

Hannah's 1st week was spent ionizing radiation in life sciences and looking at the types of radiation - alpha rays, beta rays, gamma rays and x-rays. She used Geiger-Muller tubes to detect radiation. The radiation travels through the tube interacts with argon and ionizes. They proceeded to see the effect of different shields and how the materials of the shields decreased the counts of radiation. Understandably, the students were apprehensive when working with radioactive substances, however with the reassurance from their teacher and their own understanding of the materials and processes that abated as time wore on. They also looked at the application of radiation as tracers to the uptake of nutrients and the storage of these nutrients in the roots of poplar trees. As this experimentation progressed they were able to measure the rate at which photosynthesis occurred. Hannah constantly referred to the extensive amount of equipment available for them to use to complete these experiments. She went to the Medical Centre and looked at the application of radiation substances and radiation therapy as a safe option in a safe environment.

Her 2nd week was at an Inorganic Chemistry programme. They did flame tests and they learnt that the colour indicated a dominance of a given element. The red and orange colours can be difficult to ascertain which was the dominating element. Her group analysed water hardness [mineral content and calcium ions] using a spectrophotometer. On the last day of that week they produced their own sparklers! These were of more substance than the Guy Fawkes variety which meant that they were not to be held. One of Hannah's videos showed a sparkler exploding and falling from the container!

In her last week at XLAB she did astrophysics and joined the group to assemble a telescope from the materials provided without instructions. It was constructed to enable it to be correctly angled to the sun to collect the sun's rays and focus them into a point suitable for the optic fibres. This telescope was used to measure the absorption spectrum of the sun. A motor was set up on the telescope to enable it to follow the sun on its own accord. One evening the students stayed at XLAB to use the 50cm Cassegrain telescope. Hannah had never used a telescope of this size before and the detail of the various planets and supernovas made it particularly enjoyable.

During the weekends there were recreational and cultural events. Overall she enjoyed learning the various practical tasks and how a research project may go when you're not precisely sure of what and how it is to be done. The group of 30 learnt to communicate and work together, not only in their small groups but as a team for the experiment to work. On the final day, a Symposium was arranged for them all to share their projects and concluded with their last

meal together on the lakeside.

On her return to Timaru Girls' she discovered that XLAB had helped quite considerably with her physics studies which she shared with her classmates. Hannah is to begin her studies at Otago in mid- February. We wish her well for the future.

Enjoy your weekend. Bev