Experiment: CSI (Chemical Scientists Investigate): Nuclear Medicine
Scientist-mentors: Samantha Lee and Angus Bowan

Introduction
Congratulations on being selected for the Growing Tall Poppies program at ANSTO! For two days, you will become a scientist and join the team at ANSTO – one of Australia’s top science research facilities. As a group of six students from your school, you will:
• Get hands-on with some of the best research technology in the country;
• Explore how science can help us build a better future for our society; and
• Meet scientists from many areas to see how diverse a career in science can be.

This introduction sheet gives you some idea of what to expect during the two days. It also introduces you to the topic you will be researching. Please read it carefully so that you can make the most of your time with us.

We are very excited to have you and we hope you are excited too! Very few students get the chance to get this closely involved with ANSTO. If you don’t think you want a career in science – don’t worry! We honestly don’t mind. This is an opportunity to have some fun while meeting our fantastic scientists and discovering how science can help to solve some of the world’s problems. Also, having a better understanding of science can help you with whatever career you decide to go into.

Your Brief
While at ANSTO, you will:
A. Work with your scientist-mentor to explore how chemists at ANSTO investigate nuclear medicine to make sure it is safe. These medicines contribute to saving the lives of thousands of people every year in Australia and across the world.
B. Identify the benefits to society at large (and especially Australia) of the research and development that occurs at ANSTO.
C. Ask questions and inquire about the things that come up in the project during your time at ANSTO that fascinate you. Remember science is about inquiry – and you should pose questions to make connections between knowledge, and seek answers whenever possible.
Your Report
We would like you to report back on your project with both a presentation and a newsletter article. You can do these as a group if you want to. You will have time to do some of the work at ANSTO, while other parts will be completed at home or school.

To help with these, it is a good idea to take notes during your time at ANSTO. Remember to ask lots of questions about whatever you find interesting! Depending on which area you are in, you might be able to take your own photos or if not we will take some for you.

Your presentation and article will include the basic science of the project, but also what you learnt about yourself and the role of scientists. You might like to cover:

- What you did during the experiment with your scientist-mentor
- Why the research is important for society – how will it help people now or in the future?
- What else you learnt about ANSTO and the work it does
- Scientific questions you had/posed for investigation during the week – even ones that did not get answered
- Why high school students should care about studying physical sciences – what skills can you learn?
- How your perception of the physical sciences, scientists and even career pathways may have changed – what surprised you?

PowerPoint presentation
You will present this at your school after visiting ANSTO. You will also give a short version to the other school students at ANSTO at the end of the two days. The length is up to you, but we would suggest about 5-10 minutes. Talk about what you think your friends will find interesting or surprising.

Newsletter article
This will be used for your school newsletter or year book and might also go in the local paper. It should be about 300-400 words long. Remember to include: a group photo, the name of project, the name of your scientist-mentor, the name of the school, the students involved, and the date.

Other
If you have Instagram, Facebook, Twitter or other social media you are very welcome to post about the program during or after your time at ANSTO. Remember to ask permission before taking any photos as this isn’t allowed in some areas.

Background information
This information is to get you thinking about the research topic and why it is important. You certainly don’t need to memorise it all! Just read the parts you are interested in, think about it and write down any questions you have.

Science and ANSTO
This opportunity allows you to experience the special technology, facility and especially people who make the advances in science that will improve the way we live.
Science Partnership Program - to increase the number of students studying physics
Supported by the Australian Maths and Science Partnership Program (Australian Government)

http://www.growingtallpoppies.com

Science is a way of studying the world/universe to improve our human understanding, and using that understanding to improve our lives.

Scientists ask questions and experiment to create new knowledge – they are the people who step-by-step advance our knowledge of the world. The knowledge that they create is part of what gives us a high standard of living and helps the progress of humanity.

ANSTO stands for:

_______________________________________________________________________

What are three examples of things people can do or research with nuclear science?
(There are lots, just pick some that interest you)
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Introduction to the research topic

One in two Australians will need nuclear medicine made at ANSTO in their lifetimes – that’s a lot of people! This means that almost certainly you will either need, or know someone who will need, nuclear medicine.

The video at this link shows a woman who had nuclear medicine coming to visit ANSTO – watch the video and write down any thoughts or questions you may have

There are lots of different radioisotopes used in nuclear medicine – can you find what some of them are? What is the most common one?

The radioisotope you will be looking at is called Iodine-131. Can you find out what this is used for?

These links might be useful – remember you don’t need to read all of this information, just what you are interested in.

Come prepared

Rocket writing – in 5 minutes (either on your own or with others in the group that will be coming to the Growing Tall Poppies in Science project) write down everything you can about what you know about your research topic.

Don’t overthink it, just write it and don’t worry about if it is right – we won’t be marking it,
this is just for you. This is where your thinking and questioning begins.

You might also like to write down any questions you have about science or what it is like to be a scientist e.g. what is their favourite part of their job? What career opportunities or pathways might be available? What skills can you develop by studying physics to year 12? And anything else you can think of. This is your opportunity to pick the brains of some of the best scientists in the world! What would you like to know?

See you soon!