

For us not knowing is an essential part of science - we wanted the teachers to pass this on to the kids.

*Natalie Plank*

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*Gabriel*

## Engaging the educators

**A group sits around a table playing with green slime. They giggle as the slime oozes through fingers and droops towards the table.**

This isn't children's laughter. These are teachers, playing with science alongside MacDiarmid Institute scientists. They are pondering - what is slime? Is it a solid or a liquid? Or something else?

The primary and early childhood teachers are at a MacDiarmid Kōrero with Scientists workshop. In two-hour interactive workshops, they explore basic concepts like magnets, light, and acids and bases. In its third year, the Kōrero programme is already hugely popular, oversubscribed and with waiting lists of primary and early childhood teachers wishing to attend.

For MacDiarmid Institute Principal Investigator Dr Duncan McGillivray, who ran the Auckland workshops, the best thing was seeing the teachers become passionate about science. "When teachers are excited about science, their excitement flows through to the kids." Gabrielle from Chisnallwood Intermediate School in Christchurch was fresh out of teachers' college when she attended her first Kōrero workshop run by MacDiarmid Institute Principal Investigator Professor Paul Kruger in 2014 and then again in 2015. "I learnt how to relate science to kids." She says the experiments they were taught could be run anywhere - schools do not need a lab to replicate the Kōrero science.

"I popped into a couple of shops to buy what we needed then headed straight back to the school and had the kids making pH indicators out of red cabbage and extracting DNA from strawberries. I set up science stations and the kids came around and explored. The kids loved everything we showed them, especially the bubbles." The kids from her classroom then tried the experiments out with their families at home. "We could see from the photos they uploaded into Google Classroom that they'd done the red cabbage experiment at home. And made bubbles and talked with their families about surface tension."

The Kōrero programme was revamped in 2015, with returning teachers asked to give a presentation on how they had taken the Kōrero science into the classroom.

Dr Natalie Plank, Principal Investigator with the MacDiarmid Institute, ran the Wellington workshop. She said the teacher's videos showed the children's keen interest in science. "We could see how children are inherently little scientists, asking how and why."

Just three weeks after attending Kōrero 2015 in Auckland, early childhood teacher James set up a Facebook page 'Science ECE - experiments for young children'. The page now has over 2700 members.



James says people seem to be hearing of the Facebook page by word of mouth. "After going on the Kōrero course, I thought I'd start the page and just pin up experiments. Lots of the members are kiwi parents but there's also a group of 50 or so science teachers from Mumbai who have joined."

Dr McGillivray says the key was getting away from the idea that science was about knowing stuff, and helping teachers realise that science is about finding stuff out. "Science is about noticing and asking questions - I observe, I wonder, I think."

Dr Plank says that scientists do not know everything but are comfortable with not knowing. "For us the not-knowing is an essential part of science." Gabrielle said she felt she could pass this on to the kids. "I didn't feel stupid asking

any question at all. Paul Kruger and his team put things into 'teacher speak' so even teachers with no science training, people who had themselves disliked science at school, were able to come up with scientific language and made to feel more comfortable with the 'scientific method'."

The Kōrero programme will run again in 2015 with the development of more online forums for teachers wishing to keep in touch with each other and with the MacDiarmid scientists they met. "One of the things we hear is that the teachers want to keep in touch with us so we plan to make it very easy for them to do that throughout the year," says Dr McGillivray.

And is slime a solid or a liquid? It turns out it is neither. It's a gel.