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

for gifted Year 1 and 2 children

with a love of maths

'THE TOTALLY INCREDIBLE TREEHOUSE!!'

..a mathematical adventure

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 sessions.

I am sure you have all heard about Andy and Terry's famous, ever-expanding treehouse filled with the most wondrous things from a bowling alley, to a man-eating shark tank and a room full of pillows. Jesse and Charlie (short for Charlotte) live in the new suburb of Brookside. All around them houses are going up but their backyards are just empty dustbowls. Our new friends are so excited though – their parents have given them permission to build a treehouse. Would you like to have the chance to help them as they design it? How many storeys will it be? How many rooms will it have? What fun and exciting things will fill each floor? In this Journey we will become expert treehouse designers and users as we develop our understandings on a range of mathematical topics - number patterns, order of operations, creating composite shapes using regular shapes and calculating volumes of 3-D objects. We will incorporate various mathematical methods in our calculations, engage in exciting hands-on activities and model making, and reflect on what we have learned as we relate it back to the real world. Come and join us on this amazing adventure!

Session One: The Neighbours are Alarmed!

Jesse and Charlie have been working hard on the new treehouse for a few days when suddenly they notice something very odd – their treehouse appears to have developed some pretty amazing (and magical) properties. Each day it starts with thirteen storeys but then it begins to grow higher and higher.What's more they notice that each day it is growing according to a different pattern. The neighbours are getting nervous and we need to work out where all this will END!! Can you help? Is the treehouse growing at a constant rate or is it growing by a common factor? How many storeys will it have at the end of each day? Working like mathematicians, we will use materials to model the treehouse growth, use mathematical language to express the growth patterns as rules, and use all this new information to make predications about the number of treehouse storeys. Can we reassure the neighbours that our treehouse isn't going to 'take over' the neighbourhood?

Session 2: It's Lunchtime at the Treehouse

GRRR! BANG! TSSS…! What are all these sounds? While exploring the treehouse's latest extensions we find a secret underground laboratory! There are so many intriguing and strange inventions, and they're all linked with food - a vegetable vaporiser, a lemonade fountain and a machine that shoots marshmallows, just to name a few! It's a good thing it's time for lunch. You volunteer to help Jesse and Charlie get lunch ready, but then you realise what an enormous task this is going to be because you have a group of friends visiting! How can we make sure there is enough of each delicacy for everyone and that nothing is wasted? How many marshmallows will we need from the machine? How many litres of lemonade should we collect from the fountain? How will we ensure that each plate isn't too heavy to carry? This hungry work requires sound mathematical reasoning and a good deal of practice in addition, subtraction, multiplication and division – but not as you know it! Get ready to learn about some rather different applications for the order of operations – the success of your lunch depends on it! Maybe you can even invite that persky neighbour?

Session 3: Playtime at the Treehouse

Hooray! Today our treehouse has a games storey and you've just arrived. There are so many thrilling things to try including a glow-in-the-dark bowling alley, a bumper car rink, and an enormous multi-level laser tag obstacle course. All your friends want to try everything at once. It's a recipe for pandemonium! The problem is that each activity requires a different number of players and a differently shaped and sized floor area – some need larger areas for the players to move around in, while another needs access to more height for bouncing. Jesse and Charlie are bamboozled and don't know where to start! Can you help them to figure out how much space will be required for each game? Your mathematical thinking will certainly get a strenuous workout today! First we'll need to calculate the area of regular shapes like squares, rectangles and triangles. Then we'll have to combine these shapes to work our the area of the games storey's irregularly shaped floor. Finally we will transfer all that we have learnt in two dimensions into three dimensions. Let's hope it works. We wouldn't want our visiting neighbour to crack her skull on the ceiling when she's on the jumping castle now, would we?

Session 4: It's Chaos at the Treehouse

After a full day of fun and excitement at the treehouse it's time to go home. But what is that? You hear a big fuss and a deafening kaboom coming from one of the floors above. When you and your friends run up to check it out…argh! It's an invasion of …MONKEYS, creating trouble everywhere – they're in the kitchen, they're in the swimming pool, they're in the elevator pressing all the buttons! It seems that a monkey from the zoo floor has gone down to the laboratory and has been playing with the cloning machine creating this monkey madness! Now Jesse and Charlie need your help to stop the monkeys multiplying, to calm them down , and to get them back into the machine so that it can reverse the process! We'll need to figure out how many monkeys can fit into each room and how many bananas we need to clone. We will need to work quickly and logically to determine how we can pack them all in. We wouldn't want the treehouse to collapse now, would we?

Requirements:

Please bring

- an exercise book and writing materials
- a calculator
- a snack (no nuts please)
- a hat (hats are mandatory in Terms 1 and 4)
- a small, labelled photo of yourself
- a stamped, self -addressed DL envelope to the first session for the report.Parents, put child's name/year-level/program on the back.

About the presenter:

Jenny Lee has a Master of Teaching with Mathematics and Science methodologies. She has been teaching Mathematics for many years and has worked with students, parents and teachers from various backgrounds. She is always excited by the prospect of delivering differentiated learning to highly able students in fun and exciting ways.