

This activity should be undertaken during the visit to the Emirates Spinnaker Tower.

### CURRICULUM LINKS

**ENGLISH** – Pupils can adapt language and style in and for a range of contexts, purposes and audiences.

**MATHS** – Compare, describe and solve practical problems for lengths and heights.

### LEARNING OBJECTIVES

Children should measure themselves against the height of Emirates Spinnaker Tower.

### BEFORE YOU VISIT

Print the downloadable worksheet and bring it with you. There are two levels available. Please advise our booking team before you visit so that we can make sure the additional resources to support your visit will be ready on arrival. These will include tape measures and a glass floor subsection.

### ACTIVITY OUTLINE

- The aim is to help the children understand the height of Emirates Spinnaker Tower in relation to themselves and other buildings.
- On arrival present the children with their worksheets and ask them to listen out for information about the Emirates Spinnaker Tower which they can complete on their fact file
- Ask the children to look out of the window and comment on what they can see. Take feedback and encourage the awe and wonder in the children from being so high up.
- Ask the children to name other ways that they could see the world from a high point (aeroplanes, up a mountain, tower blocks, and church steeples).
- Explain to the children that they are going to be thinking about the height of Emirates Spinnaker Tower.
- Ask the children to look out of the window and point to other tall buildings that they can see.
- Point out the buildings that they can see:



#### Number 1 Gunwharf Quays East Window from Emirates Spinnaker Tower =Height 98 metres

These are residential flats, people live here. This building is known locally as the Lipstick Building (why?). The building was designed to be the shape of a ship's funnel and Emirates Spinnaker Tower is the shape of a sail. In 2012 the penthouse was on sale for £2.5m!



#### Harbour & Seaward Residential Flats at the edge of Gosport =Height 46 metres

Built in the 1960s, the flats have big mosaic panels on the front.



#### Anglican Cathedral Bell Tower =Height 37 metres

The Anglican Cathedral is one of two within the city. Its formal name is Cathedral Church of St Thomas of Canterbury – its history goes right back to 1180 when the first chapel was built on this site.

- › The children can complete the heights of the buildings as you talk
- › Ask the children if they think Emirates Spinnaker Tower is shorter or taller than the other buildings in Portsmouth? Ask the children how they know that Spinnaker Tower is taller than the other buildings in Portsmouth. Take answers – because everything is below them; because things look smaller from up in the Tower, etc.
- › Ask the children to make a line with their teachers, with the smallest people at the front and the tallest at the back. If they stood on each other shoulders, can they guess how tall they all be together? Take answers.
- › Suggest that they would probably be about 50 metres tall all together (using the average height of a 7-year-old as approximately 1.20 metres + 6 teachers). (36 people)
- › Do the children know how tall the Tower is? You can see the height of View Deck 2 on your worksheet (105 metres) View Deck one is 5 metres lower, View Deck 3 is 5 metres higher. Ask the children to add in the heights of the viewing decks. The total height of the tower is 70 metres taller than View Deck 1.  
= 170 metres

Emirates Spinnaker Tower was built as a viewing tower to welcome tourists to the city, as part of the regeneration project for the area - 'The Renaissance of Portsmouth Harbour project'.



Ask the children switch on their maths brains and do few calculations. (All of the questions are based on the height of the View Deck 1 100 metres)

- › If they all together measure 50 metres in total, how much taller is Spinnaker Tower viewing deck  
= 50 metres
- › How much taller is Emirates Spinnaker Tower View Deck 1 at 100 metres than the Harbour & Seward Towers at 46 metres?  
= 54 metres
- › If Anglican Cathedral Bell Tower is 37 metres, how much smaller is it than Spinnaker viewing deck at 100 metres  
= 63 metres
- › If Emirates Spinnaker Tower viewing deck, the Bell tower and No 1 Gunwharf Quays were placed on top of each other, who many metres tall would they be?  
= 235 metres
- › What would be the total height of the Anglican Cathedral Bell Tower at 37 m plus the height of the Harbour & Seward Towers at 46 metres?  
= 83 metres
- › What is the height of Spinnaker Tower viewing deck in centimetres  
= 10,000 cm
- › How much taller is the whole tower at 170m than the harbour and seaward towers?  
= 124 metres

## EXTENSION TASK

- › How many millimetres is View Deck 1 from the harbour floor? (Remember there are 1000mm in a metre)  
= 100,000 mm
- › How many kilometres would this be?  
= 0.10 km

- › Now tell the children the following fun facts:

The concrete used to build the Tower would fill five-and-a-half Olympic-sized swimming pools.

The Tower is founded on 84 piles, the longest of which runs 50m into the ground – the equivalent of Nelson's Column.

The total weight of the Tower exceeds 30,000 tonnes.

The 27m spire weighs 14 tonnes and was carefully lifted into place by crane.

1200 tonnes of structural steel used to form the Tower's distinctive bows is the equivalent weight of 12 blue whales.

115 metres up and in high winds, the Tower can flex approximately 150mm.

## EXTENDED TASK – DARE YOU WALK ACROSS THE GLASS FLOOR?

You will need the glass floor subsection for this and a tape measure for the extension task – ask a member of the Team.



- › Explain to the children that they can walk on the glass floor. When they look down, there would have to be approximately 2 classes with their teachers standing on each other's shoulders to reach the height of the glass floor.
- › Tell them that the floor is quite safe! In fact, it could hold the weight of two rhinoceroses!
- › Show the children the sub-section of the glass floor, discuss 2D & 3D shapes
- › Ask the children to complete the shape, thickness and Rhino questions on their worksheet  
= 2D would be rectangle,  
3D would be cuboid  
= 3 panes  
= 2 Rhino's
- › Ask the children the measure the glass floor themselves to see how big it measures – they can use their hands, feet, their whole bodies, belts holding up trousers etc. Record their measurements.

## EXTENSION TASK

- › Use the tape measures provided in the prop box to measure the actual size of the glass floor and work out the area of the shape. This could be recreated on graph paper back at school to scale.
- › Can the children add on the right angles shown within the glass floor? Can the children show the parallel lines on the glass floor?