



Maths on the Loose
Years 4, 5 and 6 - Term 3, 2021

Fee \$108

Do the Digit Dash with Justin McKenzie

Shhh ... there are numbers on the loose and we need to catch them quickly because the number of escapees is starting to add up! There is only one problem though; our calculator is kaput and without its computational capabilities we must loosen up our mental muscles to think on our feet. Armed only with pen, paper, and our brains, we'll apply strategies that allow us to catch the most sizeable of sums using the fewest steps necessary. These techniques will go beyond simple recall for arithmetic – they will develop our mental mathematical abilities in ways that play to our brain's strengths. Why take the long way around when you can catch the answer by taking a shortcut? If you are ready to solve some colossal calculations and make an educated guess to impress that leaves others in awe, then join us on our quest to catch 'em all, before these numbers on the loose multiply out of control!

Justin has a passion for science and mathematics and a drive to pass this on to his students. An electronic technician in another life, Justin now specializes in teaching mathematics, science and technology, and for the past 13 years has presented many well received programs with G.A.T.E.WAYS. His enthusiasm is infectious!

Energy on the Loose with Sanjin Dedic`

Imagine if you had a 5c coin and you were able to turn all of its 2.83 grams to pure energy the resulting explosion (of 254 Terajoules) would wipe Melbourne off the map and cause a Tsunami whose waves would be felt around the world. This is just one of many implications of the famous $E = MC^2$ formula.

In this workshop we will learn about equations that govern speed, distance, time, mass and energy. At first we will tackle these as simple algebra problems but as we learn more these equations will yield insights into how the world works and also bring up many interesting questions about interstellar travel black holes and even time travel.

Sanjin Dedic` is a robotics engineer and a teacher who loves combining programming and mathematics into educational games, robots and interactive electric circuits. He has turned his house and backyard into a high-tech experiment where gadgets grow seedlings, feed fish and scare cats. Now, many of these life hacks are finding their way into G.A.T.E.WAYS programs so watch out!

Show me the Proof with Emma Carter

Proofs are more than an explanation; they are watertight mathematical arguments that contain no logical leaks. Build them on loose foundations however, and they simply don't stack up! Keep your eyes peeled in this workshop, as we take a closer look at how we can build one logical argument on top of another to form a solid visual proof. Along the way we will explore 'loose parts'; evidence that we can see, draw and touch to create these individual arguments, that when combined, form the proof, the whole proof, and nothing but the proof! We'll then put our well-reasoned arguments to the test using a proof by contradiction, where we assume something is true in order to prove that it isn't. Join us as we make a case that proves beyond a reasonable doubt – visual proofs are a beautiful thing!

Emma Carter has Bachelor of Science, majoring in Physics and Electrical Engineering from the University of Melbourne. She has taught secondary school maths, science and physics, and worked at Scienceworks as an Outreach Education Officer for the Discovery Science and Technology Museum. Emma has run many wonderful programs for G.A.T.E.WAYS.