

# Nothing matters

## Location

First floor, Space gallery exhibition

## In a nutshell

See how the sound from a ringing bell is affected by removing the air from around it and creating a vacuum, recreating the conditions in space.



## What to do

Press the button and see what happens to the bell, balloon and the pressure gauge as the air is sucked out of the bell jar.

## Time Required

KS1 & KS2 2 minutes per student.

## What's happening?

The area in between planets and stars is enormous and contains almost nothing. Space is a vacuum, which isn't a good environment for humans.

Rather than show you what would happen to a fragile human, our exhibit uses a bell and a balloon. As the air empties from the chamber it creates a vacuum. With no particles to vibrate and bump into each other the sound waves from the bell can no longer pass to your eardrum.

The difference between the air pressure in the balloon and outside the balloon becomes greater as the air is pumped out of the chamber. The air pressure on the outside of the balloon is reduced so the air inside can push against the balloon wall and make it grow bigger.

## Curriculum links

<b>KS1/2</b>	<p><b>Science - Sound (Yr 4)</b></p> <ul style="list-style-type: none"> <li>- identify how sounds are made, associating some of them with something vibrating</li> <li>- recognise that vibrations from sounds travel through a medium to the ear</li> </ul> <p><b>English - Spoken language</b></p> <ul style="list-style-type: none"> <li>- ask relevant questions to extend their understanding and knowledge</li> <li>- give well-structured descriptions, explanations and narratives for different purposes, including for expressing feelings</li> <li>- use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas</li> </ul> <p><b>English - Reading – word reading</b></p> <ul style="list-style-type: none"> <li>- <b>(Yr1)</b> apply phonic knowledge and skills as the route to decode words</li> <li>- <b>(Yr2)</b> continue to apply phonic knowledge and skills as the route to decode words until automatic decoding has become embedded and reading is fluent</li> <li>- <b>(Yr 3-6)</b> apply their growing knowledge of root words, prefixes and suffixes (etymology and morphology) as listed in English Appendix 1, both to read aloud and to understand the meaning of new words they meet</li> </ul> <p><b>English - Reading – comprehension</b></p> <ul style="list-style-type: none"> <li>- <b>(Yr1)</b> discussing word meanings, linking new meanings to those already known</li> <li>- <b>(Yr2)</b> discussing and clarifying the meanings of words, linking new meanings to known vocabulary</li> </ul> <p><b>Mathematics - Number – number and place value</b></p> <ul style="list-style-type: none"> <li>- <b>(Yr1)</b> read and write numbers from 1 to 20 in numerals and words</li> <li>- <b>(Yr2)</b> read and write numbers to at least 100 in numerals and in words</li> </ul>
--------------	--

## Relates to:

Workshops & Theme Days	Shows	Trails	Other exhibits
<ul style="list-style-type: none"> <li>• Destination space (KS1 &amp; KS2)</li> <li>• Earth, Sun and Moon (KS1 &amp; KS2)</li> <li>• Fantastic Forces (KS2 upper)</li> <li>• Pushes and pulls (KS1)</li> </ul>	<ul style="list-style-type: none"> <li>• Launch it! (KS2)</li> <li>• We are Aliens!</li> <li>• (Planetarium, All ages)</li> </ul>		<ul style="list-style-type: none"> <li>• Thermal challenge</li> <li>• View of Earth</li> <li>• Hearing range</li> <li>• Sound bite</li> </ul>

