

Invites gifted Year 3 and 4 children with  
a love of science and technology to

**‘GO! GO! GO!!!’**



**G.A.T.E.WAYS** is an independent organization offering challenging and enriching activities and experiences to develop and extend highly able children.

This *JOURNEY* for both girls and boys will run over four mornings. It will be an **action-packed series of hands-on activities** designed to understand and appreciate Newton’s Laws of Motion and the science of friction. It will allow the children to put their thinking and problem-solving skills to the test as they design and construct vehicles that fly, sail or run higher, faster or straighter. Please note that the order of the sessions may change depending on weather conditions.

### **Session One: Move IT**

What causes objects to move, speed up, slow down, change direction or stop? What happens when two objects collide? We will experiment with different vehicle types, masses, gradients and surfaces to see how they influence a vehicle’s ability to move and stop. We will look at some of the safety features used to make travel in cars safer and then put our own safety designs to the test in our ‘Crash Test Egg Darby’.

*Note: Any student with an egg allergy will not be required to handle an egg, gloves will be worn during the experiment, broken egg will be disposed of by the presenter, and all students will be required to wash their hands thoroughly afterwards. Please ensure any allergies your child has have been updated on the enrolment portal prior to the commencement of the program.*

### **Session 2: Removing the Friction Restriction**

The focus of this session will be to build and experiment with models of two very different wheelless vehicles to see how ‘overcoming’ friction sets them apart from other land based vehicles. Japan’s Maglev (magnetic levitation) train set a new world rail speed record of 603km/hr in April 2015. How does magnetic levitation provide a public transport system that is quieter, smoother, more stable and efficient than other rail systems? Are magnetic levitation trains a viable option for Australia to consider?

Hovercrafts float on a bed of air allowing them to travel over landscapes that other vehicles find difficult or impossible. What is it about hovercraft design that enables these vehicles to move effortlessly and virtually impact free over ice, swamps, deserts, wetlands, flood zones and other environmentally sensitive areas where habitat, erosion and soil compaction are of concern?

*Note: Balloons will be used in this session. Any child with a rubber or latex allergy will be able to inflate theirs with a pump as necessary. Please ensure any allergies your child has have been updated on the enrolment portal prior to the commencement of the program.*

### **Session 3: 3,2,1... Lift Off**

There are three key things that engineers must consider when designing rockets that can be launched into space: thrust, control and weight. We will consider all three of these as we design, build, test and modify water rockets to see how high and accurately we can launch them, before attaching a Go-Pro camera to the outside of our rockets, to get a different perspective of a launch.

### **Session 4: The G.A.T.E.WAYS Regatta**

In our final session we will put our newly gained science and engineering knowledge to the ultimate test in the ‘G.A.T.E.WAYS Regatta’. Students will compete in small teams to build and then race their yachts and rubber band powered boats to see which team is ‘design supreme’.

### **About The Presenter**

**Robyne Bowering** has been a passionate and enthusiastic science teacher and teacher educator for over twenty-five years. Robyne actively engages her students through a wide range of hands-on, minds-on activities.

**Requirements:** Bring writing materials, a notebook/paper; a labelled, small photograph of yourself; a snack (no nuts please); Also bring a stamped, self-addressed DL envelope for your report (write your name on the back)