GATEWAYS The BRAINWAVES Club

**Term 1 2021: Einsteins – Years 3 and 4**
**Venue: Ryde Public School**
**Term Fee: $285.00**

## AWESOME SCIENCE

Science, as it turns out, is not a niche subject. Everything that we do – all day, every day – relies on science. In this presentation series, Einsteins will discover the science behind everyday activities and observations. Whether it be sports science, climatology or chemistry; Einsteins will be amazed at how concepts on a piece of paper can really impact their world. Off the paper and into our hands, the Einsteins will investigate, experiment and discover that the world of everyday science can be awesome science!

**6 February**
**Meeting 1:** **Breaking the Tension**
**Focus:** **Chemistry**

"Water, water, everywhere, Nor any drop to drink."
— *Samuel Taylor Coleridge*, *The Rime of the Ancient Mariner*

Whether we use it for drinking, washing or cooking, water is all around us. But apart from being essential to life, water has many other amazing properties. Why don't oil and water mix? Why does ice float? After discovering how and why water can exhibit surface tension, we will perform experiments to demonstrate this property in action.

**20 February**
**Meeting 2:** **It's a Bonding Experience**
**Focus:** **Chemistry**

Let's face it – we are all nothing more than a big pile of atoms! In this meeting, Einsteins will learn about what atoms are, and how these can be bonded together to form elements and compounds. We will then do some molecular modelling to investigate how various chemical compounds are formed, and learn how scientists draw out the bonds in these compounds.

**6 March**
**Meeting 3:** **The Eyes Have It**
**Focus:** **Anatomy/Physiology**

For most of us, our entire perception of the world is based on what we see. To understand how we see light and colours, Einsteins will consider how our eyes work. We will explore the function of our eyes by considering a range of optical illusions and investigating how peoples' eyes respond in a diverse range of situations. We will then delve into the anatomy of the eye, as we explore how the mosaic of cells and tissues in the eye work together to ensure properly functioning vision. Finally, we will put on our doctor's hats as we investigate the cause of a patient's vision problems. Do you have what it takes to diagnose – and even treat – a blind patient? With a man's future on the line, the stakes could not be higher!

**20 March**
**Meeting 4:** **Sports Science**
**Focus:** **Physiology**

When was the last time you played a sport? Probably not too long ago, right? In this session, Einsteins will learn about the processes that allow their bodies to engage in sport. We will learn about what muscles and joints are, and perform experiments to demonstrate their importance in movement. We will then do a little bit of exercise (not too much!), and perform experiments related to breathing and heart rate, in order to investigate how the heart and lungs help us to move.

**What to Bring**:
Each week please bring an A4 notebook and a well-stocked pencil case.

**About the Club Leader:**
Rengen Parlane has a Bachelor of Science (Advanced), and is currently studying the Doctor of Medicine at the University of Sydney. He is passionate about both disciplines, and how they inform the world around us. Rengen has helped to educate young learners at G.A.T.E.WAYS for the past three years, including as a Brainwaves Club leader, Eureka and Journeys presenter, and loves sharing the inspirational world of science with eager young minds.