

## Young Engineers – STEM, Lego Engineering & Robotics classes

**Bookings now open for Term 3 2024!**



Time	Venue	Cost
<p><b>Thursdays</b>  <b>25 July – 12 September</b>  <b>3:30pm - 5:00pm</b></p>	<p><b>Library</b></p>	<p><b>Pay \$210 for term</b>  <b>OR</b>  <b>Pay \$80 for a 3 week trial</b></p>

### For Preps to Year 1 - Lego Bricks Challenge:



Students will learn:

- Engineering and Mechanics
- Problem solving and team work
- Electronics and 3D Design thinking
- Introduction to high school physics
- Solving structural challenges
- To build motorised Lego models using gears, pulleys, beams & more!

### For Year 2 to Year 6 - Robo Bricks – Lego Robotics



Students will learn:

- 7 steps of software engineering
- Designing and coding mechanical robots
- Algorithmic and logical thinking skills
- Problem solving and team work
- Electronics and 3d Design thinking
- To use sensors and motors

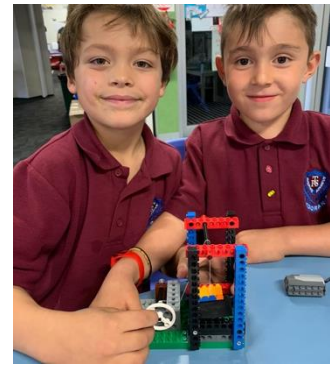
## Will your child become the next Young Engineer?

When today's primary school age children enter careers 15-20 years down the line, one can only imagine the professions that will exist. Flying car mechanic, robo cop technician – perhaps something completely different! With a rapidly evolving technology landscape, supercomputers in everyone's pockets, Internet of Things, and smart devices that 'talk' to each other – society and workplaces are changing too. Children need different skills to succeed in this brave new world – skills that are grouped together under the umbrella of STEM.

## What is STEM?

STEM refers to - Science, Technology, Engineering and Maths. These subjects are taught in an integrated manner, leading to authentic problem solving and design thinking experiences for children. There is no theoretical formula solving – instead these subjects are taught in a hands-on, practical manner with a focus on developing:

- Critical thinking
- Problem solving
- Data analysis
- In-depth understanding of physics and mechanics
- 3 dimensional design thinking
- Innovation and imagination, grounded in reality



## What is Young Engineers?

In a Young Engineers class, children build and program complex Lego machines while learning the STEM principles behind how these machines work. Children are taught using a 3P Pedagogy

- **Project** – Children work on a project in each session
- **Product** – Children build a real world product using Lego – from cranes, elevators and washing machines to dancing robots and robot vacuum cleaners – they explore the world of machines in a hands-on manner.
- **Problem** – Children solve multiple problems and design challenges in each session, learning STEM skills through trial and error – much like innovators in the industry.

## What happens in our classes?

**Junior – Bricks Challenge** – Children from Prep to year 1 will build motorised models that work and experiment with their machines. For example, children build a Lego washing machine, learn about centrifugal force and then watch the force in action by spinning wet cotton balls dry. They build cranes to learn about levers and pulleys, rescue helicopters to learn about flow mechanics, electric drills to learn about gear transmission and much, much more!

**Senior – Robo Bricks** – Children from Year2 to Year6 can try their hand at Robotics. They will build a machine, identify programming objectives, design algorithms and learn how to communicate with the machine using sensors – so that it does what they want it to do! They will experience 7 steps of software engineering each week. For example, children build a Lego monkey robot and program it to automatically sense a banana and get excited to grab it. They will build and code a dancing robot that dances to rhythm, a car that automatically detects obstacles, a coding robot that can send secret messages and much, much more!