

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

Term 2 2024

Classes commence Friday 26 April or Thursday 02 May



### For Preps – Knex Big Builders – Thursdays 3:30-5:00pm



Students will learn:

- To build Knex models and learn the science behind them
- Design thinking and problem solving
- Communicating design ideas
- Cost \$210 for 8 classes (\$80 trial option available for 3 classes)
- Classes run on Level 1 LOTE Room

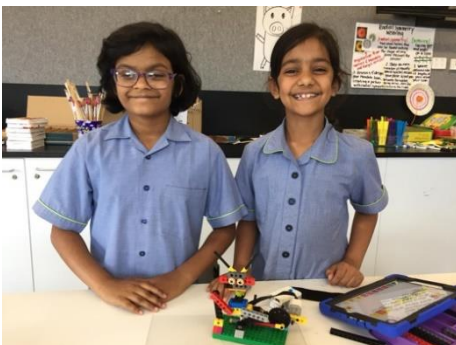
### For Year1 - Lego Bricks Challenge – Thursday & Friday 3:30-5:00pm



Students will learn:

- Engineering and Mechanics
- Problem solving and team work
- Electronics and 3D Design thinking
- Introduction to high school physics
- To build motorised Lego models using gears, pulleys, beams & more!
- Cost \$210 for 8 classes (\$80 trial option available for 3 classes)
- Classes run on Level 1 LOTE Room

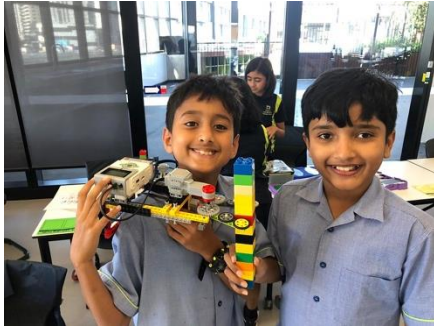
### For Year2, Year 3: Lego Robotics – Thursday & Friday 3:30-5:00pm



Students will learn:

- 7 steps of software engineering
- Designing and coding mechanical robots
- Algorithmic and logical thinking skills
- Electronics and 3d Design thinking
- To use sensors and motors so robots move and interact.
- Cost \$210 for 8 classes (\$80 trial option available for 3 classes)
- Ground Floor Art room (Thursdays) & Level 1 LOTE Room (Fridays)

## For Year 4 , Year 5, Year 6: Advanced Robotics- Thursday & Friday 3:30-5:00pm



Students will learn:

- Coding with Lego mindstorm engines
- Advanced coding constructs
- New sensors like touch and sound
- Complex engineering principles giving best start to STEM study at university!
- Cost \$210 for 8 classes (\$80 trial option available for 3 classes)
- Ground Floor Art room (Thursdays) & Level 1 LOTE Room (Fridays)

### 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 happens in our classes?

**Preps – Big Builders** - Children in Prep learn about STEM from environments that are familiar to them. We explore science and engineering around themes like Ocean, City, Travel etc. Children build complex Knex models, and learn visual-spatial and fine motor skills – all while having fun! For example, children learn about aviation principles by building airplanes and hot air balloons, they learn biology by making animals like sea dragon and octopus, and learn engineering by building structures like windmills and sand buggies! With a new topic each week, we explore STEM by getting children to build, extend and talk about their Knex models!

**Junior – Bricks Challenge** – Children from 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 and Advanced Robotics** – 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.