

# Turntable

## Location

First floor, Curiosity zone exhibition

## In a nutshell

See what happens to the motion of different discs as they move from the centre to the outside of the turntable.

## What to do

Roll and slide the different discs on and across the turntable.

What do you notice about the path of the discs? Is there a difference if you place the disc at different points on the table?

## Time Required

KS3 & KS4 3-4 minutes per student.

## What's happening?

As the disc moves away from the centre of the spinning turntable, it takes a curved path. This apparent curving of things that move on a rotating surface is called the Coriolis Effect.

This rotating table moves faster near the outer edges than it does at the centre. When you place a disc on the table, the disc begins rotating at the same speed as that part of the table. The disc retains this speed as it moves through the faster-rotating outer areas, making it curve against the direction. The earth's rotation has a similar curving effect on the movement of air in the atmosphere. That's why you often see storm systems take curving paths on weather maps. Objects moving from the North Pole toward the equator appear to curve to the right of their direction of motion. Air flowing into the low pressure centre of a hurricane in the northern hemisphere bends to the right, and so flows around the hurricane in an anticlockwise direction. In the southern hemisphere the airflow would be clockwise.



## Curriculum links

<b>KS3</b>	<p><b>Science - Forces</b></p> <ul style="list-style-type: none"> <li>- forces as pushes or pulls, arising from the interaction between two objects</li> <li>- moment as the turning effect of a force</li> </ul> <p><b>Science - Forces and motion</b></p> <ul style="list-style-type: none"> <li>- forces being needed to cause objects to stop or start moving, or to change their speed or direction of motion (qualitative only)</li> <li>- change depending on direction of force and its size</li> </ul> <p><b>English - Reading</b></p> <ul style="list-style-type: none"> <li>- learning new vocabulary, relating it explicitly to known vocabulary and understanding it with the help of context and dictionaries</li> </ul> <p><b>Design &amp; Technology</b></p> <ul style="list-style-type: none"> <li>- understand how more advanced mechanical systems used in their products enable changes in movement and force</li> </ul>
<b>KS4</b>	<p><b>Science - Forces and their interactions</b></p> <ul style="list-style-type: none"> <li>- recall examples of ways in which objects interact: by gravity, electrostatics, magnetism and by contact (including normal contact force and friction), and describe how such examples involve interactions between pairs of objects which produce a force on each object; represent such forces as vectors</li> </ul> <p><b>Science - Moments, levers and gears (Single)</b></p> <ul style="list-style-type: none"> <li>- describe examples in which forces cause rotation; define and calculate the moment of the force in such examples</li> </ul> <p><b>Design and technology</b></p> <ul style="list-style-type: none"> <li>- the functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces</li> </ul>

## Relates to:

Workshops & Theme Days	Shows	Trails	Other exhibits
<ul style="list-style-type: none"> <li>• Innoventions (KS3)</li> <li>• Bloodhound Rocket Car day (KS3 &amp; KS4)</li> <li>• System Earth day (KS3 &amp; KS4)</li> </ul>	<ul style="list-style-type: none"> <li>• Launch it! (KS3)</li> <li>• Blue Marvel (Planetarium, All ages)</li> </ul>		<ul style="list-style-type: none"> <li>• Spinning patterns</li> <li>• Build a bridge</li> <li>• Tornado</li> <li>• Changing world</li> <li>• Weather forecast</li> </ul>