

# FERRIS WHEELS

We love the experience of travelling up into the air aboard a giant wheel. From the smallest funfair to national landmarks like the London Eye, here's how these massive structures work...

**1** The main **WHEEL STRUCTURE** is usually made from steel.

**2** The wheel is supported by large **METAL TOWERS** and support struts that hold it in place.

**3** At the centre of the wheel, **THE HUB** contains ball bearings, which allow the wheel to turn with very little friction.

**4** Thin **SPOKES** connect the hub with the rim of the wheel. In smaller Ferris wheels, these are made from steel bars, but in super-sized wheels like the London Eye they are made from flexible steel cables.

**5** The Ferris wheel is rotated by **ELECTRIC MOTORS**.

**6** The motors turn small **DRIVE WHEELS** with soft tyres.

**7** The drive wheels press against the **DRIVE RIM** and transfer the power to the main wheel.

**8** **SEATS OR CABINS** hang from the outer rim of the wheel. On massive wheels, these cabins can hold groups of 20 or more people, but on small wheels, each seat only has room for two people.

**9** The cabins are connected to the rim on **AXLES** with more ball bearings so that they can rotate freely – which means the people riding the wheel always stay the right way up! Some big wheels use electric motors to rotate cabins attached to the outside of the rim instead of relying on gravity.

**10** A **PLATFORM** at the base of the wheel allows people to climb on and off the wheel when each seat stops in turn.

**11** Mobile Ferris wheels are mounted on **LORRY TRAILERS** so they can be moved from one funfair to another. The wheel is dismantled and packed onto the lorry before being rebuilt at the next venue.



That funny feeling in your tummy as you go over the top of a Ferris wheel is caused by **centripetal acceleration**. This happens when an object (or person) goes around in a circle, constantly accelerating in a new direction. At the top of the wheel, the downward acceleration can match the acceleration due to gravity, making you feel momentarily weightless. The opposite effect happens at the bottom of the wheel, making you feel super-heavy!

