

This activity should be undertaken during your visit to 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.
- Children should measure the glass floor to calculate area and volume.

### 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 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 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:



#### No 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.

- › Ask the children how they know that Emirates 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 would all be together? Take answers.
- › Suggest that they would probably be about 53 metres tall all together (using the average height of a 10-year-old as approximately 1.40 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. 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 to switch on their maths brains and do a few calculations. All of the questions are based on the View Deck height of 100 metres.

- › If they all together measure 53 metres in total, how much taller is Emirates Spinnaker Tower Deck 1?  
**= 47 metres**
- › What is the height of Emirates Spinnaker Tower viewing Deck 1 and 3 in centimetres?  
**= 10,000 cm**  
**= 11,500 cm**
- › How many millimetres/ kilometres would View Deck 1 be?  
**= 100,000 mm**  
**= 0.10 km**
- › If the Anglican Cathedral Bell Tower is 37 metres, how much smaller is it than the whole Spinnaker Tower in metres?  
**= 133 metres**
- › How much taller is the whole Tower than the Harbour and Seward flats (46m)?  
**= 124 metres**
- › If Spinnaker Tower viewing deck, the bell tower and No 1 Gunwharf Quays were placed on top of each other, how many metres/ centimetres tall would they be?  
**= 235 metres & 235,000 cm**
- › Work out the difference between your own height and the height of the Emirates Spinnaker Tower.  
**= cm**

- › 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

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

Show the children the sub-section of the glass floor and discuss 2D & 3D shape



What 2D and 3D shape is the glass floor?  
=Rectangle/Cuboid

- 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!
- 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.
- Break into smaller groups and using the tape measures provided, measure the actual size of the glass floor and work out the area and volume from the information given, plus add in the panels onto the diagram.

### EXTENSION TASK

- Can you identify the different angles, parallel lines on the glass floor – show on your diagram.
- If time allows also measure one of the panels and calculate it's area.
- Use this information back at school to work out the size of the glass floor if there were 5 or 6 panels etc or the volume if it was twice as thick.
- Once back at school these could be transferred onto graph paper to draw to scale.