

The **BRAINWAVES** Club

Term 1 2021: Neutrinos – Years 5 and 6

Venue: Forest Hill College

Term Fee: \$285

It's Not Rocket Science...

...it's a whole lot more than that! While you'll have a chance to explore forces and a myriad of other aspects of physics during our club meetings, you'll also delve into other areas of science including the fascinating fields of chemistry, biology and environmental science. The Neutrinos will wrestle with theoretical concepts before using experiments to prove or disprove their hypotheses, developing their capacity to design fair tests and their skills at applying the scientific method. Come prepared for an out-of-this-world semester!

6 February

Meeting 1: CSI: Hogwarts

Focus: Forensic Science

A terrible crime has been committed at Hogwarts - the Quidditch cup is missing! The cup, presented to the winning house team each year, has disappeared a week before the final, presumed stolen. Unfortunately, all magical attempts to solve the mystery have failed. A powerful anti-magic spell has been used to block all attempts to find those responsible.

So it is that a crack muggle team of forensic experts have been called in to examine the few meagre clues left by the criminal or criminals. As members of the muggle team you will forensically examine the evidence and look to find both the missing cup and those responsible. Can you solve the crime?

20 February

Meeting 2: Power it Up

Focus: Physics

Do you love playing outside? Do you love to play an instrument? Do you enjoy watching TV and playing video games? If you enjoy doing all these things, there is one thing that you need to do all of them: energy. Energy is happening all around us! The main source of energy on earth is the sun, but a range of other sources of energy exist. For example, when we eat food, we have the energy to do things we enjoy. We can use this energy in motion, like riding a bike, but did you know that when you rest you still have energy? In this power packed session, the Neutrinos will learn all about the different types of energy and how we can transfer it, or transform it, but that we can never create it.

13 March

Meeting 3: All That Matters Is Your State of Mind

Focus: Chemistry

You may know that matter is made up of four states - solid, liquid, gas and plasma. But did you know that three of them are fluids? What does it mean to be a fluid? This afternoon, the Neutrinos will experiment with several different fluids to explore this concept and learn all about the properties of deceptively simple yet actually extraordinary materials. We will test the densities, viscosities and miscibilities of different materials, model the behaviour of lava and look at the best way to clean up oil spills in the environment.

27 March

Meeting 4: The Best Defence... Is Your Immune System!

Focus: Immunology

Our immune system works hard to keep us healthy. Explore how we stay protected from disease, see how easily germs can spread and test out your own hand-washing skills! In this session we will learn how the immune system protects the body from disease, how it is constantly at work and how it is divided into two parts – the specific and the non-specific immune system. We will examine how pathogens (disease causing organisms) can enter the body through many different routes, and how the non-specific immune system starts to protect the body against disease before the pathogen even gets into the body!

What to Bring: Each week please bring a well-stocked pencil case which includes scissors, textas or coloured pencils, grey lead pencils, sticky tape or a glue stick, ruler, rubber and pencil sharpener.

About the Presenter – Simon Matheson

Simon is a physicist by training and has been involved in education one way or another for most of his life; first as a student, then as a secondary school science and maths teacher, and most recently as a developer and presenter of science outreach programs with CSIRO Education. Simon's enthusiasm for science education is grounded in the belief that all citizens of the modern world need a firm grasp of the principles upon which science (and, by extension, the world around us) are built.