Gifted and Talented Program

Young Einstein
Science, Technology, Engineering & Mathematics (STEM)
Rationale

Forensic Science is a vital component in our legal system in society. There are several types of forensic scientists all with a common goal, to use their knowledge to collect, examine and report on evidence for legal proceedings. In order to do so, they must develop analytical and problem solving skills.

As part of the Plumpton Educational Community, the Gifted and Talented Young Einstein program aims to allow students to delve deeper into the career of a forensic chemist and biologist as well as explore technologies in forensics used in modern society using a STEM (Science, Technology, Engineering and Maths) approach. In doing so, they will acquire an understanding of scientific investigations, legal proceedings and will debunk myths portrayed in crime shows. This will allow students to perceive how a range of different forensic scientists work and how this field has developed over history as well as where it is headed for the future. They will be able analyse the importance of the development of this field to its role in legal proceedings.

The program will allow students to explore the idea of forensics from the perspective of the four disciplines of STEM.

Looking at the range of divisions of scientists involved in forensic science will give students an understanding of how a crime gets solved in the real world in real time. This knowledge that they attain will give students an understanding of a career path in these fields.

This program will offer students a high quality Forensic Science experience with a focus on forensic chemistry, forensic biology and technologies such as computer forensics that will prepare students for further study in Science (Years 7-10) and Chemistry & Biology(Years 11-12). The Gifted and Talented Young Einstein program is an exclusive program offered by Plumpton High School and will be taught by a qualified DEC science teacher.
Objectives

Knowledge, understanding and skills

Students will develop knowledge, understanding and skills of Forensic Science through:

1. Forensic Chemistry

Forensic chemistry is the application of chemistry in a legal setting.

Students will be exploring a range of techniques to analyse evidence in the context of a chemist. They will perceive these techniques are used to collect specific information from evidence to aid in legal proceedings.

Students will learn about toxicology, chromatography, DNA fingerprinting, flame tests and chemical analysis of powders, paints and fuels.

2. Forensic Biology

Forensic biologists use scientific techniques in the laboratory to examine evidence such as hairs, insects, bones, bodily fluids, plant and animal remains in order to provide information of a case in a legal setting.

Students will be examining the evidence listed using a variety of different techniques in order to see what information can be collected and used for a case.

Students will learn about DNA analysis, examination of bones, entomology and botany.

3. Forensic Technologies

Forensic technologies refers to the component of forensics which looks at electronic data.

Students will look at how electrical data is examined as well as programs that are used to do so in the legal setting.

Students will learn how electronical data is accessed, the types of electrical data which are examined and the techniques used to examine this data.

Assessors will report to parents on the students’ competencies under the above criteria.
Selection Process

Students will be selected for the program through expression of interest.

Students who show expression of interest will be required to complete a short entry form. Students will be selected based on the following criteria:

- Demonstrates a high work ethic in their academic studies
- Demonstrates exemplary behaviour and self-discipline
- High level of school attendance

When and Where?

This class will held in the Science laboratories at Plumpton High School on Tuesday afternoon from 3.30pm to 5.30pm

What topics are taught?

- Toxicology
- Pathology
- Computer Forensics
- DNA fingerprinting
- Entomology
- Forensic Anthropology
- Forgery detection
- Flame Tests
- Fibre Analysis
- Fluids Analysis
- Blood Spatter analysis
- Chromatography
- Organic/Inorganic properties of soils
- Decomposition of biological matter
- Fingerprint analysis
- Ballistics
The teacher will report to parents on the achievements of students in this program through a semester report. Students will be assessed on their knowledge and skills outcomes, which are descriptors of what students will know and be able to do as a result of participating in the Gifted and Talented Young Einstein program. The purpose of the assessment is to provide information on students’ achievement and progress and set the direction for ongoing teaching and learning.

Science, as an area of curriculum, is based on students learning about physical, chemical and biological phenomena and how they apply to the world around us. Teachers use a range of strategies to collect information on the demonstration of skills and understanding which students exhibit in a variety of contexts. It is important to make judgments about students’ achievement of outcomes, understanding that evidence relating to a number of outcomes might be embedded in a single investigation. Similarly, a student will demonstrate that he or she can achieve the requirements of an outcome in a number of different activities.

Judgments about student achievement of outcomes are made on the basis of evidence. A variety of strategies may be used to collect evidence on student achievement. Some examples include:

- Observing a student’s application of techniques in several investigations
- Examining the quality of the student’s reports
- Student self and peer assessment
- Collecting and analysing student investigation notes

The teacher will record student achievement for reference when providing feedback to students and others and when formally reporting to parents and caregivers.
Who is able to apply?

Any student in Year 5 to Year 8 in the Plumpton Educational Community, with a passion for science is able to apply.

How to Apply?

Students will need to submit an application to attend through Plumpton High School (please see attached note) by the due date. Students will be notified in regards to their application.

What is required?

Students will be required to participate in several forensic science investigations combined with theory related to these investigations. Some of these will be used as part of the assessment. Students will also be provided with a case study at the completion of this program to solve which will act as their final assessment.

There will be some independent work that the students will need to complete at home.

What does my child wear?

Normal school uniform is appropriate however it is essential that students wear leather shoes for WHS reasons in the science laboratories.

How do I find out if my child was successful?

Students will be notified in writing after the application whether they were successful or not for the program.
Why the Gifted and Talented Young Einstein Program?

- Challenge yourself and explore your intellect
- Work with like-minded people
- Learn new and interesting skills
- Have fun
- Compete with fellow students

This program offers the opportunity for students to engage in complex intellectual pursuits with guidance and direction.

Students will be provided the opportunity to learn new skills and these skills will focus on a variety of ‘smarts’ including visual, kinaesthetic and logic. This will cater for a variety of learning styles and help students to gain new experiences and skill.

Meet the Teacher

Miss Tina Linaris – Bachelor of Medical Science (with distinction), Masters of Teaching (Secondary)

Graduate of Western Sydney University

Miss Linaris completed a science degree where she studied forensics, chemistry, biology, biochemistry and microbiology. She has a passion for science and wishes to instil this passion in students as well as an appreciation of the importance of science in everyday life and society.

Miss Linaris is a passionate believer in public schools and believes that students in Western Sydney deserve the best education possible. She works to build a safe environment for students to explore complex concepts and ideas so they can extend themselves and value the knowledge they are working for.