



Grow  
Waitaha

# STEAM'in ŌTAUTAHĪ

Crowdsourced resource

*Naku te rourou nau te rourou ka ora ai te iwi.*

With your basket and my basket the people will live.



We wish to acknowledge and thank those who contributed to this collaborative crowd sourced resource designed to gather a range of ideas, contacts, and experiences that exist in Ōtautahi for schools to extend the capabilities of their students in STEAM related inquiries.

Ideas for back in school are also included.

Feel free to use any of these ideas. We would love to hear how you have used them, and if you have anything else to add which would help enrich the STEAM experiences in our City of Learning.

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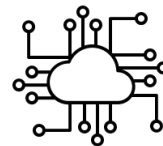
**S**CIENCE

**T**ECHNOLOGY

**E**NGINEERING (or perhaps ENGLISH)

**A**RTS

**M**ATHS



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Science



Technology



Engineering



Arts



Maths



## Places

Margaret Mahy Playground					
Arts Centre					
- Rutherford's Den					
- General environs eg quads, buildings					
Tūranga - Chch City Library					
Cathedral Square					
Canterbury Museum					
Botanic Gardens					
Ferrymead Heritage Park (not CBD)					

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Science



Technology



Engineering



Arts



Maths



### Others (for back in school)

- BP Challenge		✓	✓		
- Wonder Project/Engineering NZ			✓		✓
- Week of Engineering			✓		✓
- Royal Society CREST awards	✓	✓			
- Science Award Trust badges	✓	✓			
- Canterbury/Westland Science and Technology Fair	✓	✓			

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# Margaret Mahy Playground

## Physical world:

- Forces - trampoline
- Simple machines - inclined planes (slides); levers (seesaw)
- Pendulum - swings
- Friction - swings, slides, trampolines
- Newton's Laws - trampoline, flying fox
- Gravity - slides, swings, flying fox
- Static electricity - trampoline.

## Living world:

- The Avon River flows along one side - what lives in/on/around the river and in the playground? How can we improve the quality of habitat and the quality of water flowing?



Click on map to find out more



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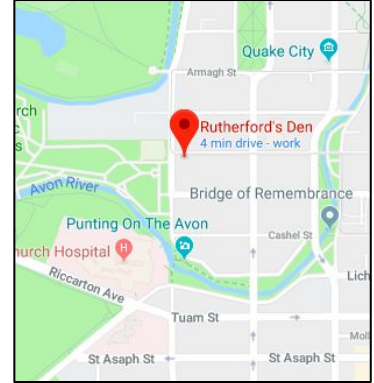


# Arts Centre – Rutherford's Den

- Interactive and activities-based - inspired by the work of famous New Zealand scientist Lord Rutherford
- Suitable for children from Years 1 to 13 - links to learning areas and key competencies
- Programmes designed for primary, intermediate, junior secondary, senior secondary
- Science, physics, chemistry, social studies - can be tailored to suit
- Teachers on site to run programme
- Students get access to tools, objects, exhibits, artefacts, expertise, and hands-on experiences
- Costs \$5 (options available), book via website.

Combine with a wider exploration of the Arts Centre - patterns and designs, Scape Public Art, geometric shapes treasure hunt, the technology and engineering behind the rebuild, the 'secret codes' in the carvings. The Canterbury Museum and Botanic Gardens are close by.

Website - [Rutherford's Den Education Programme](#)



Click on map to find out more



© image used with permission from [Rutherford's Den](#)

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# Canterbury – Westland Schools' Science and Technology Fair

- Takes time, work done in school
- In depth inquiry/investigation
- For students in years 7-13
- \$5 per entry
- Must be identified as either science, or technology
- Categories are
  - Ecology, agriculture/horticulture, environmental science and animal science
  - Health, medicine, nutrition, psychology and biotechnology
  - Earth science and natural hazards
  - Physics, engineering, electronics and computer science
  - Chemistry
  - Other
- [Website](#) for further information and previous winning entries
- Enter online; closes mid August.



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# Royal Society Te Apārangi CREST Awards



- Work done in school
- In depth inquiry/investigation
- For all ages of students - primary and secondary school
- Individual and team challenges inquiries
- Costs involved
- [Website](#) for further information

From their website:

CREST is designed to encourage years 0-13 students to be innovative, creative, and to problem solve in science, technology and environmental studies.

CREST is a Royal Society Te Apārangi programme where students are given authentic experiences in:

- technological practice and/or scientific investigation,
- carrying out projects focussing on finding creative solutions to problems that are of real significance in their lives
- creative and innovative thinking
- developing enterprise and entrepreneurial skills
- working with experts.

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# Science Award Trust



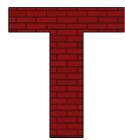
Stimulating a life long interest in science

- Work done in school
- In depth inquiry/investigation
- Individual and team challenges inquiries
- Costs involved
- [Website](#) for further information.

3 schemes depending on age groups:

- Science activity challenge - Years 3-4
- Explorer badges - Year 5-6
- Science badges - Year 7-10

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# Tūranga – Christchurch Central Library

Lots of STEAM possibilities via their Horizons, Connect and Specialist class programmes. Check out what's on offer at

<https://my.christchurchcitylibraries.com/schools/>

Examples: Pasifika e-design, From 2D to 3D, animation, film school, cutting edge design, Kā Huru Manu, Bee-bots, Minecraft

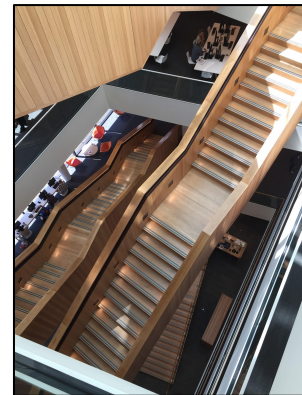
Download the pdf booklet [here](#).

- Course lengths and costs vary
- Small groups of students, max = 12
- Course can be customised

The link also has information on the programmes offered by their partner Imagination Station at Tūranga and on other CCC programmes available to schools. If you want to book a trip here is their booking form:

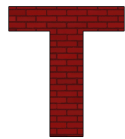
<https://my.christchurchcitylibraries.com/turanga-group-visit-booking-form/>

More information: [learningcentre@ccc.govt.nz](mailto:learningcentre@ccc.govt.nz) or phone 941 5140.

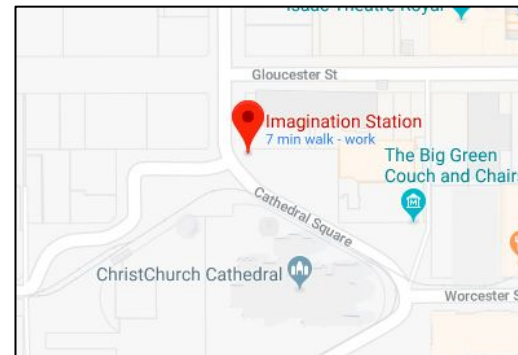


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# Imagination Station



- School visits possible on lots of topics - [link to website](#)
- Holiday programmes
- Programmes designed to suit - fill in their enquiry form: [Mechanics with LEGO Technic](#)
- Costs - approx \$6.50 per child

From their website:

During the school holidays, we offer Robotics classes, LEGO Technic design classes, courses on Stop-motion animation movie making, as well as our famous 'Holiday Brick School' programme. They'll definitely come home with creativity and new ideas!

Keep in mind that you can always book a time to come and play with our huge collection of LEGO, DUPLO and TECHNIC.

**Creative Play**

**Games & Challenges**

**Stop-Motion Animation**

**LEGO Mindstorms Robotics**

**Mechanics with LEGO Technic**

**Eco Powered Technic Contraptions**

**Story Telling**

**Legopolis: City planners needed!**

**Colours, Patterns and Numbers**

If you'd like to contact us, you can...

Give us a call on [0274 382 106](tel:0274382106)

Email us at [info@imagination-station.org.nz](mailto:info@imagination-station.org.nz)

Location:  
60 Cathedral Square,  
Christchurch Central  
Tūranga,  
Chch Central Library,  
Community floor Level 1

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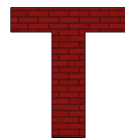
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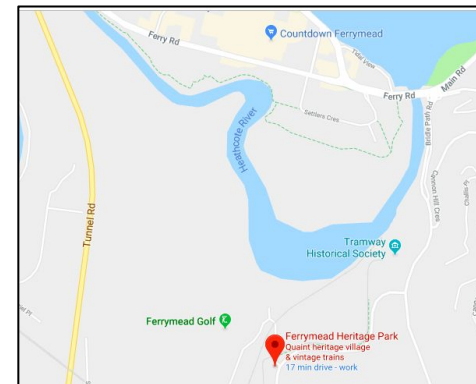
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# Ferrymead Heritage Park

- Technology in our past
- Lots of different educational options
- Schools visits - costs involved
- [Contact details](#)
- [Link to educational page on their website](#)



Communications



Amazing Race



Kiwi Culture



Transport Day



Sustainable Energy



Toys Toys Toys

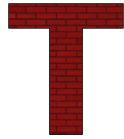
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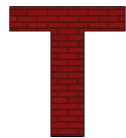


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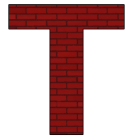
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# BP Technology Challenge

- Check out the [BP Technology Challenge](#) for ideas you can do anywhere.
- Suitable for any age.

**bpchallenge**  
encouraging hands-on learning



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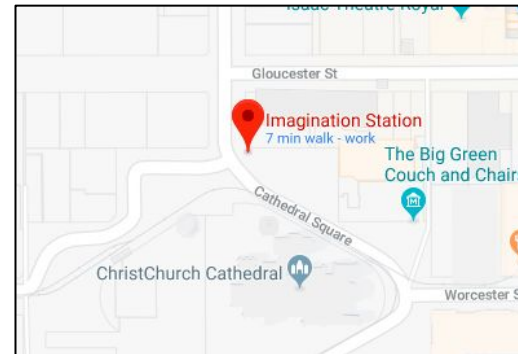
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Location:  
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Chch Central Library,  
Community floor Level 1

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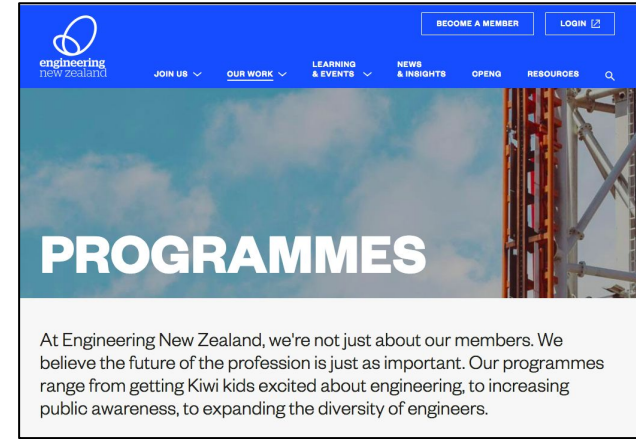
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# The Wonder Project

- Engineering NZ used to host [FutureInTech](#) which is in the process of changing.
- It has become [The Wonder Project](#) and is still being developed. Lots of ideas being promised.
- [Contact them](#) to see if they have anyone available to come and visit you and your class or if they know of local businesses that could host a visit.



Click on images to find out more



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# Week of Engineering



Week of Engineering facebook page: <https://www.facebook.com/WeekofEngineering/>

Click on image above to find out more

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# Cathedral 'SQUARE' (and other geometric shapes)

Link to Maths (see [slide 25](#))

Driving Question:

How might you design a memorial similar to the First Four Ships plaques but instead linked to others who lived in this area before the arrival of these British settlers?



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# Arts Centre

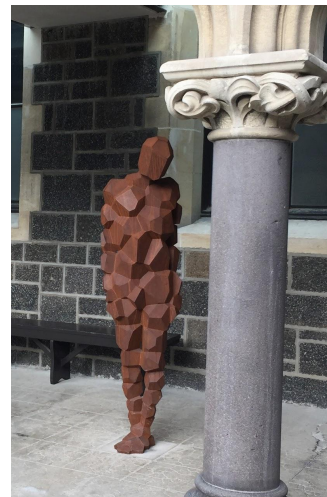
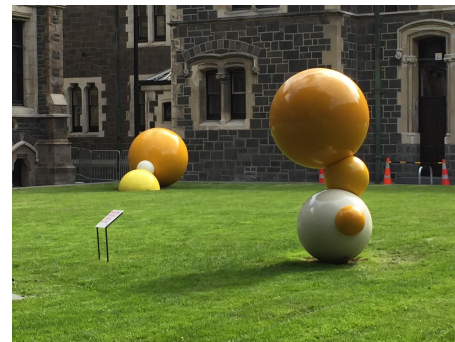
## Education activities

“We are offering a free education programme based around SCAPE's permanent and temporary artworks for the season, situated in the central city. There are a number of options available for group bookings, and we are happy to talk to anyone interested if they would like to tailor the activities to suit their group.”

- Free
- Activities provided
- Downloadable resources
- Tour guides
- Tour maps

Link to Rutherford's Den (Science, Technology, Maths). Investigate patterns and designs. 2D and 3D geometric shapes - area, volume. Engineering and technology behind the restoration.

**SCAPE**  
**PUBLIC**  
**ART**



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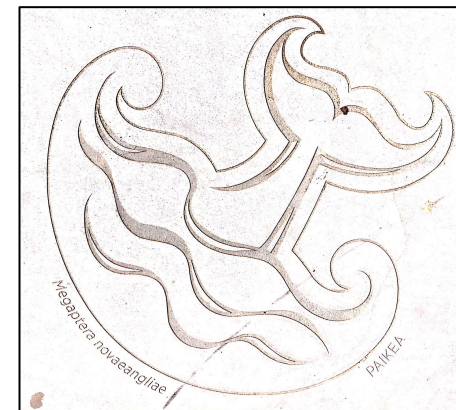


# Margaret Mahy Playground

Possible content:

- Patterns and designs used on the ground
- What designs can you create that represent the activities that happen here, or represent what came before on this site?

See [slide 6](#) for more activities



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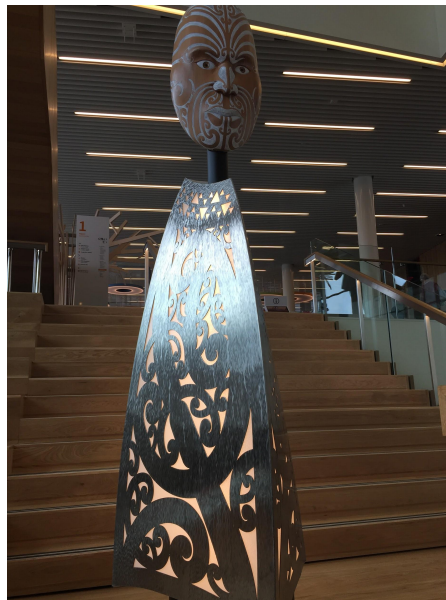
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# Tūranga – Christchurch Central Library

What are the stories behind the pieces of art and sculptures on display?  
Look at cultural iconography.  
How do these link to other elements of STEAM?



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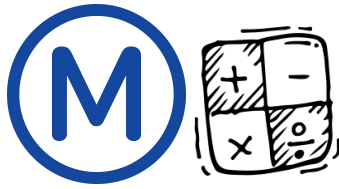
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# Margaret Mahy Playground

Possible content:

- Shapes treasure hunt - 2D and 3D geometry - calculating area, perimeter, volume
- Identify some platonic solids
- Calculations of speed - how fast or slow do you go?
- Timing

See [slide 6](#) for more activities



Click on map to find out more



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# Cathedral 'SQUARE' (and other geometric shapes)

Geometry treasure hunt - How many shapes can you photograph?

Record photographic/digital evidence of 2D and 3D geometric shapes. How could you calculate their area, volume?

Investigate the bronze plaques of the First Four Ships - what area did people have to live in while on board, how many people?

Graphical representations of who, where from, what their occupation was.

Carry out a survey of where visitors present during your visit are from; why they have come to Cathedral Square etc.

**Link to E:** (see [slide 20](#)) How might you design a memorial similar to the First Four Ships plaques but instead linked to others who lived in this area before the arrival of these British ships?





# Image attributions

- Icons from Noun Project, [nounproject.com](https://nounproject.com), CC0
- Slides 6-19, 22, 24: Screenshots from organisation's website and facebook page
- Slide 7 and 21: © images inside Rutherford's Den and outside of Arts Centre used with permission from [The Arts Centre of Christchurch](#)
- All other images have been taken by J Young ([jacky.young@core-ed.ac.nz](mailto:jacky.young@core-ed.ac.nz)), Grow Waitaha, CC-BY-3.0

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