The BRAINWAVES Club

Term 1 2021: Einsteins – Years 3 and 4
Venue: Forest Hill College
Term Fee: $285
(Semester enrolments available for $570)

6 February
Meeting 1: What's in the Jar
Focus: Chemistry/Maths

Most jars in your kitchen cupboard are likely filled with tasty items like coffee, chili powder, rice and chocolate – but the ones we're going to be looking at today contain sand, sawdust and salt which are nowhere near as interesting… or are they? They'll come in handy for a challenge we'll undertake as we dive into the fascinating world of chemistry, in particular the difference between physical and chemical changes, separation (in particular, filtration, evaporation and attraction) and how to describe a substance according to its physical and chemical properties. Along the way, we'll look at how to analyse interesting mixtures including solutions, suspensions and colloids, and calculate their percentage compositions.

20 February
Meeting 2: That's Illuminating!
Focus: Physics, Astronomy

A photon checks into a hotel and is asked if she needs any help with her luggage. She says, 'No, I'm travelling light.'

Photonics is the science and technology of generating and using light and other forms of radiant energy where the quantum unit is the 'photon'. Photonics manipulates light's unique properties with lasers, fibre optics and electro-optical devices so that we can solve problems and make many areas of life easier. Today, Einsteins, you will learn about the scientific concepts underpinning this exciting field and learn about some of its common applications. You will investigate the behaviour of light through a series of hands-on activities, make your own spectrometer and measure the speed of light.

13 March
Meeting 3: Minecraft
Focus: Chemistry

Not just something you do on the computer, mining has been a huge part of Australia's export scene for over a century. Gold, silver, uranium, copper – here in Australia, under our feet is a wealth of ore. The processes involved in extracting and refining these precious metals are incredibly intricate and involve a huge amount of machinery and skill to operate it. What if you didn't have access to that kind of equipment, though? Today, the Einsteins will explore some mining processes, including simulation of electrolysis which involves the rearrangement of the molecular or ionic structure of substances, and balance the chemical equations involved.

27 March
Meeting 4: Guest Club Leader – Robyne Bowering
Focus: Light

In today's meeting, Einsteins will conduct hands-on investigations with Robyne as they explore the behaviour of light using the Hodson Light Box.

Robyne is a passionate and enthusiastic educator with over 25 years' experience teaching primary, secondary and tertiary students. Robyne is particularly keen on providing gifted students with multiple opportunities to think creatively through a range of hands-on, minds-on activities.

What to bring

Each week please bring a well-stocked pencil case (including scissors, good textas and coloured pencils, pens and/or writing pencils, sticky tape or a glue stick) and an A4 notebook.

About the club leader: Eki Chan
Eki is a secondary school teacher who holds a Bachelor of Science with majors in chemistry and mathematics. She has experience teaching mathematics and science in primary and secondary schools in Singapore, China and Australia, and can't wait to get to know the enthusiastic learners in the Einsteins club!