LIVING STREETS

LET'S WALK TO SCHOOL

WOW LEARNING RESOURCES KS2/P5-7

CITY SKYLINE

MAR 2017

AIM

To look at patterns and mathematical elements of a city skyline.

OBJECTIVES

- To look at the patterns created by famous city skylines
- To recreate those patterns by comparing them to patterns found in mathematics
- To learn about Pi and its use in mathematics.

RESOURCES

- Photos of cityscapes, including London
- Sheets of large graph or squared paper with squares of at least 2cm squared
- Coloured pencils or pens
- Calculators

CURRICULUM LINKS

England	MATHEMATICS
Wales	MATHEMATICS
Scotland	MATHEMATICS

Did you know?

The O2 Arena or Millennium Dome in London is the largest domed tent in the world. So big that the Great Pyramid of Giza or New York's Statue of Liberty could fit inside! .[1]

We are Living Streets, the UK charity for everyday walking. These learning resources support participation in WOW, our year-round walk to school challenge.

For further information on WOW and the full set of learning resources, visit **www.livingstreets.org.uk/walktoschool**

Get in touch: walktoschool@livingstreets.org.uk 020 7377 4900

[1] http://www.oddizzi.com/teachers/explore-the-world/places/europe/united-kingdom/england/london/

CITY SKYLINE

LESSON PLAN

MAIN LESSON (30 MINUTES)

INTRODUCTION

Talk about city skylines and look at photos of famous cities. Can they recognise some of the most famous elements of the London skyline? London Eye, Tower Bridge, Tower of London, 'The Gherkin' (30 St Mary Axe), 'The Walkie-Talkie' (20 Fenchurch Street), 'The Cheesegrater' (122 Leadenhall Street). Which buildings are the oldest and how do we know? Clues can be found in the shapes and the materials. For example, the Tower of London is made of stone and has crenelated towers to protect the city, while the Gherkin is mostly made from glass. Did they know that the only piece of curved glass on The Gherkin is the top cone shape; all the other windows are flat and just look curved. Each building is made using precise mathematics. Introduce the concept of pi to the children. Pi is a mathematical constant and is used to measure the ratio of a circle circumference to its diameter.

DEVELOPMENT

Show the children pi on a calculator and explain that because it is an irrational number it goes on and on in repeating patterns when expressed as a decimal. Ask the children to use a calculator and find ten, twenty or even thirty decimal places of pi. Hand out the graph paper and coloured pencils or pens and ask the children to create a pi cityscape. Colour the first three squares vertically on one colour, then one square next to it in another colour, then four squares next to that in a third colour. You've created 3.14 and have started to create a cityscape of pi tower-blocks. Ask the children to create their cityscape using the decimal places of pi (3.1415926… etc.) until they reach the end of their paper. Finish the picture by adding in clouds, aeroplanes and birds to the sky behind the pi city or add in a colour wash sky. Alternatively, cut the cityscapes out and layer them slightly behind each other on a dark background.

PLENARY

Talk about how we can recognise cities from their skyline alone and discuss how these might change in the future. Can the children think of some really old buildings in the local area and some really new ones? How might your school and local area look in the future?

EXTENSION (30 MINUTES)

Talk about other how mathematical patterns can be seen in everyday objects, both natural and man-made. Ask the children to track patterns of numbers across the school day starting from flowers and leaves on the walk to school (you could reference the Fibonacci sequence) to the patterns made by roads and streets and the way buildings fit into them.