

# The **BRAINWAVES** Club

**Term 2 2021: TechnoKids – Years 3 and 4**

**Venue: Ryde Public School**

**Semester Fee: \$285.00**

## **IT'S ALL ABOUT THE JOURNEY**

Famous inventor Thomas Edison tried a thousand different ways to make the lightbulb work before he experienced success. After he revealed his momentous discovery, a reporter asked how it felt to fail a thousand times. Edison's answer? 'I didn't fail a thousand times – the light bulb was an invention with a thousand steps!'

This semester, the TechnoKids – tomorrow's change makers! – will explore a variety of technologies and use different materials and programs to build programmable models. They'll learn to design, create, test with rigor, observe and critically evaluate each one. We'll learn from our failures together – but even better is that we'll celebrate our successes together, too, and have plenty of fun along the way!

### **24 April**

**Meeting 5: Plug Me In!**

**Focus: Biotechnology, Coding, Science**

Did you know that there is more than one different kind of electricity? The one we'll be looking at in this meeting is bioelectricity, or the kind that runs through your muscles to make them move when your brain says so. The TechnoKids will use a Muscle SpikerBox to measure muscle action potential, compare it with their friends', and display it on a device for others to see. They'll also experiment with how to get another kind of electric current flowing through a diode as they work with the MicroBits to simulate a heart beating. Wow!

### **8 May**

**Meeting 6: My Plant is Moving! Say What?**

**Focus: Science, Biology, Technology**

Plants don't have eyes, ears, or noses but that hasn't stopped them from developing ways to see, hear, and smell the environment around them! You may have noticed the way plants slowly turn their leaves towards sunlight, open their flowers in the day, and close their flowers during the night. Some plants can move in a much more dramatic fashion, such as the Venus Fly Trap and the Mimosa Pudica. Yes... they can move all by themselves! Don't worry, though - the Venus Fly Trap is only interested in eating flies, and our friend Mimosa (a very sensitive plant) has evolved over time to protect itself from fire and harsh elements of the environment (folding its leaves in tight when touched or when threatened by heat). Seeing these phenomena in action is believing! In this meeting, the TechnoKids are going to explore the field of electrophysiology using a Spiker Box, conducting experiments on these two plants to detect the electricity generated while they are moving.

### **22 May**

**Meeting 7: Game Design Challenge – It's a Bugs Life!**

**Focus: Coding, Science, Gaming Design**

Humans have been designing mazes (those twisty multi-forked paths) and labyrinths (one winding path with challenges to overcome at every turn) for over two millennia. Have you ever tried making one? This afternoon is your chance – but it won't be humans running the course! After you've done some hands-on investigation into the world of entomology and some predators above our insect friends in the food chain, the TechnoKids will use Scratch and conditional statements to design a maze- or labyrinth-style game involving their favourite creepy-crawlies. Then they'll take it up a notch by adding the features of scrolling and 'levelling up' for the players!

*Note: You may like to bring a camera with you for this session in order to capture memorable moments from your entomology exploration!*

**5 June**

**Meeting 8: Lego Masters! Tech Build Challenge**

**Focus: Engineering, Design, Coding, Storytelling**

Have you got what it takes to be a LEGO Master? Can you build with swooshability? Do your creations feature SNOT (studs not on top)? In this club meeting, the TechnoKids will be put through their paces in a series of colourful challenges designed to put their repertoire of LEGO skills to the ultimate test, with their capacity for design, creativity, ingenuity, engineering and construction techniques, plus storytelling ability, all under scrutiny by other club members. This afternoon, the Technokids will also delve into the world of LEGO Technic. Did you know it first became available way back in 1977? Motors, gears and axles will feature in our creative LEGO Build Challenges. We will be assisted by our very own 'Brainwaves Brickman' who will bring in a number of pre assembled models on the day to inspire us. Who will be crowned the TechnoKids' Junior LEGO Master of 2019?

**What to bring:**

Each week please bring an A4 notebook and a well-stocked pencil case containing (at least) pens, pencils, a calculator and a ruler. Please also bring a hat, drink and snack for the break (no nuts please). ***You will also need a laptop each week.***

**About Club Leader: Karl Easton**

Karl is a passion advocate of all things STEM. His position as a primary school Digital Technologies Coordinator & Teacher sees him working daily in the area of robotics, coding and emerging technologies. Currently completing a Masters in STEM at Western Sydney University; he also consults and works with several educational organisations engaging new technologies. Karl believes in empowering his students with fun activities that inform, educate and motivate.