



# The Brainwaves Club - Canberra

Semester 1 - 2012

Einsteins – Years 4, 5 and 6



**'Welcome to the World of Tomorrow!' with Kylie Hughes**

## 1. Fantastic Futuristic Foams

Foam is awesome! You may see it every day but do you know how it is formed? Is it a solid, liquid or gas? Why does a bubble form a sphere and not a cube, or a tetrahedron? Get ready to investigate foams and bubbles in this action packed session. Experiment with mega bubbles, produce foams and discover some fantastic foams of the future.

## 2. Plastic Fantastic

What can be stretchy like a rubber band, tough like a football, soft like fabric or even bulletproof? Polymers can and scientists have discovered some amazing things about polymers and the many different ways to make polymers useful. This session you are the scientist investigating some fantastic plastic science. You will find out what a polymer is and why they are so useful. You might even create the next piece of polymer technology that could make you a millionaire!

## 3. Einstein Construction Challenge

The time machine is ready and waiting to take you to a not so far off future where the world's greatest structural engineers are meeting up to compete in the inaugural Einstein Construction Challenge of 2020. You will need to bring with you your skills in building and design, so first we will discover how shape is critical when constructing a strong building. We will examine current building materials and consider what new materials may be available in the future.

## 4. Pi Party at the End of the Universe

The year is 3141 and you have been invited to the Circular Café located in the Radius Galaxy. It's a Pi party, but before you eat delicious pie you need to calculate Pi. Pi is commonly represented as the symbol  $\pi$  and is an important number in many mathematical applications. Come join the party as we celebrate all things Pi.

## 5. Grand Designs of the Future

If you could design your dream house, what would it look like? Join us in the year 2040 as you create plans for your very own futuristic house. You have creative freedom but will need to consider the future environment and how many people will be living in your house. What inventions will your new home have? Will you place your house on Earth or on another planet? Under the ocean or high up in the stratosphere? You will need to keep everything to scale, as you will be drawing your house using correct ratios and calculating areas as we go.

## 6. iRobot

From R2D2 to Transformers, robots have always been part of popular culture. This session we will look beyond the science fiction to discover how robots will impact our lifestyle in years to come. Will robots mean you never need clean your room again? What super dangerous jobs will robots perform and what new worlds are they discovering right now? Could you compete in the World Robotics Olympiad? Find out what it takes to design and build a robot from scratch.

## 7. Attack of the Clones

In the future, will cloning be common? Scientists are developing this exciting technology but what could it mean for you? This session we will tackle some tricky questions as we explore the ethical issues behind cloning. Should people be allowed to clone their pets? Is it a good idea for scientists to clone endangered species? Do you think humans should be cloned and would you like to clone yourself? We will look at how this technology is represented in TV shows and debate the big issues surrounding cloning, remembering there are two sides to every issue.

## 8. Exploring the Deep – Aliens in the Ocean

At a time when humans are looking to explore further into space, only about 5% of our oceans have been explored. The oceans cover 71% of our planet and are responsible for creating our breathable atmosphere. Okay, so you know oceans are important, but they are incredibly mysterious too. We will look at the challenges of ocean research and attempt to map the ocean floor. We will take a closer look at some of the fascinating creatures that live in the ocean and discuss human impacts. Could you save our coast from a tsunami impact? The future of Earth's oceans is in your hands.!

