

## STARDOME OBSERVATORY & PLANETARIUM FACTS, RESOURCES AND ACTIVITIES ON...

**SCIENCE CONTENT/  
CURRICULUM LINK**  
DISCOVERING THE DAILY AND YEARLY CYCLES OF THE SUN. TELLING TIME AND DIRECTION DURING THE DAY. SHARING IDEAS AND OBSERVATIONS ABOUT TIME AND THE SUN.

# PIPEHENGE

Stardome educators have developed a wide range of astronomy and space resources, including activities concerning [sundials](#), [daytime](#) and [night-time](#) navigation, and the movement and [cycles of the Sun](#). It can be difficult covering such a diverse set of topics and relating them to students' everyday experiences.

There is a teaching aid that brings all these aspects of the Sun and the cycles together in one apparatus — the Pipehenge.

For millennia, natural features (e.g. hills and mountains), stone and wood circles, pyramids and sundials have been used to mark the position of the Sun and its daily and seasonal movement.

Stonehenge is an international historical and cultural icon, shrouded in mystery and speculation. Its astronomical links and relevance are still debated today, but it is clear its alignment with the Sun was not accidental.

In the early 1980s, Eric Jackson, an Auckland School Science Advisor, was intrigued by the enthusiasm and curiosity demonstrated by students about the Sun's movement and their shadows. From this a prototype astronomical climbing frame was developed with assistance from Frank Andrews, Brian Marino, Mike Wilkins and

Pipehenges were invented in New Zealand

others for teaching children about the movement of the Sun and stars across the sky during the year. The name 'Pipehenge' was suggested by Lyn Shannon and the apparatus, now found all around the world, was born.

Each one is constructed so it aligns with the Sun's path for the latitude of the location where it is installed.

Pipehenges provide a multifaceted interactive outdoor learning experience. Children learn about the changing path of the Sun each day and over the cycle of months each year, and can mark their birthdays on the horizon bars. The Sun at solar noon can be compared with midday (12pm), and an understanding can be gained of the changing length of daytime during the year.

Pipehenge uses:

- Calendar
- Observatory
- Compass
- Sundial
- Climbing frame (meets NZ school H&S requirements)
- Research project



The first 'Astronomical Climbing Frame', installed at Carey Park, Henderson Valley in 1985. This prototype was quickly downsized to the safe Pipehenge we see today!



The first 'Pipehenge', installed at Remuera Intermediate School in 1986.

Check out these other resources...

- ↪ Sundial: <http://bit.ly/2cMoUzq>
- ↪ Two-sided sundial: <http://bit.ly/2dcn1KU>
- ↪ Astronomical orbits: <http://bit.ly/2cafVFj>

## DISCUSSION POINTS

What is a henge?

Does latitude change north-south or east-west?

What is Stonehenge Aotearoa?



## STARDOME OBSERVATORY & PLANETARIUM

### PIPEHENGE

Pipehenges are found around the world, even as far north as Alaska. Many are in New Zealand, including numerous installations at schools and school camp sites.

At Stardome we have had a Pipehenge beside the carpark for two decades.

Schools visiting Stardome can stop, look and investigate what the Pipehenge can teach.

If you are bringing your class to a LEOTC education session at Stardome, take a little time to pause and introduce your children to the Pipehenge, either while waiting for your session to start or waiting for your bus to take you back to school.

Encourage your students to check out the Pipehenge (and Stardome) if they are visiting the park with their family or friends. Cornwall Park and One Tree Hill Domain have lots to offer.



Pipehenge out front at Stardome.



Pipehenge enquiries:  
**Eric Jackson**  
09 626 7991

*This Pipehenge is located 62° north (near the Arctic Circle) at the Wasilla Girl Scout Camp north of Anchorage, Alaska. Notice how very short the winter arc pipe is. In winter, there is less than 6 hours of daylight and the temperature drops below -20°C.*

### Auckland Schools with Pipehenges\*

Albany Junior High School, Albany  
Bailey Road School, Mt Wellington  
Birkdale Intermediate School, Birkenhead  
Birkenhead School, Birkenhead  
Buckland Primary School, Pukekohe  
Carey College Christian School, Panmure  
Chaucer School, Avondale  
Churchill Park School, Glendowie  
Clevedon School, Clevedon  
Drury School, Drury  
East Tamaki School, East Tamaki  
Epsom Normal Primary School, Epsom  
Glenbrook School, Waiuku  
Henderson North School, Henderson  
Henderson South School, Henderson  
Hillpark School, Manurewa  
Howick Intermediate School, Howick  
Kingsford School, Mangere East  
Kristin School, Albany  
Manurewa East School, Manurewa  
Matipo School, Te Atatu North  
Murrays Bay Primary School, Murrays Bay  
Newton Central School, Grey Lynn  
Onehunga High School, Onehunga  
Opaheke School, Papakura  
Oratia School, Oratia  
Papatoetoe South School, Papatoetoe  
Pukekohe High School, Pukekohe  
Ramarama School, Drury  
Rangeview Intermediate School, Te Atatu South  
Ruapotaka School, Panmure  
St Marks School, Pakuranga  
St. Dominics School, Blockhouse Bay  
Te Atatu Intermediate School, Te Atatu North  
Waiheke High School, Surfdale  
Waimauku School, Waimauku  
Wesley Intermediate School, Mt Roskill  
Weymouth Intermediate School, Weymouth  
Whangaparaoa Primary School, Whangaparaoa

\*Information correct as at 2014.



Have any questions? Drop us an email at [education@stardome.org.nz](mailto:education@stardome.org.nz)

**STARDOME.ORG.NZ**  
09 624 1246