



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

Fee \$108

**The Mathematics in Escher Art with Sue Wall**

Escher is both an amazing artist and a thought-provoking mathematician. Rather than letting loose on his artwork, he combined complicated mathematics with precise craftsmanship to create his works of art. Escher used mathematical concepts such as *infinity* and *duality* as a source of artistic inspiration. In this workshop, we will explore the geometry underpinning some of Escher's artworks. What type of shapes did he use to create his designs? How does his amazing work tessellate? Why does it work? We will prove how and why different shapes can tessellate. We will then explore how to create an Escher type design using the knowledge we discover during our exploration of tessellations.

*Sue has worked in gifted education in schools for over 30 years. She has a Masters of Education degree specialising in gifted education and mathematics. In addition to working in many schools with high-ability students teaching problem solving and exploring interesting Mathematical ideas, Sue has also worked in the university sector teaching mathematics education to preservice teachers. She currently works at Macquarie University, is a reviewer for APSMO (Maths Olympiads and Maths Games) and is on the executive committee of PAM (part of MANSW).*

**A Consensus from the Census! with Katrina Sims**

It's the survey that stops a nation! Every five years, Australians pause to answer the big questions about the country's citizens. It's then up to statisticians to collate this 'loose' data and corral it in a way that can help us understand the needs of Australia's growing population of over 25.7 million. Every Australian adult participates, from Hobart, Sydney, Broome and between, giving decision makers a better understanding of where to allocate resources. But this year, the authorities are looking for new information about the next generation of Australians. As a member of the Australian Bureau of Student Statistics, or ABSS, you will use your skills in mathematical enquiry to analyse the results of a survey designed to gather information about issues that matter to YOU and the rest of the youth of the country! You will interpret and analyse the results of your survey using appropriate measures to describe them. Are you ready to use your skills in percentage, proportion and ratio to navigate the numbers, dissect the data and ratify the results?

YES  NO

*Katrina has a Masters Degree in Gifted Education. She has taught enrichment mathematics to gifted students from the primary system to students in Years 7 to 10. She is a member of the Australian Mathematics Trust Challenge Problem Solving committee and has a keen passion for problem solving in mathematics. Katrina is the recipient of a National Excellence in Teaching Award and a BH Neumann Award for her contributions to Enrichment of Mathematics for Australian Students.*

**The Decathlon Dilemma with Kate Walther**

There is a reason they only happen every four years! Putting on the world's largest display of human athleticism is no easy feat and the Olympic organising committee have found out the hard way. Speaking of athleticism, the Decathlon is one of the most physically demanding events on the Olympic calendar, requiring a unique combination of strength, speed, skill and endurance to take home the crown. But with only months to go before the Olympic torch arrives, the plans to improve the Decathlon scoring system are still a long way from the finishing line. You're the IOC's expert mathematician, and their best hope of designing a scoring system that's worthy of a 10/10. Comparing datasets from recent Decathlons with an 'ideal athlete' profile across raw data, weighted means and indices, you've been tasked with getting this event back on track! The race is on - which scoring system is the best system for Tokyo 2021?

*Kate is a writer and science content communicator with a passion for critical thinking and teaching the scientific method. As an experienced gifted and talented program developer, Kate has made it her mission to foster inquisitiveness and logical thought in children. She has worked in several industries as an accountant, business owner and educator and is excited about encouraging young minds to think outside the box and develop a process to problem solve.*