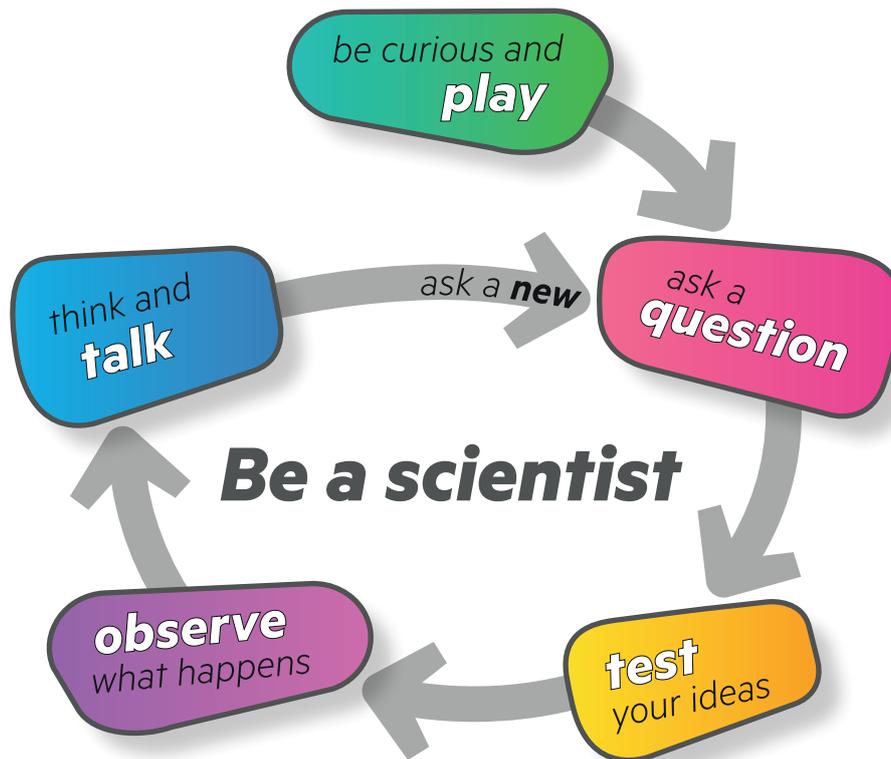


SCIENCECENTRE

Exhibition Guide



Follow your curiosity

Ignite your imagination at the **The Workshops Rail Museum Sciencecentre**.

Follow your curiosity and bring out your inner scientist as you question, investigate and wonder about the world around you. Think creatively as you test new ideas to solve problems while exploring over 20 interactive exhibits and discover how science, technology, engineering and maths (STEM) affect your everyday world.

Be a scientist

As you play and investigate in **Sciencecentre**, you are using lots of the same skills that scientists, engineers and mathematicians use every day.

Explore your **curiosity** as you **play**.

Ask **questions**, **test** out your ideas and make **observations**.

Design, build and **make** using your imagination.

Share your thinking with others and build on new ideas and questions.

 Information	TARGET AGE: 6–13 years	LOCATION: Zone 18
	CONTENT: Forces Energy Design Structures Maths Technologies	

Sciencentre highlights

ENERGY FLOW AND CHANGE

What creative solutions can be used to solve complex problems?

Being a scientist begins with your body — you don't need a lab!

Test examples of mechanical energy — use your own energy with simple machines to create reactions.

Explore simple designs that do our work for us — devices and structures may not be high-tech to make great impact!

Solve the problem of lifting weight with **Pulley Yourself Up** and **Levers**. Change speed and power by adjusting **Gears**. Investigate relationships such as number of teeth with number of rotations.



PUSH AND PULL

How can forces be combined to create innovations which change our world?

Test out different ways to move things using forces and energy. Consider what happens when objects need to stop, start, change speed or direction.

Find the best shape for **Train Wheels** to run on track. Does your chosen design suit both straight and curving paths?

How did engineers design a train to travel along a track without moving parts? Experiment with the forces of magnets with **Floating Dish**, **Jumping Ring** and **Floating Magnets**.



HOW DO WE PERCEIVE OUR WORLD?

Can relationships between space, shape, weight and motion influence designs and technologies?

Humans rely on senses like sight to recognise the world around them. Open your eyes to the many invisible interactions playing a big part of our everyday lives.

Predict how forces work on properties such as shape and weight to create movement or create stability.

Use **Flywheels** and **Stop the Spin** to help 'drive' rotating forces.

Work as a team to build an **Arch bridge** that uses pressure to hold a strong shape you can cross.



Make the most of your visit

The Workshops Rail Museum Sciencentre

is an active, social and hands-on space
– start exploring from any exhibit.

Things to do at an exhibit:

- What do you see, feel, notice as you play?
- Change something – Try out different arrangements or move in a different way and see what happens. Try different materials or ways of describing your ideas.

Things to think or talk about at an exhibit:

- What can you observe, manipulate and test?
- What do you think is happening and why?
- What do you find interesting?

Further challenges:

- What new questions do you have?
How could you find out more?
- Have you seen or experienced anything similar in your everyday life?
- How might people find this useful in their work or life?

Use the exhibit panels to further guide your exploration and to find out more about what is happening. **Explore More** by using the keywords at the bottom of each panel to do your own research, and discover how science, technology, engineering and maths is useful in our everyday lives.

Ideas can evolve, converge, diverge and inspire. Will you take up our **Maker Space** challenge and imagine what the future of transport may look like, or will your ideas take a different journey?

Museum links

Use your STEM knowledge and skills as you explore the rest of the Museum and your everyday world.

Follow your curiosity, ask questions, explore the site to find historical clues of both constant and changing technologies.

Look above your heads and under your feet to discover evidence of Science as a Human Endeavour. Discover the shape of the roof, grooves in the ground and overhead cranes – designs used to solve challenges in the past. How do they compare with those used today?

Journey through time with **All Aboard, Diesel Revolution** and **Rail Today** (Zones 5, 4 and 13).

View changes in locomotive design over 150 years, as the era of steam-powered engines in Queensland became diesel then electric.

What will land transport of the future look like?
How will future vehicles run? Describe, test and display your designs in the Maker Space.

Recognise the skills, tools, methods and materials used in heritage trades and compare them with those used today in **Ipswich Railway Workshops** (Zone 7).

Explore more and test new methods and ideas with the Queensland Museum Network's online learning resources, at learning.qm.qld.gov.au

