

## Discovery Quest

### Playgrounds!

4<sup>th</sup> - 8<sup>th</sup> May

L.Q. How can we select the right material to fit a purpose?

Look below at some of the largest buildings in the world. Think about how they are designed so that they remain strong and stable.

Name : Burj Khalifa skyscraper

Location : Dubai, United Arab Emirates

Height in m : 830 m

Height in ft : 2,722 ft

Floors : 163

Built : 2010



Name : Tokyo Skytree television tower

Location : Japan

Height in m : 634 m

Height in ft : 2,080 ft

Built : 2012



Name : Shanghai Tower skyscraper

Location : China

Height in m : 632 m

Height in ft : 2,073 ft

Built : 2014



## Activity

Look at the following objects.

Discuss the following:

Why do these objects have to be strong and stable?  
How are they designed to be strong and stable?



## Shape and Base

The base is the key to a stable structure.  
The shape of the structure is also very important too.

The wider the base, the more stable the structure.



## Strengthening and Stiffening Structures

**Joining together** – Using paper or card, you could use strong glue, stapling, paper clips or strong tape to join pieces together.

**Rolling** - Rolling paper or card into tubes can produce a strong structure. You can fix a number of tubes together to create a strong base.

**Folding** - Concentrating paper and card then adding a layer of card above and below it.

**Layering** - Corrugated card can be layered to create an extra strong base. Alternatively, you could add a length of wood to each edge of the card, strengthening the corners with cardboard triangles. You can then add another piece of corrugated card on top of this or repeat this process several times to create an extra strong base.

**Why don't you have a go at each method and decide which is best?**

I would like you to think about what material would be best if you were going to make a small model Ferris Wheel and how you would reinforce it to ensure it is stable.

Write which material you have chosen and why you have chosen that material.