LONDON AFTER THE GREAT FIRE continued

Activity 1

Share the information contained in Fact sheet 2: Plans for rebuilding London after the Great Fire (page 41) with pupils. This will give them a sense of the scale of the rebuild, and some early planning ideas.

Then share Activity sheet 1: Comparing London after the fire (page 45) with the pupils. It contains 3 maps. The first map is London after the Fire, the second is Christopher Wren's plan to rebuild London and the third a modern day map. Compare the first two as a whole class (The Tower of London and St. Paul's are easily spotted on all three maps and provide useful starting points for studying maps).

Questions to facilitate comparison:

◆ Are there any roads in common?

◆ How is the plan different to the actual map?

◆ Do you know of any modern cities that have this type of layout?

Now look at the present day map and compare it to the other two:

◆ How much has London changed since the Fire?

◆ Can you find any roads on the present day map that are on the post-Fire map?

◆ Which is the present day map most similar to – the actual map or Wren's design?

◆ Why do you think this is?

◆ What does this tell us about London after the Great Fire?

Consider Wren's design.

◆ What would London be like now if the design had been carried out?

◆ Do you think this was a good design for London?

WORLD WAR II AND THE GREAT FIRE
DISCOVER
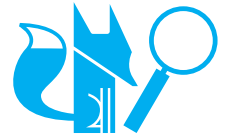
REBUILDING LONDON AFTER WORLD WAR II

Duration: 60 – 75 mins

Setting the scene

Along with the Great Fire, World War Two is one of the events that has had the most impact on London. Lasting from 1939 – 1945, the War wreaked havoc, causing widespread devastation and destruction. The Blitz, which lasted from September 1940 until May 1941, saw bombs land all over London, particularly heavily over the City. With so much of the capital damaged, planners faced the mammoth task of rebuilding.

Share the information contained in Fact sheet 3: Rebuilding London after World War Two (page 42) with pupils. This will give pupils a sense of the scale of devastation caused by the bombing.

You can explore the bombing devastation in your local area by visiting this website:
www.bombsight.org/#15/51.5050/-0.0900

AFTERMATH OF THE BLITZ, PECKHAM
Flickr

Key Questions for this lesson:

What would it have been like to live in London after the war?

How long did it take to get back to normal?

How quickly was London rebuilt?

Was there a 'plan' for rebuilding?

Which parts were rebuilt first?

What took priority – offices, industry or housing?

Which significant new buildings were constructed?

WORLD WAR II AND THE GREAT FIRE
DISCOVER
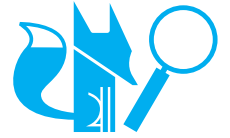
REBUILDING LONDON AFTER WORLD WAR II CONTINUED

Activity 1

Look at the photos on the Activity sheet 2: Before and After – World War II bomb damage and rebuilding (page 48) as a whole class, or in small groups. They show before and after photographs of the same location.

Key Questions to stimulate discussion on the photographs:

Can you see which buildings were destroyed and find what was rebuilt in their place? Find these places on the map of where bombs fell. Do they correspond? Find them on a present day map. How close were these locations? What might these buildings have been used for? Has their use changed?

Activity 2

Group children into small groups and give each group a copy of Activity Sheet 3: Maps from 1950 and today (page 51). This sheet contains questions for pupils to write answers to in groups, which will support their comparison work.

How much has London changed? What do you notice about the amount of buildings on the present day map? Why do you think this is? Has the street layout changed? If you visited 1950's London would it look the same? Would it feel the same?

Parts of London changed dramatically. The bombing during the Blitz obliterated the area around Moorgate. The Barbican centre was built on this site. Its modernist structure was controversial at the time. Building started in 1971 and took many years. Was this a good use of the land?

End the lesson by discussing pupils' answers to the questions on their activity sheets – where did they see the main differences between the maps? Can they explain them?

WORLD WAR II AND THE GREAT FIRE
EXPLORE

POST WAR REBUILDING

For your Explore visit, we recommend a trip to the Barbican centre, outlined below. This topic also lends itself well to a local area fieldwork study, which you might like to undertake instead of/as well as the trip to the Barbican.

BARBICAN CENTRE
Linda Hartley 2010, Flickr

The Barbican Centre
Silk Street
EC2Y 8DS

The first building in this area took place in Roman times to protect the new city from invaders. It was renowned for being a populous and ramshackle area. The Great Plague killed 8,000 out of a population of 11,000 and the Great Fire swept as far north as Smithfield. It slowly grew more ruinous and dilapidated and then in the 20th century was destroyed by German bombs in the Second World War. The idea for the centre started in the 1960s, during an era of renewed optimism and fresh ideas. Construction began in 1971 and the Centre was completed in 1985. It contains a cinema, theatre and concert hall as well as housing. This provides a good example of post-war rebuilding. The Centre, a short walk from Moorgate or Barbican underground stations, is a fascinating insight into the vision planners had for the new London after the devastation of World War II.

www.barbican.org.uk

Local Area Fieldwork

Your local area can provide a great resource for finding about how London was rebuilt after World War II (and possibly after the Great Fire if your school is in the City of London!).

You might like to use ideas from Activity sheet 4: Local area detectives (page 53) to go out and about and investigate changes around the school. There is likely to be some evidence of rebuilding within walking distance or a short bus ride from the school.

Don't forget to make use of any local Historical Societies or first hand accounts of how the area has changed. The advantages of a visit like this are it doesn't need to be booked ahead and is completely free.

WORLD WAR II AND THE GREAT FIRE
CONNECT

REBUILDING LONDON POSTER

Duration: 60–90 mins

Setting the scene

Compare what you have found out about rebuilding London after the Great Fire and World War Two. They were both significant and London changed a lot after each event. Many plans for rebuilding London as a grand city after the Fire never came to anything. Visions for rebuilding London after World War Two were more successful and many buildings have added to London's cultural landscape.

Have a discussion to support children in summarising their learning from this topic, using the key questions on this page.

Key Questions

◆ Would London be a different city if more time had been taken to rebuild after each event?

◆ After which event did London change more?

Then explain to children that they will be asked, in this lesson, to produce a poster or a PowerPoint to share what they have found out about rebuilding London, and to share their ideas on how successfully London was rebuilt.

You might like to have children work individually, or in small groups for this task.

Share the project prompts below on the Interactive Whiteboard to give pupils ideas and starting points for this activity.

Project prompts

◆ Where is London sited?

◆ Why is it a good site?

◆ Growth of London

◆ Damage caused by the Great Fire

◆ How it was rebuilt – who created plans and were they used?

◆ Devastation caused by World War 2 bombing

◆ Problems associated with post-war building

◆ Examples of what was built and where

Many buildings built since World War Two have been knocked down and a new building built in their place. What should planners today take into account when considering planning applications? What kind of a city do you want London to be? Who should have the final say as to what gets built?

When children have completed their posters/powerpoints then you should give them opportunity to present their work to the rest of the class for comment.

FACT SHEET 1: SITE AND SITUATION OF LONDON

London is situated in southeast England on the River Thames, about 50 miles upstream from the Thames Estuary on the North Sea. It is the country's economic, transportation and cultural centre. A Green Belt, protected by strict planning laws encircles the capital and the M25 motorway runs in a ring around it.

Surrounding it are the counties of Kent, Surrey and Berkshire to the south and Buckinghamshire, Hertfordshire and Essex to the north.

The capital lies in a syncline, known as the London Basin. This is bordered by the chalk of the North Downs to the south and to the north by the chalk outcrops

of the Chiltern Hills. Modern London lies on deposits of centuries of continuous human occupation, the depth of this was made obvious during the recent Crossrail excavations.

FACT SHEET 1: SITE AND SITUATION OF LONDON

The metropolis grew over a near symmetrical site defined by shallow gravel and clay ridges rising to 450ft to the north at Hampstead and 380ft to the south at Upper Norwood. Between these are plateaus, formed of gravel terraces. The Boyn terraces are where Islington, Putney and Richmond are located and Taplow terraces where sits the City of London, West End and East End. The lowest ground, a few metres above high tide mark, is the floodplain of the Thames. Several tributaries run north and south from the surrounding hills to the river in the valley. Now, these are mostly covered over, but the water can be spotted in the Serpentine in Hyde Park as well as a few other places.

The Romans are often cited as the first to settle in this location, although there is evidence of a possible wooden bridge from as long ago as 3,000 years. They chose a site at the upper limit of tidal navigation at the lowest bridging point, perfect for defence and commerce. Founded in AD43, the city grew on the better-drained terraces of the north bank. Boudicca's invasion in AD60 led to the building of the city walls, which can still be seen today. After the Romans left and a short decline, London soon reclaimed its city status. The first St. Paul's cathedral was built at the beginning of the 7th century. The 9th and 10th centuries saw many attacks by Vikings, but London remained strong.
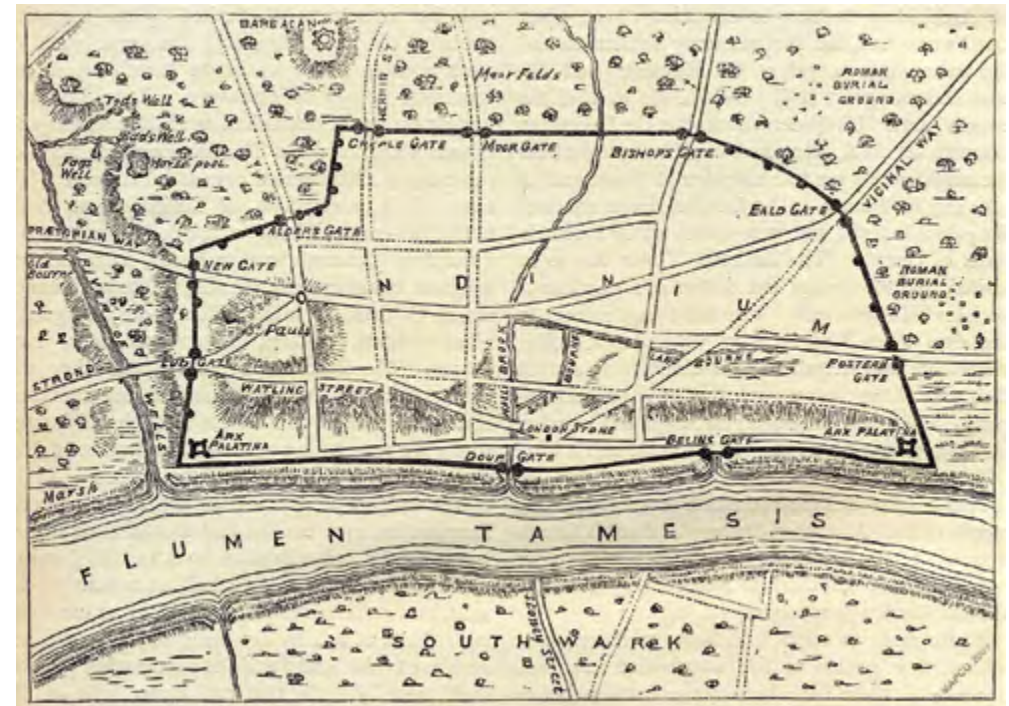
PLAN OF ROMAN LONDON, AD190
Originally published by Cassell and Company Ltd, 1897 ©Mapco.net

FACT SHEET 1: SITE AND SITUATION OF LONDON

From 1066 to 1485 London continued to develop its role. Strongholds were built to protect London after the Norman invasion as the city grew within its original Roman walls. It was a crowded, squalid place to live with cobbled or dirt streets. Early in the 13th century King John gave the city the right to elect a Mayor. The most well known of these is Dick Whittington, who was Mayor four times from 1397–1420.

Tudor London (1485–1603) was a centre for trade and government. The city grew and by 1600 there were 200,000 people living there. There were three main areas to the city: the old city walls, the town of Westminster and south of the river at Southwark. Most of London we know today was fields or contained palaces and deer park, like Richmond Park. The River Thames was hugely important during this time as the Navy developed and explorers set sail on their voyages of discovery.

London was unsettled during the 17th century with the Gunpowder Plot in 1605, the Civil War in the 1640s, the Great Plague of 1665 and, of course, the Great Fire of 1666. But by the 18th century London was flourishing. Goods were traded from all over the world. During the Victorian Era (1837–1901) London expanded with the development of industry and the growth of the railways. It was now at the centre of world trade. Many buildings were built, including the Houses of Parliament. The population exploded and boundaries spread outwards. 1862 saw the first underground railway built in the capital.

London has continued to grow and flourish as a world city. Between 1919 and 1939 London doubled in size. It now has an estimated population of 8.6 million, with more than 300 languages spoken. London covers a total area of 1,572 sq. km (607 sq. m) with a population density of 5,197 Londoners per sq. km, making it the largest city in Europe.

FACT SHEET 2: PLANS FOR REBUILDING LONDON AFTER THE GREAT FIRE

Four days after the fire started on Sunday 2nd September 1666, it had destroyed seven-eighths of the city. This included 13,000 houses and 84 churches as well as St. Paul's Cathedral. 65,000 people had been made homeless by the fire. Camping in fields outside the walls to start with, within days they had dispersed to surrounding villages or other parts of London. Rents soared in the unaffected areas.

The main priority after the fire was to get the city back on its feet as quickly as possible. Sir Christopher Wren submitted a proposal to rebuild shortly after the fire. He envisaged wide boulevards radiating from grand piazzas. Wren's plan, along with others submitted, was unsuccessful.

However in October 1666, King Charles and the City appointed commissioners to regulate the rebuilding. Despite issuing proclamations concerning the width of streets and the height, material and dimensions of secular buildings, efforts to create a city with fine new public buildings and open spaces did not go much further.

Streets were widened and bottlenecks eased. King Street was built, leading from Guildhall to the wharf. Markets in the street were moved into new special market halls. The four affected gates (Ludgate, Newgate, Moorgate and Temple Bar) were rebuilt in place, even though they were now merely decorative. Two schemes were planned but never realised: the first to build a new quay from Blackfriars to the Tower, the second planned to turn the River Fleet into a canal.

By the end of 1670, 6000 houses were built and by 1676 all the areas affected by the Fire had been rebuilt, apart from some of the sites of parish churches. Overall there were fewer houses. All houses had to be constructed of brick. Grander houses sometimes had doorways and windows in stone, but this was unusual. An example can be seen in the former Deanery off St. Paul's churchyard. However, most new houses, whilst being more sanitary and lasting longer, were not vastly different from the other Tudor houses. Many streets, like Fenchurch Street, would have had an abrupt change from the old housing to the new brick buildings.

GREAT FIRE OF LONDON, 1666
Painter unknown, 1700

FACT SHEET 3: REBUILDING LONDON AFTER WORLD WAR II

During the course of the Blitz, which began on 7th September 1940, 20,000 bombs fell, destroying or damaging beyond repair 116,000 buildings. Once the jubilation of war ending had died down reality started to set in. London was badly affected by the bombing during the Blitz. People, including soldiers, would be returning to their beloved capital to face a shell, both physically and emotionally. Public services were pushed to breaking point and housing was scarce.

Looks like we have some serious work to do here!

MAP SHOWING SITE OF BOMBS THAT FELL DURING THE BLITZ
© Bombsight

BOMB CRATER, BALHAM STREET, LONDON 1940
© Imperial War Museum

FACT SHEET 3: REBUILDING LONDON AFTER WORLD WAR II

Planners faced huge decisions about the future of London and what kind of city it would be. The County of London Plan, produced in 1943, was the first of two ambitious documents for the post-war improvement of the capital. It, and the subsequent Greater London Plan, became known as the Abercrombie Plan, due to the influence of Patrick Abercrombie, professor of town planning at the University of London.

www.theguardian.com/uk-news/davehillblog/2014/mar/22/ london-county-plan-abercrombie-forshaw

Bomb damage maps were produced by London County Council to show the extent of the damage. They were colour coded and originally created to help Londoners deal with insurance and compensation. They became a useful tool for post war planning.

Map colour coding

- ● total destruction
- ● damaged beyond repair
- ● seriously damaged (doubt if repairable)
- ● seriously damaged (repairable at cost)
- ● general blast damage (non-structural)
- ● blast damage (minor)
- ● clearance area

LONDON COUNTY COUNCIL BOMB DAMAGE MAPS, 1939-1945 (DETAIL)
© London Metropolitan Archives, City of London

FACT SHEET 3: REBUILDING LONDON AFTER WORLD WAR II

Architects and planners saw an opportunity for remodelling London, with a balance of housing, industrial development and open spaces. The Green Belt, a strip of land encircling London, would have more careful definition and strict regulations to control building. 'New Towns' on the outskirts of London were developed and people were encouraged to move here. In London, the first 10-storey council housing block was built in Holborn in 1949. High Rise was seen as one of the solutions to London's housing shortage.

The first major public building to be constructed in London after the war, the Royal Festival Hall, was built for the Festival of Britain in 1951. The Corporation of London faced the challenge of reconstructing the area between Moorgate and Aldersgate, which was obliterated in just one night of the Blitz. Construction of The Barbican Centre (see Explore section page 36) started in 1971, but was not completed until many years later and was officially opened in 1982.

Explore the website below, which provides before and after shots of parts of London affected by the bombing.

www.telegraph.co.uk/news/winston-churchill/11379285/ Churchills-London-then-and-now-How-London-was-rebuilt- after-WWII.html?frame=3182156

SITE OF THE BARBICAN CENTRE

ACTIVITY SHEET 1: COMPARING LONDON AFTER THE FIRE

MAP1: LONDON BEFORE
THE GREAT FIRE
Wikipedia Commons

ACTIVITY SHEET 1: COMPARING LONDON AFTER THE FIRE

MAP 2: SIR CHRISTOPHER
WREN'S PLANS TO REBUILD
LONDON
Christopher Wren 1744,
Wikipedia Commons

ACTIVITY SHEET 1: COMPARING LONDON AFTER THE FIRE

MAP3: LONDON PRESENT DAY (OS)
© Digimaps for Schools

ACTIVITY SHEET 2: BEFORE AND AFTER – WORLD WAR II BOMB DAMAGE AND REBUILDING

ST THOMAS'S HOSPITAL DURING THE BLITZ, TOWARDS WESTMINSTER BRIDGE, THE HOUSES OF PARLIAMENT AND BIG BEN, 1941

Imperial War Museum, Wikipedia Commons

THE VIEW FROM ST THOMAS'S HOSPITAL TOWARDS PARLIAMENT

Photograph: Temitope Moses

ACTIVITY SHEET 2: BEFORE AND AFTER – WORLD WAR II BOMB DAMAGE AND REBUILDING

BOMB DAMAGE TO ST PANCRAS STATION, 1941.
Wikipedia Commons

BOMB DAMAGE TO ST PANCRAS STATION.
Seanbjack 2007, Flickr

ACTIVITY SHEET 2: BEFORE AND AFTER – WORLD WAR II BOMB DAMAGE AND REBUILDING

FIREFIGHTERS CONTROL A BLAZE AFTER AN AIR RAID IN LUDGATE
HILL, CITY OF LONDON, 1941

LUDGATE HILL
The Lud 2006, Wikipedia Commons

ACTIVITY SHEET 3: MAPS FROM 1950 AND TODAY
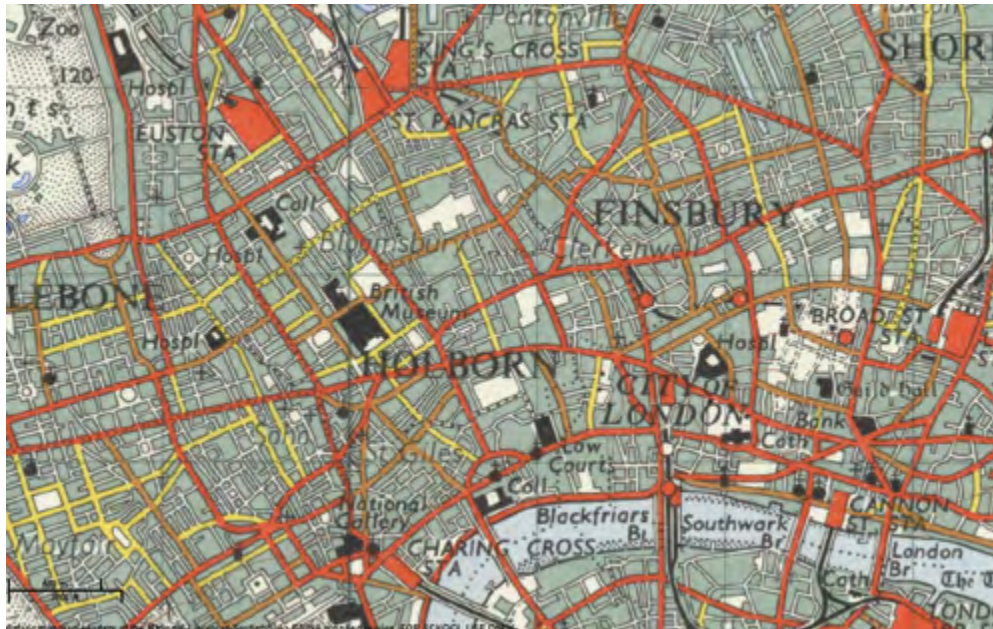
1950s
© Digimaps for Schools
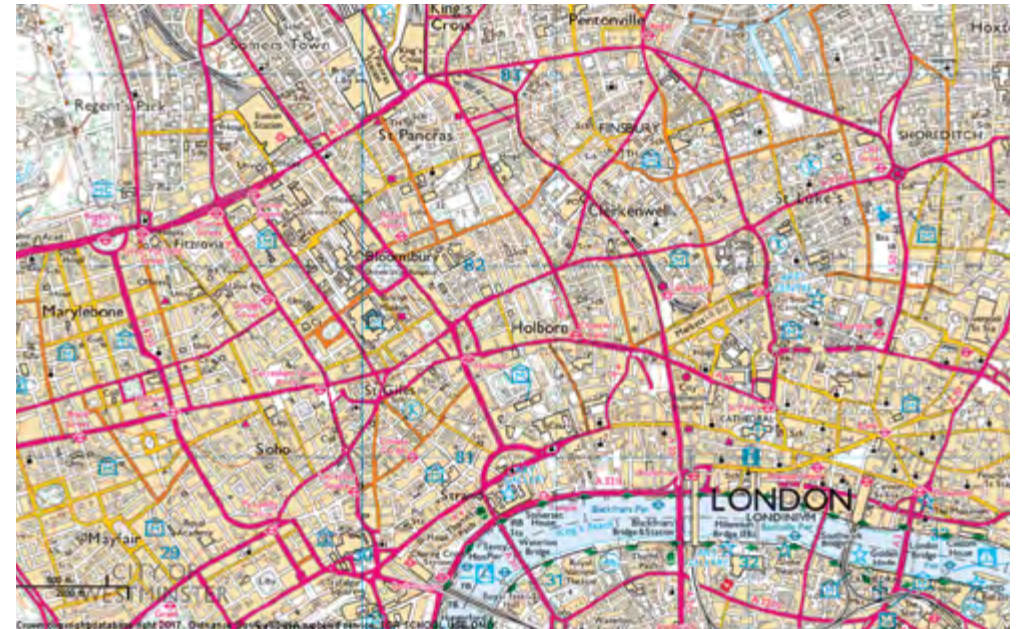
PRESENT DAY
© Digimaps for Schools

ACTIVITY SHEET 3: MAPS FROM 1950 AND TODAY

PRESENT DAY WITH 1950'S MAP SUPERIMPOSED
© Digimaps for Schools

Questions to answer in your groups:

◆ Can you circle some areas of the final map where you can see significant changes?

◆ What do you notice about the amount of buildings on the present day map?

◆ Why do you think the number of buildings has changed?

◆ Has the street layout changed?

◆ If you visited 1950's London would it look the same? Would it feel the same?

ACTIVITY SHEET 4: LOCAL AREA DETECTIVES

This activity sheet gives you some examples of ways in which you can incorporate fieldwork into the Explore section of this unit.

Use Digimaps to toggle between maps from 1950 and today.
Are there any areas that have been built on since 1950? This will give a good indication of building or rebuilding since World War II.

Contact the local Historical Society.
Do they have records of where was bombed? There might even be members who can give a first hand account as to how the local area has changed.

Go for a local area walk.
What can you spot? There may be remnants from the war, like public bomb shelters, often in parks, or private bomb shelters in people's gardens. Look for changes in housing. This may be obvious where a row of Victorian terraces ends with a 1950's house or small block of flats. Local High Streets may provide invaluable evidence. Often, a row of pre 1940's shops will be interrupted by one in a very different style.

Use a base map of the local area to mark on what you have found.
Use a key for different types of evidence and don't forget to include compass points. If you are using a 1:25,000 base map from Digimaps you could include four and six figure grid references for each site.

OBSERVING AND IMPROVING LOCAL BUILDINGS

Topics:

CITIZENSHIP

GEOGRAPHY

LITERACY
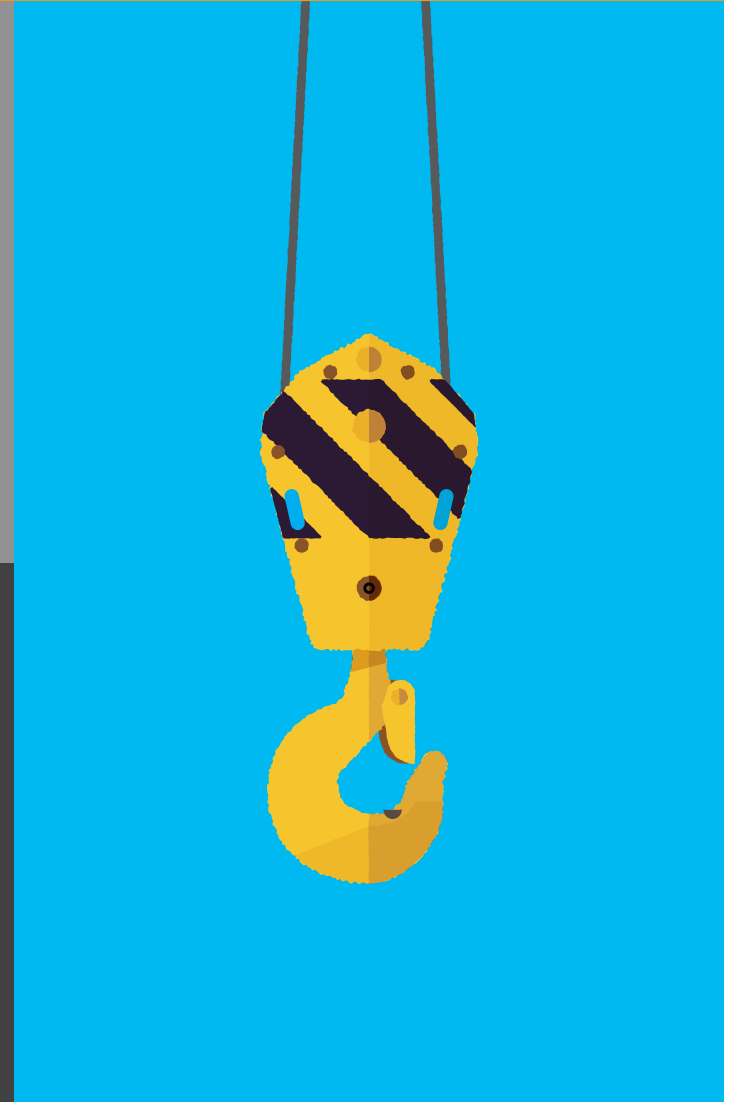
Learning objectives

CITIZENSHIP

◆ To share their opinions on things that matter to them and explain their views;

◆ To take part in discussions with one other person and the whole;

– To take and share responsibility

– To feel positive about themselves (for example, by having their achievements recognised and by being given positive feedback about themselves).

GEOGRAPHY

◆ Understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time

◆ Collect, analyse and communicate with a range of data gathered through experiences of fieldwork that deepen their understanding of geographical processes

◆ Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

LITERACY

◆ Use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas

◆ Consider and evaluate different viewpoints, attending to and building on the contributions of others.

OBSERVING AND IMPROVING LOCAL BUILDINGS

OBSERVING AND IMPROVING LOCAL BUILDINGS
DISCOVER

Architecture is everywhere

Duration: 60–90 mins

Setting the scene

In this unit, children will learn about the process of raising a new building or renovating an existing one. Firstly, the process of observing architecture will be explored, followed by children planning and creating their own micro local interventions.

Explain that architecture is everywhere; it surrounds us and interacts with us from the moment we are born. To do this you can discuss the architecture of their current location, in a classroom within in a school. Point out that earlier they may have been in a house or flat, later they may be in Library or gym or cinema. Architecture plays an important part in our lives and varies significantly across buildings.

You should explain that the more aware and engaged with our environment we are, the more inspiration and excitement we can gain from it. We can then learn to be critical of our environment, to optimise it's effect on local communities.

Activity 1

Share the information in Fact sheet 1: Observing my city (page 61). This fact sheet is aimed at triggering a broader discussion on the importance of observation.

You should explain that the more aware and engaged with our environment, the more inspiration and excitement we can gain from the city and the more critical we can be if we discover things that could be done better or different.

Run through the three key components of observing architecture: the roof, the façade and the floor and share the images of example buildings contained in Fact sheet 1: Observing my city (page 61)

with the whole class. Invite students to comment on the images they observe.

Enter into a whole class discussion to encourage children to share their thoughts on local buildings. Ask students to share examples of architecture in their local area that they particularly like or dislike. Try to show images of these buildings on the interactive whiteboard, to support students in building their observation skills. Ask students to describe the roof/façade/floor to the class, and the feelings that the buildings generate for them.

OBSERVING AND IMPROVING LOCAL BUILDINGS
DISCOVER: ARCHITECTURE IS EVERYWHERE

Key questions:

◆ How many different buildings do you visit in a week? (e.g. house, school, library, swimming pool, church, mosque, cinema, museum, shopping mall…)

◆ Do you have a favourite building in your local area and in London?

◆ Do you have any particular building that you don't like or you would like to improve?

◆ Can you identify any specific details of your building (e.g. decoration, colour, texture) that you want to share with the class?

Activity 2

In this activity, students will get a sense of the number and variety of people involved in the building process.

Begin this activity by asking students to suggest groups of people that might be involved in the building process (e.g. designers, builders, council, businesses).

Then share Fact sheet 2: The process of building (page 65) with the students. Explain that the process of creating a new building, or renovating an old building, is highly complex and involves a large number of people. All of these people must work together to get the job done well.

Run through the groups of people involved in the building process. The words in bold may need some definition; ask students if they know the definition of the word before offering it yourself.

Then distribute Activity sheet 1: The process of building (page 65) to individuals. They are asked to match the group with the description of their role. You might like to have pupils complete this in small groups, or individually. You also might like to keep the fact sheet up on the interactive whiteboard to support children in finding the answers.

The answers are:

1. Architects

2. Developers

3. Engineers

4. Land and property owners

5. Builders

6. Inspectors

7. Users/Local Community

OBSERVING AND IMPROVING LOCAL BUILDINGS
EXPLORE

Investigating local architecture

For your Explore visit, we recommend that students go out into the local community to investigate their local area and identify opportunities for architectural improvement.

Remind students of the observing architecture process that they learned in the explore lesson – looking at roofs, façades and floors.

Explain that students will be asked to observe the buildings and open spaces on their walk to make judgements about how well the buildings are serving their local communities. They should be encouraged to identify opportunities for refurbishment or new buildings, with a specific focus on making the area more child friendly.

You will need to map out a 30–40 minute circular walking route from your school, that will give children opportunity to observe a range of different buildings and use of space. Ideally, this route could involve walking down a local high street or pass by a local park/grassed area.

Before leaving the school, share the cards in the Activity Sheet 2: Observing my local area cards (page 73) with the pupils. Explain that, whilst on the walk, students will be asked to place the cards in areas they come across, to highlight opportunities for development. Students will place the 'thumbs up' card on buildings/in areas that they like, and will place the 'thumbs down' card on buildings/in areas that they dislike and think need improvement. You will then need to take pictures of these areas to use as discussion points when pupils are undertaking their connect activities.

If you wish, you could take A3 clipboards and A3 paper with you for pupils to sketch on and/or to write down their improvement ideas.

OBSERVING AND IMPROVING LOCAL BUILDINGS
CONNECT

Planning a micro local intervention

Duration: 60–90 mins

Setting the scene

Share the information in Fact sheet 3: Micro local interventions – Examples (page 68). Run through the descriptions of each example with pupils and invite suggestions as to how pupils think these changes have had a positive impact on the local communities they serve.

Main activity

Explain that children will be asked to plan their own micro local intervention to improve an area that they observed on their explore visit.

Share the photographs taken on the visit on the interactive whiteboard. Run through some images that depict areas/buildings that pupils liked, and others that they disliked.

Use the key questions below to facilitate the discussion.

- ◆ Why did they like/dislike this area/building?

- ◆ What makes this building/area appealing (e.g. use of colour, texture, materials, shape)?

- ◆ What do they think could do to improve the building/area?

- ◆ How might you go about planning an improvement?

Then explain that pupils will be asked to choose one aspect of their local area that they'd like to improve, and then plan that improvement. These improvements must focus on making the local area more child friendly.

You might like to share some suggestions for improvements to spark pupils' creativity. Some examples improvements are given below:

- ◆ Parking for scooters

- ◆ More trees/plants in the park

- ◆ A colourful bench in a dull, dark corner

- ◆ A portable shop e.g. ice cream/sweets/library

- ◆ A moving garden

- ◆ A vertical mini-playground

You might like to group children to undertake this activity, or you might like to have them work independently.

Ask children to put together their ideas on a folded A2/A3 Booklet or A2 cardboard poster, taking time to add colour and describing the materials and feelings that their project will generate. They should create a colourful and informative project, ideally annotated to highlight the key points.

THE LONDON CURRICULUM
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FACT SHEET 1: OBSERVING MY CITY

Observing the buildings around us is very important. The more aware and engaged we are with our environment, the more inspiration and excitement we can gain from it. We can also learn to be critical of what we see if we discover things that could be done better or different.

This Fact sheet introduces you to the basic elements in observing architecture: the roof, the façade and the floor.

The Roof

The structure forming the upper covering of a building.

There are many different styles of roof; they may be flat, sloping or angular. You will find a range of different roof types through looking at the following in your local area: roof top gardens, swimming pools, cinemas, extensions, chimneys, office building and houses.

Fen's favourite roof is part of Santa Caterina Market in Barcelona. Santa Caterina Market was built in 1845 to provide the neighbourhood with food; it was constructed on the former site of the Convent of Santa Caterina. The designer of the roof is a female architect called Benedetta Tagliabue. This building was entirely renovated in 2005 but Benedetta's roof has brought the most joy to the local community because of the beautiful view that it gives people from their windows. The new design is all done with colourful ceramic tiles and wave-shape simulating a natural landscape.

SANTA CATERINA MARKET ROOF BEFORE THE RENOVATION

THE ROOF AFTER THE RENOVATION

THE LONDON CURRICULUM
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FACT SHEET 1: OBSERVING MY CITY

Fen's favourite roof in London is the Golden Lane Estate rooftop, it reminds him of a landed spaceship.

GREAT ARTHUR HOUSE. GOLDEN LANE STATE.

By Steve Cadman from London, U.K. - Great Arthur HouseUploaded by oxyman, CC BY-SA 2.0, **commons.wikimedia.org/w/index.php?curid=8928600**, Wikipedia Commons

THE LONDON CURRICULUM
KEY STAGE 2

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FACT SHEET 1: OBSERVING MY CITY

The Façade

The principal front of a building, that faces on to a street or open space.

The façade is often very specific to a local area, highlighting local materials or designs. Look out for windows with or without decoration, balconies, colourful doors, different materials such as stone, brick, ceramic, concrete, or even metal, elements such as informative plates, personal decoration, door knockers with a lion face etc.

Two of Fen's favourite building facades are the Natural History museum, because of the many intricate details in its design, and Central St Giles by the architect Renzo Piano.

CENTRAL ST. GILES. ARCHITECT. RENZO PIANO
Ben Freeman 2010, Flickr

NATURAL HISTORY MUSEUM, LONDON
nikoretro 2013, Flickr

THE LONDON CURRICULUM
KEY STAGE 2 | REBUILDING LONDON
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FACT SHEET 1: OBSERVING MY CITY

The Floor

The floor is the bottom surface of the building.

Floors of buildings are often more interesting that they might first appear. Some interesting features to look out for include: sewers' lids and their different designs, blocks of glass to illuminate underground cellars or rooms, fossils in stone/marble floor tiles and ceramic carpets in front of doors. You might even discover pieces of floor art, if you look very closely, for example Ben Wilson's Chewing Gum Art on The Millennium Bridge. More examples of interesting flooring are abroad in places such as Lisbon, Granada or Barcelona.

BARCELONA FLOOR TILES
Damian Entwistle 2014, Flickr

GRANADA FLOOR TILES
Photographer: David Gramage

CHEWING GUM ART, BEN WILSON, MILLENNIUM BRIDGE, LONDON
Kevan Davis 2012 Flickr

THE LONDON CURRICULUM
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FACT SHEET 2: THE PROCESS OF BUILDING

Buildings are designed by Architects. However, the process to build a new building, or refurbish an existing one, involves many more people who need to work together to get the job done. Some examples of people involved in the process of building are given on this and the next few pages:

Architects

They are experts in the design process and they also supervise the construction process. The main aim of architects is to work for local communities, to improve the city providing comfort, beauty, safety and novelty. Before designing a new building, architects visit the site, take pictures of the surrounding area and meet local people and the community to understand what they want from the building. Architects also study the history of the place, learn about the climate, sometimes they meet local factories to use local material, learn about the urban rules, learn about costs and budgets and finally they use their creativity to imagine a new building, draw it by hand, make models and draw it using computers.

Land and property owners

Individuals or group of people who have land (with no building or planning yet) or an old building to be refurbished or knocked down in case it is seriously damaged. They can sell their property to developers or become developers themselves. Sometimes the land is owned by the public sector; councils own them so they can decide to build public services or green spaces for us to enjoy for free or very little money.

THE LONDON CURRICULUM
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FACT SHEET 2: THE PROCESS OF BUILDING

Developers

Individuals or, more often, companies who have the original idea and take the financial risk to create a new building (flats, offices, shopping mall, flats, houses...). They have the resources to start the process of hiring all the professionals who are necessary to create a new project, after that they hope to sell it and make a profit.

Builders

Architects draw plans with all the measurements and materials to be used, which they share with builders. Builders use these plans and usually work in large teams to build the project.

Engineers

They are experts in structures, environment, sustainability, water and electricity, fire safety and/or earthquake forces. Engineers do calculations to optimise the quantity and type of materials that we need to improve the look and cost of the building, while keeping it functional and beautiful.

Building companies

They are the ones in charge of constructing the plans made by the architects once all the permissions from the council are in place. Lately, more and more building companies are caring about the environment than ever before, so they recycle and reuse as much material (wood, water, energy) as possible during the construction process.

THE LONDON CURRICULUM
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FACT SHEET 2: THE PROCESS OF BUILDING

Inspectors

Technicians who are experts in construction and safety rules. They visit the building site to make sure that everybody is doing their best and the process is following the approved plans.

The user (you and your family)

Users are the most important part of the process to design and build a new building. All of us are users, our life happens inside or outside of many different buildings, so we must be able to enjoy them.

THE LONDON CURRICULUM
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FACT SHEET 3: MICRO LOCAL INTERVENTIONS – EXAMPLES

This Fact sheet shares some of Fen's favourite examples of refurbishment/new buildings that have improved the local area for people that live there.

Instant City by Archigram

Archigram was formed by a group of architects in the 1960s, who were based at the Architectural Association School of Architecture in London. They were a group focused on building for the future, often using technology and design to create projects to make the city a fun, artistic and enjoyable place to live in. The main members of the group were Sir Peter Cook, Warren Chalk, Ron Herron, Dennis Crompton, Michael Webb and David Greene.

Instant City was a project intended to bring a temporary cultural event or an art festival to small towns or villages which didn't have the same access to big events that we find in cities like London. They used hot air balloons and light structures to make open air cinemas and also had pop up art installations.

INSTANT CITY: ELEVATION

Peter Cook 1969, Collection du Fonds Régional d'Art Contemporain du Centre, Orléans, France; Photographer: Philippe Magnon

INSTANT CITY: SELF DESTRUCT ENVIRON POLE

Peter Cook 1969, Collection du Fonds Régional d'Art Contemporain du Centre, Orléans, France; Photographer: Philippe Magnon

THE LONDON CURRICULUM
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FACT SHEET 3: MICRO LOCAL INTERVENTIONS – EXAMPLES

London Bridge's Fresh Air Squares initiative.

BENCH, TOOLEY STREET
WMBstudio 2016

At London Bridge there is an example of a micro park which has been built across the area of two parking spaces. The bench in the space creates a place to relax and chat with your neighbours. It also measures air pollution!

Inflatable architecture.

SECOND DOME,
LONDON FIELDS
© Dosis 2016

Inflatables can change a place for a specific event or be part of the local area for longer. Some examples to explore include: The American group **Ant Farm**, the English architect **Mark Fisher**, the Japanese **Kengo Kuma** and most recently the Spanish **Dosis** with a pavilion in East London, American group **Pneuhaus** or the striking ColourScape in Clapham Common. All have interesting examples of inflatable structures used to host a family/art event or a music or cooking session in the street.

THE LONDON CURRICULUM
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FACT SHEET 3: MICRO LOCAL INTERVENTIONS – EXAMPLES

Urban Fountains.

We love to splash and play with water in summer time- we have lots of them in London. There are fountains at **Granary Square** in King´s Cross and also the very famous ones at **SouthBank Centre** or **Princes Diana memorial in Hyde Park** by Gustafson Porter + Bowman Architects.

left: FOUNTAINS, SOUTHBANK CENTRE Ania Mendrek 2015, Flickr

top right: DIANA, PRINCESS OF WALES MEMORIAL FOUNTAIN, HYDE PARK.

bottom right: FOUNTAINS, GRANARY SQUARE sean_hickin 2014, Flickr

THE LONDON CURRICULUM
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FACT SHEET 3: MICRO LOCAL INTERVENTIONS – EXAMPLES CONTINUED

Pop-up architecture.

Fen really enjoyed **TREExOFFICE** (opposite), a pop-up (temporary) co-working space aimed at creative workers and community groups in Hoxton, designed to test innovative models to enhance public open spaces.

Another example of pop-up architecture was **The Shed**, a temporary extension for the Southbank Theatre in Westminster.

SOUTHBANK THEATRE EXTENSION; THE SHED
Architect: Haworth Tompkins.
Photograph: Marc Pether-Longman 2014, Flickr

TREExOFFICE, HOXTON.
Architect: Tate Harmer.
Photograph: Jack Hobhouse

THE LONDON CURRICULUM
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ACTIVITY SHEET 1: THE PROCESS OF BUILDING

Match these seven descriptions with the group names below:

DESCRIPTIONS

1. They design the building and supervise the building process. Their main aim is to make the building safe, beautiful and interesting for the local community.

Name of group

2. This group of people usually have the original idea for the building and pay the money to have the building built. They hire all of the professionals involved and hope to sell the property to make a profit.

Name of group

3. They are experts in the structure of buildings. They do calculations to make sure that the best materials are used for the best price.

Name of group

4. These people own the land that the building is going to be built on. They often sell the land to the developers.

Name of group

5. This group use the plans given to them by the architects and often work in large teams to build the new structure.
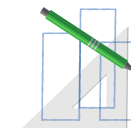
Name of group

6. This group monitor and check up on the builders to make sure that the building is going according to plan and is safe.

Name of group

7. This group includes the people that use the building when it is built

Name of group

GROUP NAMES

Architects
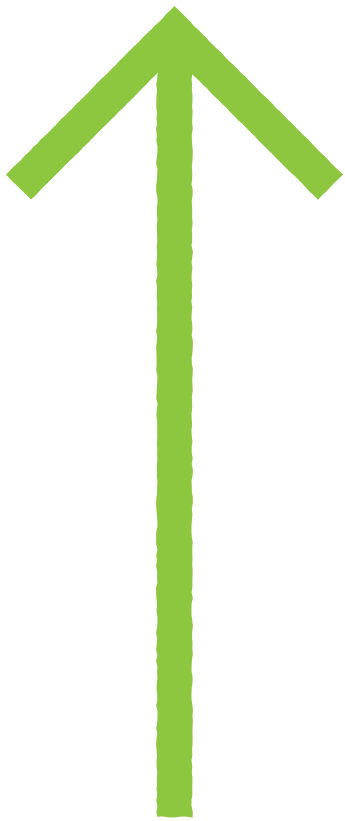
Engineers

Land and property owners
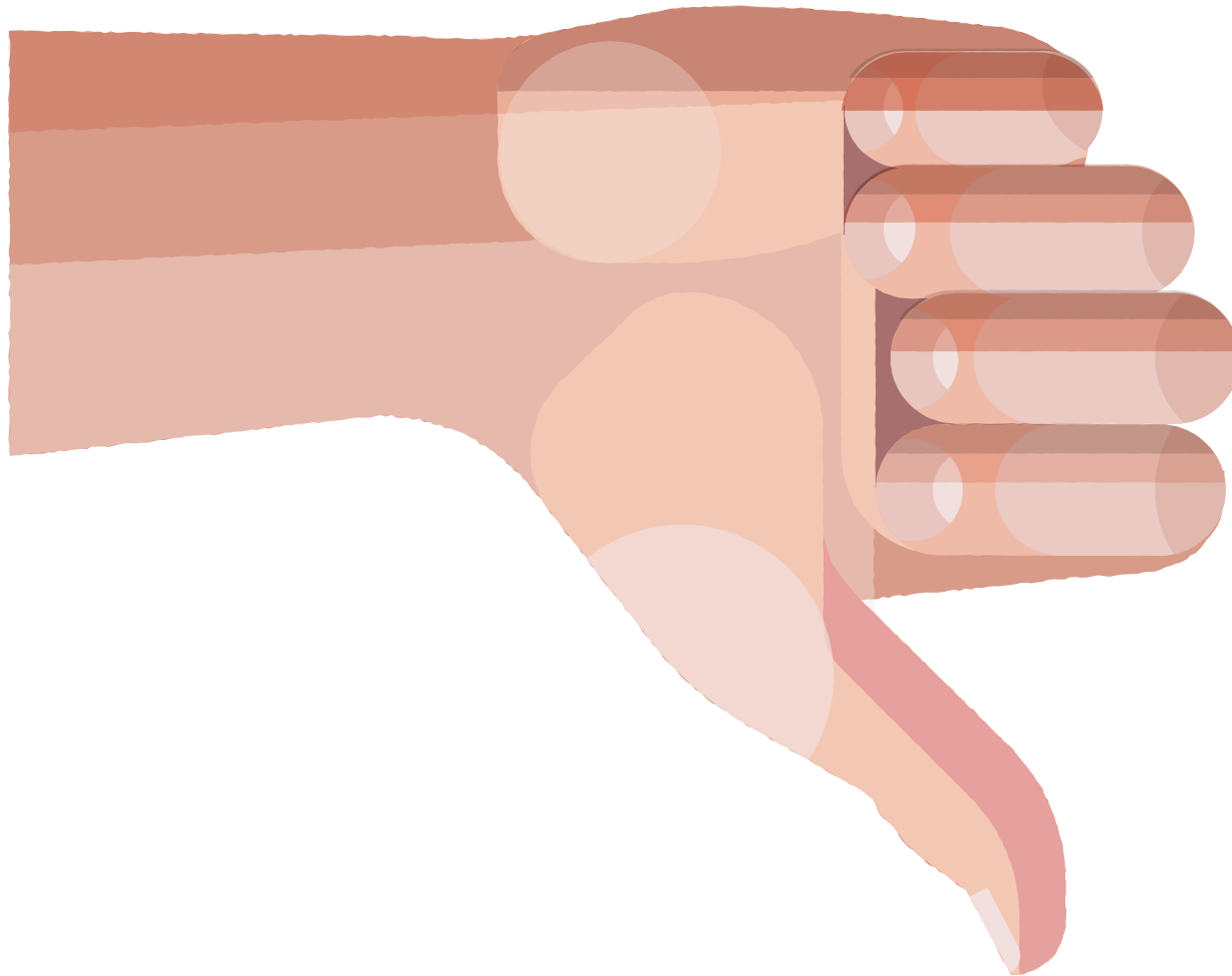
Inspectors

Builders

Users/Local Community

Developers

ACTIVITY SHEET 2: OBSERVING MY LOCAL AREA CARDS

THE LONDON CURRICULUM
KEY STAGE 2

REBUILDING LONDON
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ACTIVITY SHEET 2: OBSERVING MY LOCAL AREA CARDS

BUILDING A SUSTAINABLE LONDON

Topics

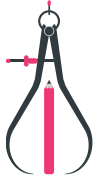**DESIGN & TECHNOLOGY**

GEOGRAPHY
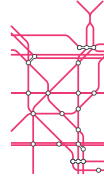
ART & DESIGN
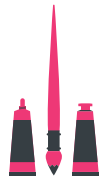
SCIENCE
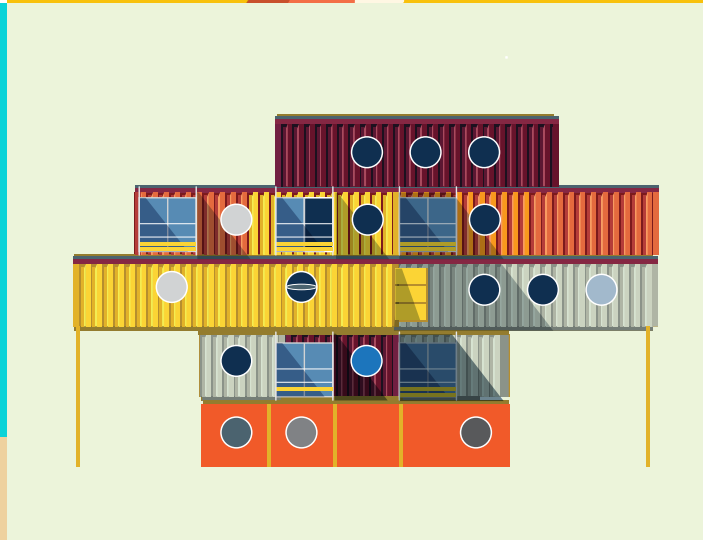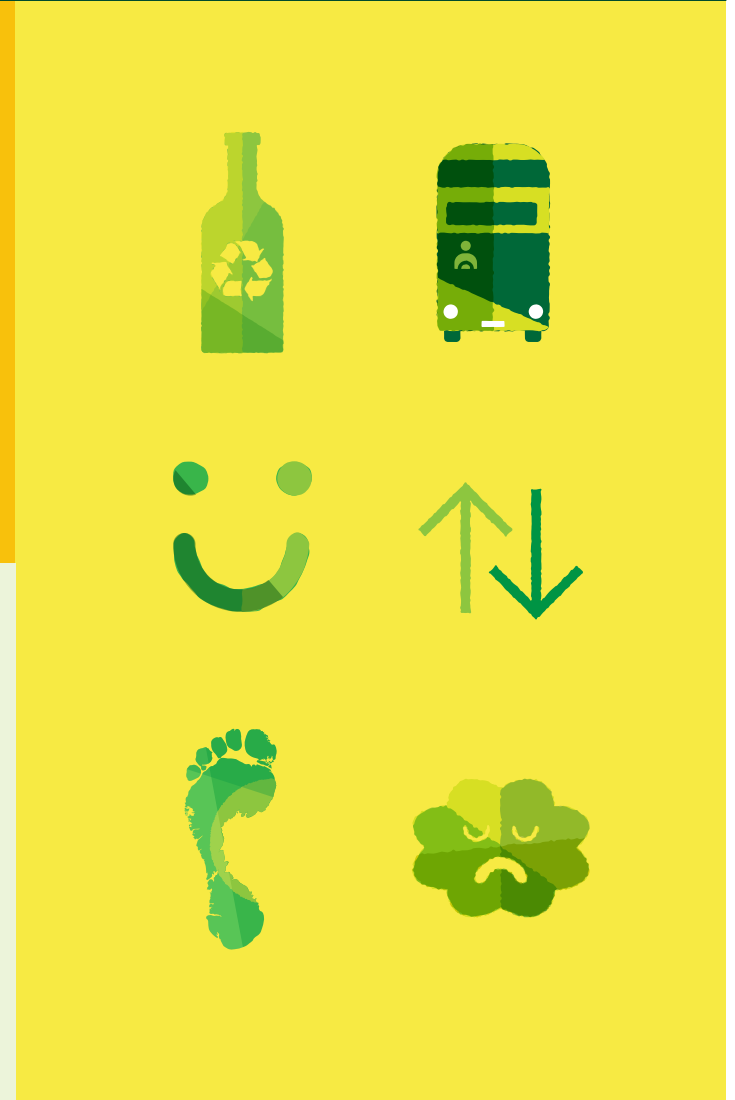
Learning objectives for pupils:

DESIGN & TECHNOLOGY

◆ To develop design criteria for innovative, functional, appealing buildings and artefacts that are fit for purpose

◆ To develop and communicate their ideas through discussion, sketches, sections and diagrams.

◆ To evaluate their ideas and consider the views of others to improve their work.

GEOGRAPHY

◆ To understand human geography: the distribution and use of natural resources

◆ To understand geographical similarities and differences through the study of architecture in cities within the United Kingdom, Europe and others regions such as North and South America or Asia.

ART & DESIGN

◆ To learn about great Architects and designers in history and contemporary times.

◆ To improve mastery of art and design techniques, including drawing, painting and sculpture with a range of materials.
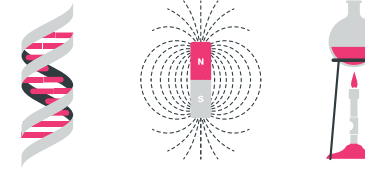
SCIENCE

◆ To recognise that some mechanisms allow a smaller force to have a greater effect including the generation of energy. Wind turbines, solar energy or water movement to produce electricity.

◆ To understand about everyday materials on the basis of their properties and original source i.e. Bricks comes from soil, plastic from oil, cotton, leather, glass, wood etc.

◆ To understand that some changes result in the formation of new materials, and that this kind of change is not usually reversible.

BUILDING A SUSTAINABLE LONDON

BUILDING A SUSTAINABLE LONDON
DISCOVER

Duration: 60–90 mins

Setting the scene

Explain to pupils that, in this unit, they will learn about examples of architecture that are helping to protect the environment; buildings that are testing ways to produce energy rather than consuming it; and, ways to use land in a more efficient way.

Children will have the opportunity to think about the transport system in London and to share their design ideas for a more efficient and sustainable city of the future. This unit will empower the students to have aspirations for improving and engaging with the built environment around them.

Begin the lesson by recapping on what students learned from the previous topic, *Observing and improving local buildings*. What is the role of the Architect? What is the process for planning a new building?

Activity 1: Sustainable architecture

Share Fact sheet 1: Learning about sustainability (page 86) with students.

Once you have read the fact sheet, invite suggestions from pupils to define the word 'sustainability.' What does the word mean? How can we build sustainably?

Some definitions could include:

◆ Building for current needs, without compromising the needs of the future

◆ Having care for the environment

◆ Preserving the environment for future generations

◆ Not being greedy with energy demands

◆ Only using what we need and no more

◆ Having care for the plants and animals that we share our planet with

◆ Not using resources that cannot be replaced

To encourage students to engage further with the planning aspects of sustainable building, share Fact sheet 2: Key concepts in sustainable building (page 87) with pupils and run through the various concepts explored. Explain that they will need to be aware of these concepts when undertaking their connect activity.

BUILDING A SUSTAINABLE LONDON
DISCOVER

Activity 2: Architecture is everywhere

Display some examples of sustainable buildings/'ecobuildings' on the interactive whiteboard for the class to view. Create a collage of photographs on the board if you can.' Discuss the eco elements of the buildings that they can see on the board.

Examples of artists using the collage technique include:

◆ Anna Hoch, a female german artist and member of the Dada group, who was pioneer and expert in the photo montage technique.

◆ Eduardo Paolozzi a Scottish artist. You can find his art work at Tottenham Court Road Tube Station.

◆ Marianne Brandt, a student and teacher at the Bauhaus, the revolutionary german art school.

◆ Archigram, a revolutionary group of Architects formed at the Architectural Association School of Architecture.

Painters such as:

◆ Pablo Picasso

◆ Braque

◆ Peter Blake.

Then ask students to create their own sketch collages in their sketch books, choosing elements of the buildings displayed on the board for inspiration. These collages must display sustainable/eco elements and be imagined for the city of London.

LITTLE ARCHITECT COLLAGE. RATHFERN SCHOOL, YEAR 4.
Photo: Dolores Victoria Ruiz-Garrido

BUILDING A SUSTAINABLE LONDON
EXPLORE

Investigating local architecture

For the explore visit, we recommend that you visit one of the following buildings:

One Embankment Place.

Architect: TP Bennett
1 Embankment Place WC2N 5NP

ONE EMBANKMENT PLACE
Michael Garnett 2012, Flickr

One Embankment Place is a commercial office building constructed in the early 1990s. It was recently renovated and achieved very high levels of sustainability, thanks to some of the following design decisions:

◆ The Biofuel they use is sourced from locally collected and refined waste vegetable oil!

◆ The staircase in the centre of the building is to promote vertical movement without the use of lifts.

◆ Waterless urinals, rooftops and vertical gardens add beauty and take care of the urban fauna and flora.

Stock Orchard Street

Architect: Sarah Wigglesworth
Stock Orchard St N7 9RW

STOCK ORCHARD STREET
N19± 2013, Wikipedia Commons

This is a private house and Architects' office. It is a very interesting project with straw and recycled newspapers in the walls. Sarah designed a system to harvest rain water and she designed a natural ventilation system too.

www.swarch.co.uk/work/stock-orchard-street/

BUILDING A SUSTAINABLE LONDON
EXPLORE

Tate Modern
(Extension 1 & Extension 2)

Architects: Herzog and De Meuron
Bankside, London, SE1 9TG

This is a story of changes and additions. The Tate modern was a power station and for some time was threatened with demolition, however a clever decision preserved it and today it is one of the most iconic buildings in London. Herzog and De Meuron, Architects from Switzerland, made the first and second extension and also the refurbishment of the Tanks. To refurbish an old building and make it useable for different function demonstrates sustainability.

www.tate.org.uk

Love it! But wait until you see inside…

Photographer:
Thomas Buikema

Hans Peter Schaefer
2001, Wikipedia
Commons

BUILDING A SUSTAINABLE LONDON
EXPLORE

Chobham Academy

Architects: Allford Hall Monaghan Morris (AHMM)

40 Cheering Lane, Newham, E20 1BD

CHOBHAM ACADEMY
Photographer: Tim Soar

The Academy is a building that supports both wellbeing of the community and biodiversity. The heating design is very energy efficient. The main heating and cooling system comes from pipes six meters below ground (means inside the earth) the air that enters into the building is always a bit colder or hotter than the outside, this design decision saves lots of energy. A combination of meadow flower-seeded turf, planters and a 'brown' roof, plus playful and colourful areas provide lovely area for the local community to explore.

www.chobhamacademy.org.uk

Six Bevis Marks

**Architects: Fletcher Priest
Bury Court EC3**

This building has an interesting roof, which acts as a thermal buffer. It also provides a covered garden to relax in, even when it's raining outside. The building even harvests the rain water for toilet flushing! The Architects made sure to optimise thermal insulation values, to reduce heating demands in winter.

www.6bevismarks.com

Ely Court

**Architect: Alison Brooks
Ely Place EC1N 6RY**

Located in the London Borough of Brent, this building has been designed to provide exceptionally high quality, bright and spacious social housing. This project is an example of social and economic sustainability. Floor to ceiling height is generous at 2.6m and all windows are full height French doors, which provides an enormous sense of light and space. The three buildings share a common brick, with particular features such as porches, porticoes and balconies, articulated in metal.

www.alisonbrooksarchitects.com/ project/ely-court/

BUILDING A SUSTAINABLE LONDON
EXPLORE

BEDZed

**Beddington Zero Energy Development
Architect: Bill Dunster**

21 SandmartinWay, Wallington SM6 7DF

BEDZED
Tom Chance 2009, Flickr

This is an example of a low carbon residential scheme. The project was designed to use only renewable energy, which is generated on site. There are 777 square metres of solar panels. To organise a visit, please contact the visitor centre for a guided tour.

www.zedfactory.com/bedzed

RSPB's Environment and Education Centre

Architect: Van Heyningen and Haward Architects LIP

New Tank Hill Road, Purfleet, Rainham, South Ockendon RM19 1SZ

RSPB ENVIRONMENT AND EDUCATION CENTRE
vHH 2012, Wikipedia Commons

Located in Rainham Marshes in East London, this building uses sheep wool for insulation and nearly all materials were locally sourced. The Architects designed two big translucent roof cones that allow plenty of daylight in. They also glow in the dark!

goo.gl/1RIkFb

Trinity Buoy Wharf

Architect: Nicholas Lacey and Partner

64 Orchard Pl, Poplar E14 0JW

CONTAINER CITY 2 AT TRINITY BUOY WHARF
Cmglee 2012, Wikipedia Commons

This building is made out of recycled shipping containers and is used as studios and/or flats for artists. It is very vibrant and colourful. This is a very good example of reusing and recycling materials that are no longer needed.

www.trinitybuoywharf.com

BUILDING A SUSTAINABLE LONDON
CONNECT

Creating your own sustainable building

Duration: 90 mins

Setting the scene

Having learned about the key components of sustainable buildings and having visited real examples of London sustainable architecture, in this session, children will be asked to create their own example of a sustainable building for London.

Encourage children to reflect on the buildings that they saw as part of their Explore visit. What was it about the building that made it sustainable? Can you name something that used renewable energy? Were there any examples of recycling?

Activity 1

Share the information on Fact sheet 3: Examples of sustainable building (page 88) with students. Explain that this Fact sheet contains examples of planning, undertaken by Architects, that give some exciting ideas for sustainable building. Most of these ideas were stopped at the planning stage, so didn't go on to become buildings, but they give you a good idea of the types of buildings Architects planned as 'buildings of the future.'

Activity 2

Give children blank pieces of A3 paper. You might like to have children work in small groups for this activity, or have them work independently.

First ask each group/individual to have a discussion about what elements their sustainable building will have. You might like to put some ideas to scaffold them on the interactive whiteboard. Will you include recycling? What kind of energy will your building use? Will there be any plants/greenery in your building? What will your building be made out of?

Then ask children to draw their building on the A3 paper and try to demonstrate as many sustainable building techniques as possible. They should use a clean energy source, include and respect urban fauna and flora in their design, think about the transportation system and connections with other buildings, optimise the use of land such as designing new rooftops.

BUILDING A SUSTAINABLE LONDON
CONNECT

Activity 3

Encourage children to be creative and daring, invite them to use colours and make a new building with new shapes. Some examples of previous sustainable building designs from children are shared opposite for inspiration.

After drawing/annotating individually for 45 min, children should cut out their designs and all together decide how to glue and group the buildings to shape a big class collage to be named 'Future London.'

LITTLE ARCHITECT COLLAGE. OLIVER GOLDSMITH SCHOOL, YEAR 5.
Photo: Dolores Victoria Ruiz-Garrido

THE LONDON CURRICULUM
KEY STAGE 2

REBUILDING LONDON
DESIGN & TECHNOLOGY, GEOGRAPHY,
ART & DESIGN, SCIENCE

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SUSTAINABLE LONDON

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FACT SHEET 1: LEARNING ABOUT SUSTAINABILITY

United Nations Global Goal number 11:

"Make cities and human settlements inclusive, safe, resilient and sustainable."

www.globalgoals.org/global-goals/ sustainable-cities-and-communities/

Having the opportunity to design a new building is probably the most exciting experience for an Architect. As we explored in the last topic, Architects spend a lot of time researching the site, drawing, and testing ideas with physical models or virtual reality.

Buildings are not **isolated** (on their own), they form part of a city and cities work to serve the people that live there. The way we design our buildings and cities always affects the environment, and so can also affect the health of the people that live there.

In this fact sheet you will learn about a **global plan** (a plan for the whole planet) to tackle environmental and social problems, which has a huge impact on the way that we build in London.

Global Goals for Sustainable Development

In September 2015, World Leaders met at the United Nations and committed to what they called The Global Goals for Sustainable Development. They developed 17 goals to achieve three extraordinary things in the next 15 years:

1. End extreme poverty.

2. Fight inequality and injustice.

3. Protect the environment.

They want us citizens, including children of all ages, to encourage others to look after the environment and become the generation that changed the world.

But what does **sustainability** mean?

THE LONDON CURRICULUM
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FACT SHEET 2: KEY CONCEPTS IN SUSTAINABLE BUILDING

In order to design a new sustainable building Architects spend a lot of time researching the local area in which the building will be positioned. Some key concepts (with definitions) below show you just how many things Architects need to think about when designing a sustainable building.

Sustainability
The idea that buildings should be produced in ways that do not damage the environment.

Resilience
The building needs to be able to recover quickly from problems, for example, pipes leaking or a natural disaster.

Population
London currently has 8.6 million inhabitants. Recent estimates indicate that by 2050 there will be 11 million people living in London. Buildings in London are also visited by large numbers of tourists each year.

Pollution
This is caused by harmful substances or waste, and often affects water, air and/or soil. Nearly 4 million people work in parts of London which are above legal limits for nitrogen dioxide pollution.

Renewable energy
Energy that is produced using the sun, wind, waves, or from crops, rather than using fuels such as oil, gas or coal. Sustainable buildings should be using renewable energy sources.

Transport
London has a very good public transport system, but the roads are often very busy and it can take a long time to travel to and from your destination. How would people get to and from a sustainable building?

Accessibility
Everyone should be able to get in and out of London's buildings, and should be able to enjoy all of the exciting things contained in a building.

Ecological footprint
The amount of the Earth's energy that someone or something uses. A sustainable building should use the minimum amount of energy possible, so have a low ecological footprint.

Recycling
This is the process of converting waste into reusable material. Sustainable buildings should encourage collecting of old paper, glass, plastic, and even metal so that it can be recycled and used again.

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FACT SHEET 3: EXAMPLES OF SUSTAINABLE BUILDING

Toyo Ito
Dragon Stadium, Taiwan

The Sun is the cleanest and cheapest source of energy. Engineers have developed the technology to transform the solar radiation, captured from the Sun, into electricity through solar panels. This means that many of our buildings can use clean energy provided by the sun for free. You can find lots of examples of architecture using solar energy in the competition Solar Decathlon but Fen's favourite building, because of its solar panels, is the **Dragon Stadium** in Taiwan, from the Architect Toyo Ito.

DRAGON STADIUM, TAIWAN
Peellden 2017 Wikipedia Commons

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FACT SHEET 3: EXAMPLES OF SUSTAINABLE BUILDING

Harvey Wiley Corbett
City of the Future. 1913.

A City of the future design, with traffic and pedestrians separated. Discussing this very old project is a good way to stimulate a debate on land use. Are we addressing the problem of cars and pollution if we separate people from traffic? Fen loves to walk at night on his own but he also likes to observe people – he wouldn't like a road just for foxes!

Are bikes and more pedestrian routes a good option for a sustainable London? Is London a pedestrian or car friendly city? Take a look at this project that the Architect Norman Foster has designed for London. Do you like his idea? It is an elevated road just for bikes.
www.dezeen.com/2014/01/02/foster-promotes-cycling-utopia-above-londons-railways/
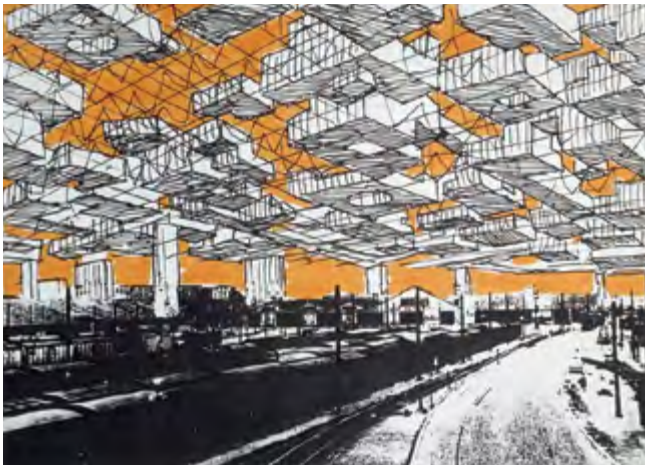

CITY OF THE FUTURE, HARVEY WILEY CORBETT, 1913

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FACT SHEET 3: EXAMPLES OF SUSTAINABLE BUILDING

Yona Friedman.
The Mobile Architecture, The Spatial city.

SPATIAL CITY, 1958/ 1959
Reproduced with kind permission Yon Friedman

Yona Friedman was born in 1923 in Budapest (Hungary) and lives and works in Paris (France). Yona Friedman was trained as an Architect and gained fame with his manifesto *The Mobile Architecture* and his idea for a different approach to urban growth with *The Spatial city* from 1956. Should we use the sky? Should we create bridges to join buildings together?

www.yonafriedman.nl/?page_id=78
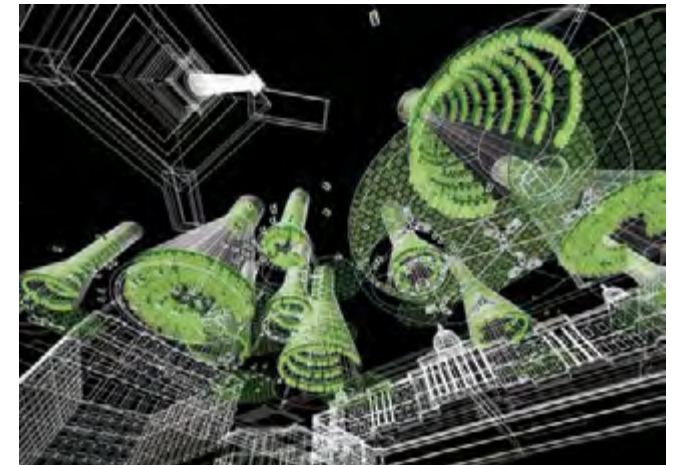
MRDV
Pig city, Vertical farms.

This is an utopian project that is addressing the problem of not having enough food in an overpopulated world. If cities are more and more populated we need to think about the way we produce food, so these Architects are proposing a city for pigs: Farm Skyscrapers!

www.mvrdv.nl/projects/181-pig-city

CJ Lim
Smart Cities + Eco warriors.

CJ Lim's project explores sustainable city design. *Smartcities + Eco-Warriors* address what happens when sustainable design is applied to a city. The main component of the smartcity is urban agriculture (lots of plants and vegetation in the city) and the establishment of an ecological balance between nature and buildings.

www.flickr.com/photos/uclnews/ sets/72157625198573526/

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