



A G.A.T.E.WAYS JOURNEYS PROGRAM

for gifted Year 1 and 2 children with a love of

science, technology and construction

'Jurassic Engineers

...Reporting For Duty'

G.A.T.E.WAYS is an independent organisation 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 half days.

During the journey you will travel back in time to the stomping ground of giant reptiles and meat-eating plants to investigate the fearsome and fascinating landscape. You will be given a mission guidebook to instruct you on your role as a technical specialist and assistant to the team paleontologist (dinosaur scientist). Each week, you will learn something intriguing about the age of dinosaurs, then build and program a working LEGO model of a prehistoric plant or creature.

Each session of this journey will include four phases of learning:

- Connection with the weekly challenge through the mission guidebook
- Construction using the hands-on Lego bricks
- Creation of a program sequence for your model to follow
- Evaluation and improvement of the robot's design.

Session 1: Geo Flight

Have you ever wondered how old the Earth is? In this mission, you will learn about the scientific evidence that tells us our planet has been around for over four and a half billion years. During this time, there have been a lot of changes: continents have split apart, volcanoes have erupted, and the dinosaurs ruled the land for millions of years before they died out. You will then use your engineering skills to design and build a helicopter to give you a bird's-eye view of the dinos' environment, and learn about the geological events that led to the extinction of these mighty creatures.

Session 2: Killer Plants from the Dawn of Time

Did you know that even prehistoric plants were solar powered? This session, you will learn that plants get their energy from the sun; by turning light energy into chlorophyll their leaves become green. This is called photosynthesis. Some plants also munch insects for extra nutrition. Scientists have recently found a fossil of a carnivorous (meat-eating) plant that is 40 million years old! Today you will create your own killer plant, an ancestor of the Venus flytrap, which snaps shut to trap its helpless prey. Can you program a motion sensor to let your plant know when dinner has arrived?

Session 3: Fun with Fossils

Not everyone can travel through time, so this week we follow some clues from the past that we, as dino detectives, can use to learn about ancient creatures. Fossils are the remains of plants and animals from long ago, and they can simply be the shape of bones or body left in a rock, or perfectly preserved specimens encased in prehistoric tree resin. Fossils help us learn how animals adapted to their changing environment. Dragonflies are creatures that have evolved over millions of years. Three hundred million years ago, they were as big as eagles! In this session, we'll investigate how fossils are formed, and build a model of a giant dragonfly with the wing power to bring down small mammals.

Session 4: Attack of the Lizard King

Tyrannosaurus Rex, or T-Rex, was one of the biggest and fiercest dinosaurs that ever lived. Did you know that its name means Tyrant Lizard King? In this session, we will learn about T-Rex, then use our skills to build a T-Rex and write a program that makes it walk. But wait, there has been a power failure and the gates of your T-Rex's cage have opened - the chase is on! Team up with the troopers in the T-Rex Tracker to pursue the ferocious creature, and build a motorcycle to swerve clear of its powerful jaws. Finally, lay out the dino cage as a trap and prepare to fire the mobile research module's harpoon-style trap shooter.

Requirements: Please bring your pencil case, an A4 exercise book or notepad; a snack (no nuts please); Also bring a small labelled photograph of yourself to the first session as well as a stamped, self-addressed envelope for the return of your report. If you are participating in this program in Terms 1 or 4, you **MUST** bring a hat for the break.

About the presenter

Mark Maxwell is an artist and workshop presenter. His practice encompasses marques, woodwork, building, animation, set design and lighting as well as other technologies. When creating miniature models, he explores engineering principles and tries to design projects that promote open ended creativity. Mark has completed an Art and Design degree and has worked as technical engineer in many theatres. He presents workshops for Regional Arts Victoria, which brings professional practitioners to schools, community groups, art galleries, libraries and art festivals.