

Hawke's Bay Museum & Art Gallery
Education Information Sheet

MACHINES AND INVENTIONS

@ the Faraday Centre

1½ hours \$4.10 per student Suitable for Years 1 – 6 Available all year



The Faraday Centre is a treasure trove of historical technologies that highlight human ingenuity. A guided tour will be followed by students' hands-on exploration of some of the machines and inventions on display. Teachers' Notes provide straightforward explanations of how machines operated by the students work and background information on how early inventions and discoveries have led to the technologies we use today.

This programme can be tailored to the age range of your class and to your teaching focus.

KEY LEARNING AREAS

TECHNOLOGY: Technological Systems; Characteristics of Technology

SOCIAL SCIENCES: How Time and Change affect People's Lives

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Here are some examples of the kinds of machines and inventions at the Faraday Centre that could be incorporated into your programme:

Tūwiri - Maori cord drill

For many thousands of years, people have been inventing things to make their work easier. They have used their extraordinary ingenuity to make the most of the materials available to them. The Maori cord drill operates on the same principle as the yo-yo, using string to unwind and wind itself up again. Students can have a go at drilling a hole with a wiri.



Wheels, wheels and more wheels!

Wheels have been around for at least five and a half thousand years. Nobody knows for sure who first invented them or where, but they were certainly being used around 3,500 BCE in Mesopotamia, a place now called Iraq. The first wheels may have been potters' wheels - like turntables - used to make pottery. Now it's hard to imagine a world without wheels.

At the Faraday Centre there are wheels galore – wheels for transport, gears and pulleys for making machines go, a waterwheel and windmill for converting nature's energy into mechanical energy, and there's even a wheel that students can use to generate electricity.



Simple machines

Simple machines such as levers, wheels, gears, pulleys, ramps, wedges and screws have been in use for thousands of years. These simple machines can be combined to make more complex machines. At the Faraday Centre, students can operate machines and see how they work. For example, the railway jigger pictured at right is hand-powered. By moving a lever linked to some gears, students can observe how the wheels are made to turn.



Where did that idea come from?


'Movie' is an abbreviation of 'moving pictures'. Students can trace the development of cinema back to an ancient camera obscura (built for studying the behavior of light), which led to the development of still photography, which in turn led to moving pictures. The Faraday Centre's Mutoscope, invented in 1894, illustrates the direct link from still photographs to movies. When you turn the Mutoscope's handle, a sequence of still photographs flips past a peephole, giving the viewer an impression of movement.



Please let us know what you would like your students to get out of their visit to the Faraday Centre so we can tailor this programme to suit.



For bookings and further information
go to www.hbmag.co.nz
email gcomley@hbmag.co.nz
or call Gaynor on 06 835 7781 x 721

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