

The GATEWAYS BRAINWAVES Club

Term 3 2021: Einsteins – Years 3 and 4

Venue: North Curl Curl Public School

Term Fee: \$285.00

Science: Up Close and Personal

Are you a curious young person with a love of learning? During our Brainwaves Club you will delve into aspects of chemistry, biology and physics that are hidden in plain sight. It's the pint-sized science that packs a punch and has a huge impact on our everyday lives. Would you like to find out more about the unique code in your body that makes you, you? Or perhaps you want to explore why atoms matter. Come prepared with a well-stocked pencil case, notebook and a head full of questions as you embark on an exciting journey of discovery with your fellow scientists.

31 July

Meeting 1: It's Atomic!

Focus: Chemistry

Riddle me this. What do you have in common with a shoe ... or a cat ... or a ball? The answer far less puzzling – atoms! Look close enough and you'll discover that they make up everything, from the air we breathe to the food we eat. In today's meeting we'll zoom in on atoms, the smallest units of matter, to explore their sub-atomic structure and investigate why balancing their electrons, neutrons, and protons is a matter of importance if you want to be able to make an atom stable. Together we'll prove that atoms don't just surround us ... they *are* us!

14 August

Meeting 2: DNA Detectives

Focus: Biochemistry

"It's in your DNA" – we say and hear this all the time, but what really is in our DNA? What does it look like up-close, and how does it make you unique? Since the discovery of the structure of DNA in 1953, scientists' knowledge of the structure and function of DNA has grown immensely. We will delve into DNA to investigate its special helical structure and the four nitrogenous bases that code for unique traits, by constructing models, extracting real DNA, and learning how decoding it can be used to solve mysteries.

28 August

Meeting 3: Liquid Attraction

Focus: Physics, Chemistry

There are scientists who study the attraction between humans, but did you know that liquid molecules are attracted to each other, too? What makes a certain two liquid molecules more attracted to one another than another two, water and oil, for example? Today we'll study liquid behaviour and investigate the strong bonds between their molecules, including how to make them and break them. And if you're looking for science that sticks, we'll explore cohesion, the force that occurs when molecules of the same type bond closely together, allowing some insects to do the improbable and walk on water! Join us as we dive into the science behind some fantastic fluids.

11 September

Meeting 4: Level Up!

Focus: Biology

Are you ready to take a scenic excursion around the body, through the vessels, past the heart, and into the stomach? In our final meeting, we'll zoom out to see the bigger picture; how cells, tissues, organs, and systems are related to one another, how they interact, and what happens when unwanted invaders make themselves at home in our body. Along the way we'll explore how these levels of bodily organisation are interconnected to keep us fit and functioning. Pack your passport, because we're ready to set off on journey around the body to explore pint-sized science.

What to Bring:

Each week please bring an A4 notebook and a well-stocked pencil case. Please also bring a hat, drink and snack for the break (no nuts please).

About the Club Leader: *Jane Jung is enthusiastic about making science education fun and accessible to all. She has graduated with a Bachelor of Medicinal Chemistry and is now on the home stretch of completing a PhD in chemistry. Over the last five years, she has been sharpening her skills as a science communicator to a broad range of audiences through university teaching roles, involvement in local and rural school outreach events, and leadership roles in a mentoring capacity. She enjoys nothing more than helping children appreciate and get excited about the science that surrounds us.*