

The BRAINWAVES Club

Term 3 2021 | Neutrinos | Years 5 and 6

Venue: Brighton Grammar School

Term Fee: \$285

60 SECOND SCIENCE

A TECHNOLOGICAL TIMEWARP

Did you know that if you condensed the history of Earth into 60 seconds, humans would have existed for less than the equivalent of a second! Scale over time *and* space is important, but often difficult to comprehend, that's what makes it a perfect challenge for our highly-able Neutrinos. On our time-travel expedition, we will trace chronicles of chronology from the dawn of the universe and through the technological advancements of the 'Anthropocene', before finishing with what the future holds. Each meeting we will **discover** new and exciting information, **apply** it in hands-on activities and **create** something to further our scientific skills. This program is sure to make time stand still!

Meeting 1: Ba Da Bing, Ba Da BOOM

Focus: Astrophysics

As the TV show goes, 🎵*Our whole universe was in a hot, dense state*🎵. Eventually those hot, dense gases some 13.7 billion years ago EXPLODED! Not even a second later, protons and neutrons were scattered, and the formation of the universe was set in motion. In this, our first meeting, we replicate our own Big Bang and explore the idea that the universe is continually expanding. ***Please bring an art smock or old shirt***

Meeting 2: From Darwin to DNA

Focus: Taxonomy & Freshwater Biology

It has long been thought that birds and dinosaurs shared a common ancestor. Since the late 2000s though, DNA has shed light on further evidence confirming their close link. Although, what is a common ancestor, and how do we tell species apart anyway? Let's take a sticky beak into the past and investigate phylogeny, before returning to the present to dive into freshwater biology. Here we will test our ability to classify freshwater invertebrates.

Meeting 3: Ain't No Mountain High Enough

Focus: Geographical Science

Our space-time odyssey is about to take a rocky turn. The prehistoric era was a time of frequent geological ups and downs where mountains arose and canyons were carved. In this meeting, we learn about topography by mapping mini mountains. We will also discover how scientists use radiometric dating to date rock samples belonging to some of the world's oldest mountain ranges, from the Andes in South America to the Zagros in the Middle East.

Meeting 4: Botanical Babylonians

Focus: Botany & Technology

Fast-forward to 605 BC Mesopotamia, a region that claimed fame to one of the seven wonders of the ancient world: The Hanging Gardens of Babylon. Surrounded by deserts, it seemed an unlikely place to grow a lush, green oasis, nevertheless, King Nebuchadnezzar II persisted. How did he do it? In this meeting, we explore the irrigation technology that made a little water go a long way, and how 'xerophyllic' plants survive.

What to bring:

Please bring a notebook and a well-stocked and labelled pencil case (containing writing pencils, sharpener, eraser, coloured pencils, textas, scissors and a glue stick).

About the presenter

Jesse Chambers is a STEM educator with a double degree in science and education with honours from Monash University and a Master of Science Communication Outreach from the Australian National University. He is passionate about creating learning experiences that excite students and teachers about science, having developed workshops for UNESCO and Science Circus International, as well as many exciting programs for G.A.T.E.WAYS.