STUDENTS APPLY DATA VISUALISATION TO ROAD SAFETY

Digital technologies students have mined New Zealand crash data to map out factors behind safe road use.

Computers were crunching big data sets of up to 30,000 records as year 13 students ran investigations into road crashes.

They were using real data from a publically available source, the NZ Transport Agency's Crash Analysis System (CAS).

> Students saw the opportunity and the challenge that using this data was giving them.
> Gerard MacManus, digital technology teacher

Teacher Gerard MacManus says CAS provided his students with accessible data with enough depth to develop their own lines of inquiry. He showed them how to access and interpret the data, and gave them a brief to create a story that would inform a website user about relationships found within the information.

Gerard says the technology curriculum is about letting students explore user stories and solutions inside a guided process.

"I tried to keep it as open as possible. I don't like restricting the students about what they might find interesting. When you open it up and get them thinking about some of the aspects you get a whole different array of answers and a whole array of experiences for the students."

One student looked at the relationship between weather conditions and crashes, another looked at the influence of drugs and alcohol, while a third investigated the extent of crashes involving animals and made recommendations about the setting of rural speed limits.

"Everyone hears about crashes but until you start seeing where the crashes are and whether there's been alcohol or inexperienced drivers involved you may not understand what the causes are. You need to drill down into the data," says Gerard.

What students did

› Downloaded the data:
www.nzta.govt.nz/resources/ crash-analysis-system-data/ index.html

› Used Excel to examine the data, choose a line of inquiry and clean up incomplete records.

› Put the data into MySQL open source database and ran queries.

› Used the Linz coordinate converter to reformat location data.

› Created data visualisations in CartoDB web-based mapping application.

› Wrote a summary of what they found out.

Download technology curriculum resources

Gerard's unit was of his own devising. However, technology teachers can freely download, use and modify other technology curriculum resources.

These resources give students scope to create digital artifacts which communicate road safety messages to a target audience.