

The **BRAINWAVES** Club

Term 2 2021: Neutrinos – Years 5 and 6

Venue: Canberra Girls Grammar School, Grey Street, DEAKIN

Term Fee: \$285

Meeting 5: Science of Natural Dyes

Focus: Chemistry

Neutrinos, in this session we will learn about the botany and chemistry of a natural dye, called henna, that has been attracting attention in the cosmetic industry as well as the fashion industry. Henna has traditionally been used in India to decorate the body with temporary tattoos of intricate designs. Henna, along with indigo, has also been used as a natural hair dye. We will look at how henna paste is prepared and explore henna's interesting medicinal properties. We will then use henna cones to make interesting patterns on our hands. This will give us an opportunity to explore Indian and Arabic culture as we combine our knowledge of science with art and history.

Meeting 6: Peeking Beyond the Sky

Focus: Astronomy/Maths

Did you know that it was initially believed that Earth was at the centre of our universe and that the sun revolved around it? This model was called the geocentric model. Copernicus later discovered that the sun was at the centre and the planets were actually the ones on the move! This heliocentric model was initially rejected, and Copernicus was punished for his crazy ideas. Galileo was the first person to design a telescope to look at the night sky and he was able to prove that Copernicus was, in fact, correct. In this session we will design a telescope made from recycled materials, that we can use to look at the night sky and explore our solar system.

Meeting 7: The Symmetry of Rangoli Patterns

Focus: Geometry

Today Neutrinos will learn about an Indian geometric art called Rangoli, which involves creating beautiful patterns on the floor or ground using materials such as coloured rice, dry flour, sand and flower petals. It is usually made during Diwali and other festivals and the designs are passed on from one generation to the next, keeping both the art and the tradition alive. These beautiful patterns are traditionally created to keep bad omens out of the house, and it is thought that the more complex the patterns, the better they are at keeping away bad thoughts and spirits. In this session, we will carefully examine examples of Rangoli. Some Rangoli have line symmetry, but all have rotational symmetry, so we will explore whether it is possible to spin them around and see them match up with their own starting position at least two times.

Meeting 8: Constellations

Focus: Astronomy

Did you know that there are about 88 constellations recognised by the International Astronomical Union (IAU)? Did you know that there are 36 constellations that can be seen from the northern hemisphere and the remaining 53 are located in the southern hemisphere? Today, we will use our devices to explore the night sky. We will then use the Google Sky constellation page and Night Sky app to explore some of these constellations more deeply. You will then research a constellation of your choice and share your learning through the creation of an electronic poster.

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) to each meeting, as well as a hat, drink and snack for the break (no nuts please).

About the Club Leader: Richa Jyoti

Richa is a passionate science teacher who strongly believes in learning by engaging in fun scientific inquiry. She lived in Auckland for 15 years and was thoroughly involved in nurturing scientific minds in various secondary schools. Now in Canberra, she is devoted to fostering the growth of young learners into global citizens. Her empathy, combined with her drive to incorporate hands-on activities, makes children fall in love with exploring scientific theories as she helps to build on their curiosity.