

ANSTO Presentation Script

INTRO:

J: From the 5th to 8th of November, Gurleen and I, along with Ms Thomas were lucky enough to attend ANSTO's Big Ideas Forum in Sydney. 22 students and 11 teachers from across Australia were invited to attend after an application process in which we had to explain what we would like to see in the future for science.

G: We were very pleased to find out that we'd been accepted into what was to become an experience of a lifetime. We had the opportunity to learn about current and future Nuclear Science advancements from professional research scientists, as well as experiencing first hand the technology which makes it all possible.

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WHAT IS ANSTO: J

Standing for Australia's Nuclear Science and Technology Organisation, ANSTO is a nuclear research facility which works across areas such as health and the environment, to find solutions to some of the world's most challenging problems. The centrepiece at ANSTO is OPAL, a multi-purpose reactor which produces more than 80% of Australia's nuclear medicines, and neutrons for research using low enriched uranium. ANSTO is also home to a range of neutron beam instruments and the centre for accelerator science.

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OUR BIG IDEA!: G

In applying for the program, Jasmine and I had to come up with a problem which we wanted to solve for the future of our society. Our big idea was to replace synthetic polymers with biodegradable polymers in all manufactures goods. We believe this would help protect our environment, especially the ocean, and marine life such as turtles.

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EXPERIMENTAL SESSION 1: J

On Tuesday we had a chance to work with Jitendra, a research scientist in charge of two of the instruments in the guide hall, Quokka and Kookaburra. Quokka is a small angle neutron scattering instrument, used for studying the structure of molecules such as polymers. Kookaburra uses ultra small angle neutron scattering to study pores and cracks in things such as engineering materials and large biological molecules.

EXPERIMENTAL SESSION 2: G

During experiment session 2, we had the opportunity to work with Anna who is a Small Angle Neutron Scattering instrument Scientist. It was a wonderful opportunity to work with her and learn about the powerful technique for looking at very small sizes and structures of objects like polymer molecules and biological molecules through the small-angle neutron scattering instrument Bilby. We also had the opportunity to create our own samples for Bilby, to learn about molecular structures. We experimented with red and blue jelly to learn more about isolating the structure of seeds.

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SYDNEY EXPERIENCE: J

On Wednesday afternoon we had a chance to explore the sights of Sydney, visiting the Opera House, Harbour Bridge and the CBD. We had a short tour of the Australian Museum, seeing the Tohora whale exhibit and the Indigenous section. That night was the dinner cruise along the Harbour to celebrate the last night of the Big Ideas Forum.

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THINGS WE LEARNED: G

During our 4 day trip to Ansto, the most significant thing we learned was the variety of careers in the field of Nuclear Science. We were very lucky to have the chance to work twice in the centre for Neutron Scattering where we were able to see the instruments that scientists use to solve society's real life problems. The most surprising thing for us was that it costs 10 thousand dollars to operate each instrument per day. We discovered how we could use ANSTO's facilities to look deeper into our idea, by observing the structure of synthetic polymers to create a biodegradable polymer which has the the same properties, but is easily decomposed. Thank you.