

Spinning patterns

Location

First floor, Curiosity zone exhibition

In a nutshell

Use our spinning disk to create patterns in the sand. Investigate the affect of changing the speed of the disk or the movement of the tool you use.



What to do

Add sand onto the spinning disc and use the stick to level it. Set the speed using the black dial. Use the tools to create your own patterns. What happens if you draw a line from the centre to the edge of the disc? How does changing the speed of the table change the pattern? If you draw circles clockwise and anticlockwise, do they look the same?

Time Required

KS3 & KS4 3-4 minutes per student.

What's happening?

When you draw any shape on the spinning disc, the pattern you see is not the actual shape you made with your finger, but a record of how your finger moved relative to the spinning disc. When you draw a straight line from the centre of the spinning turntable towards a point on the wall of the room, the turntable rotates beneath your finger as you draw the line. Your finger traces a curve on the turntable; as the spin is clockwise, the line appears to curve to the left when viewed from its starting point at the centre. The pattern on the turntable shows the motion of your finger from the perspective, or frame of reference, of a speck of sand on the spinning turntable (physicists would say that the speck of sand is in a 'rotating frame of reference').

Curriculum links

KS3	<p>Science - Working scientifically</p> <ul style="list-style-type: none"> - ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience <p>English - Reading</p> <ul style="list-style-type: none"> - learning new vocabulary, relating it explicitly to known vocabulary and understanding it with the help of context and dictionaries
KS4	<p>English - Spoken</p> <ul style="list-style-type: none"> - listening to and building on the contributions of others, asking questions to clarify and inform, and challenging courteously when necessary

Relates to:

Workshops & Theme Days	Shows	Trails	Other exhibits
<ul style="list-style-type: none"> • Destination space (KS3) • The Force of Attraction (KS3 & KS4) 	<ul style="list-style-type: none"> • Launch it! (KS3) 		<ul style="list-style-type: none"> • Turntable • Changing World • View of Earth