

Discovery Quest

Playgrounds!

Topic Question: How can we use our knowledge of mechanical systems to make structures move?

11th - 15th May

L.Q. How can we use our knowledge of rotation to create a playground ride?

Read the following information about Ferris Wheels.

A Ferris wheel (sometimes called a big wheel, observation wheel, or, in the case of the very tallest examples, giant wheel) is a non-building structure consisting of a rotating upright wheel with multiple passenger-carrying components (commonly referred to as passenger cars, cabins, tubs, capsules, gondolas, or



pods) attached to the rim in such a way that as the wheel turns, they are kept upright, usually by gravity.

Some of the largest modern Ferris wheels have cars mounted on the outside of the rim, with electric motors to independently rotate each car to keep it upright. These wheels are sometimes referred to as observation wheels and their cars referred to as capsules, however these alternative names are also used for wheels with conventional gravity-oriented cars.

The original Ferris Wheel was designed and constructed by George Washington Gale Ferris Jr. as a landmark for the 1893 World's Columbian Exposition in Chicago. The generic term Ferris wheel is now used for all such structures, which have become the most common type of amusement ride at state fairs in the United States.

Since the original 1893 Chicago Ferris wheel there have been nine world's tallest-ever Ferris wheels. The current record holder is the 167.6-metre (550 ft) High Roller in Las Vegas, US, which opened to the public in March 2014.

Observation wheels

Observation wheel is an alternative name for *Ferris wheel*. In 1892, when the incorporation papers for the Ferris Wheel Company (constructors of the original 1893 Chicago Ferris Wheel) were filed, the purpose of the company was stated as: [construction and operation of] "...wheels of the Ferris or other types for the purpose of observation or amusement".

Some Ferris wheels are marketed as observation wheels, any distinction between the two names being at the discretion of the operator; however the wheels whose operators reject the term Ferris wheel are often those having most in common with the original 1893 Chicago Ferris Wheel, especially in terms of scale and being an iconic landmark for a city or event.

Wheels with passenger cars mounted external to the rim and independently rotated by electric motors, as opposed to wheels with cars suspended from the rim and kept upright by gravity, are those most commonly referred to as observation wheels, and their cars are often referred to as capsules. However, these alternative names are also sometimes used for wheels with conventional gravity-oriented cars.

Only four Ferris wheels with motorised capsules have ever been built.

Further information available at: https://kids.kiddle.co/Ferris_wheel



Think back to last week's work and think about what material you would use to make a model Ferris Wheel.

The material that would be best is _____ because

Design your Ferris Wheel below.

