

sciencechoices

Use your science

With a background in science, you could work in all sorts of different areas from dairy processing and environmental management to developing high-tech electronics and healthcare products. Your job might be based outdoors, in a manufacturing facility or a laboratory – or a mix of all three.

Science knowledge and skills are fundamental for careers in engineering, food technology, surveying and digital technologies. The research, analysis and reasoning skills you will develop are valued even in businesses that aren't obviously science-based.

Why choose a science-based career?

Jobs that use science offer variety, creativity, challenges and opportunities to use problem-solving skills to find effective solutions. There can be many other rewards, such as the satisfaction of knowing you've helped save lives, looked after the environment, or figured out an innovative way to help New Zealand industries grow.

Teamwork is important – whether you're working in a lab, out in the field or in a research and development (R&D) team, chances are you'll be working alongside other people who you can learn from and bounce ideas off as you work towards a common goal.



What sorts of roles are there?

The greatest demands are in areas where science meets technology and engineering. There are limited numbers of New Zealanders with the right engineering, food technology and computer science skills, so salaries are generally above average. The prospects of getting a job are relatively good.

Most researchers in New Zealand work in **applied science**, which means they focus on finding ways to use science to solve practical issues. A computer scientist might use advanced computer modelling

techniques to improve analysis of medical images; a water engineer might find ways to provide clean drinking water during a natural disaster. Somebody working in **R&D** might develop disease-resistant apple

trees, better surgical tools or a more environmentally friendly paint.

A relatively small number of scientists are employed by universities and research institutes to work on more **fundamental science**, such as investigating how particular genes are involved in cancer, identifying new native plants or examining the properties of superconductors. Almost all these roles require you to have a Bachelor's degree and competition for

People like you who work in science



Research Scientist Brie Sorrenson (University of Auckland) studies how human diseases such as diabetes affect the processes and molecules inside our cells.

Pathway: Waiheke High School, final year: Biology, Calculus, Chemistry, Classics, Physics; University of Otago: Bachelor of Science; PhD, in Biochemistry



Research Engineer Mike Davies (Robinson Research Institute) designs and builds superconducting transformers.

Pathway: Wainuiomata High School, final year: Art, Design & Visual Communication, English, Maths, Sciences, Technology; WelTec: NZ Diploma in Engineering; Bachelor of Engineering Technology in Mechanical Engineering



Product Development Technologist Katie Gollan (Frucon) develops new beverages and transforms ideas into products.

Pathway: Wanganui Collegiate, final year: Art Painting, Biology, Chemistry, English, Statistics; University of Otago: Bachelor of Science in Food Science; University in the Netherlands: Master of Science in Food Technology and European Food Studies



Geology Technician Delia Strong (GNS Science) provides technical support for scientists.

Pathway: Motueka High School, final year: Biology, English, Geography, History, Music, Statistics; University of Otago: Bachelor of Science; Postgraduate Diploma of Science; Master of Science, all in Geography



Analytical Chemist Jose Cranfield (Carter Holt Harvey) carries out chemical investigations and testing, providing technical support at the pulp and paper mill.

Pathway: James Hargest College, final year: Calculus, Chemistry, English, History, Music; Victoria University: Bachelor of Science in Chemistry; Bachelor of Music in Classical Performance



Company CEO Kylie Robinson (Igtimi) runs her own company, selling high-end GPS-based equipment for competitive sailing.

Pathway: Logan Park High School, final year: Art, Calculus, Design & Visual Communication, Digital Technologies, Economics, Physics; University of Otago: Bachelor of Science in Computer Science; Postgraduate Diploma in Computer Graphics



GIS Analyst Jono Entwistle (Interpret Geospatial Solutions) works with geographic information systems on spatial modelling, data creation, maps and web server technologies.

Pathway: Waimea College, final year: Calculus, Economics, English, Geography, Physics; University of Canterbury: Bachelor of Science in Geography and Geology



Planner Jotham Alex (Beca) works on getting resource consents from local councils so construction and infrastructure projects go ahead.

Pathway: Westlake Boys' High School, final year: Chemistry, Design & Visual Communication, English, Geography, Statistics; University of Auckland: Bachelor of Planning



Statistician Aaron Bryant (AgResearch) helps scientists design and analyse experiments that involve statistical data.

Pathway: John McGlashan College, final year: Calculus, Chemistry, English, German, History, Physics, Statistics; University of Otago: Bachelor of Science (Honours) in Mathematics and Statistics; Master of Science in Statistics

permanent jobs is generally fierce. As well as following your passion, it pays to build your transferable skills. The Bachelor of Science degree – the starting point for many science careers – has a fairly flexible structure. You could, for example, mix some statistics in with your ecology, some GIS with your environmental science and some computer science with your chemistry.

Taking maths, science and technology subjects at school will prepare you for a science-based career pathway. Some first-year courses – particularly in Maths, Physics and Chemistry – build on NCEA Level 3 knowledge. Generally you can catch up with an introductory-level paper in your first semester or a summer bridging course if you haven't taken these subjects at school.

INTERESTED IN HEALTH SCIENCES?

You could be a medical physicist, clinical engineering technician, biomedical scientist, medical laboratory scientist, biomedical engineer or software developer working on specialist healthcare IT systems. There's more to medicine than doctors and nurses.



Scientist Jamie Bridson (Scion) works with biomaterials such as bio-based plastics, wood materials and pulp and paper to create new environmentally friendly products.

Pathway: Rodney College, final year: Biology, Calculus, Chemistry, Geography, Physics; University of Waikato: Bachelor of Science (Technology) in Chemistry and Biology; Master of Science in Chemistry



Product Development Engineer Samantha Oldfield (Fisher & Paykel Healthcare) develops devices to help patients who have trouble breathing.

Pathway: Botany Downs Secondary College, final year: Biology, Calculus, Chemistry, Design & Visual Communication, Physics; University of Auckland: Bachelor of Engineering (Honours) in Biomedical Engineering



Product Evaluator Kara Dix (Fisher & Paykel Appliances) helps develop new refrigerator models to meet customers' needs and reduce the amount of energy used.

Pathway: St Dominic's College, Henderson, final year: Biology, Chemistry, History, Physics, Religious Studies, Statistics; University of Waikato: Bachelor of Science (Technology)



Laboratory Technician Jacqueline MacCallum (Lion) tests drinks to ensure they're of a good quality, and works out a solution if there is a problem.

Pathway: Pakuranga College, final year: Biology, Chemistry, English, Statistics; Massey University: Bachelor of Science in Biochemistry and Genetics; University of Auckland: Graduate Diploma in Forensic Science; Master of Forensic Science



Director of Product Development Young Ly (Serato) develops music software used by DJs world-wide.

Pathway: Takapuna Grammar School, final year: Biology, Calculus, Economics, Physics; University of Auckland: Bachelor of Science in Computer Science



Research Associate Lara Brian (Plant & Food Research) investigates kiwifruit flowering to help improve crops.

Pathway: Tuakau College, Final year: Art, Biology, Chemistry, Economics, English; University of Auckland: Bachelor of Science; Postgraduate Diploma; Master of Science, in Biological Science



Marine Ecologist Chris Woods (NIWA) works in aquaculture (underwater farming) and biosecurity (preventing the spread of foreign organisms).

Pathway: Christchurch Boys' High School, final year: Biology, Chemistry, English, Geography, Statistics; University of Canterbury: Bachelor of Science; Master of Science, both in Zoology; Victoria University of Wellington: PhD in Marine Biology



Consultant Ecologist Rachel Turner *Ngāti Pikiao*

(Andrew Stewart Ltd) helps design and implement monitoring programmes so projects are done in an environmentally responsible way.

Pathway: Trident High School, final year: Biology, Chemistry, English, Physics, Statistics; Massey University: Bachelor of Science in Ecology and Zoology; Postgraduate Diploma and Master of Science, both in Conservation Biology

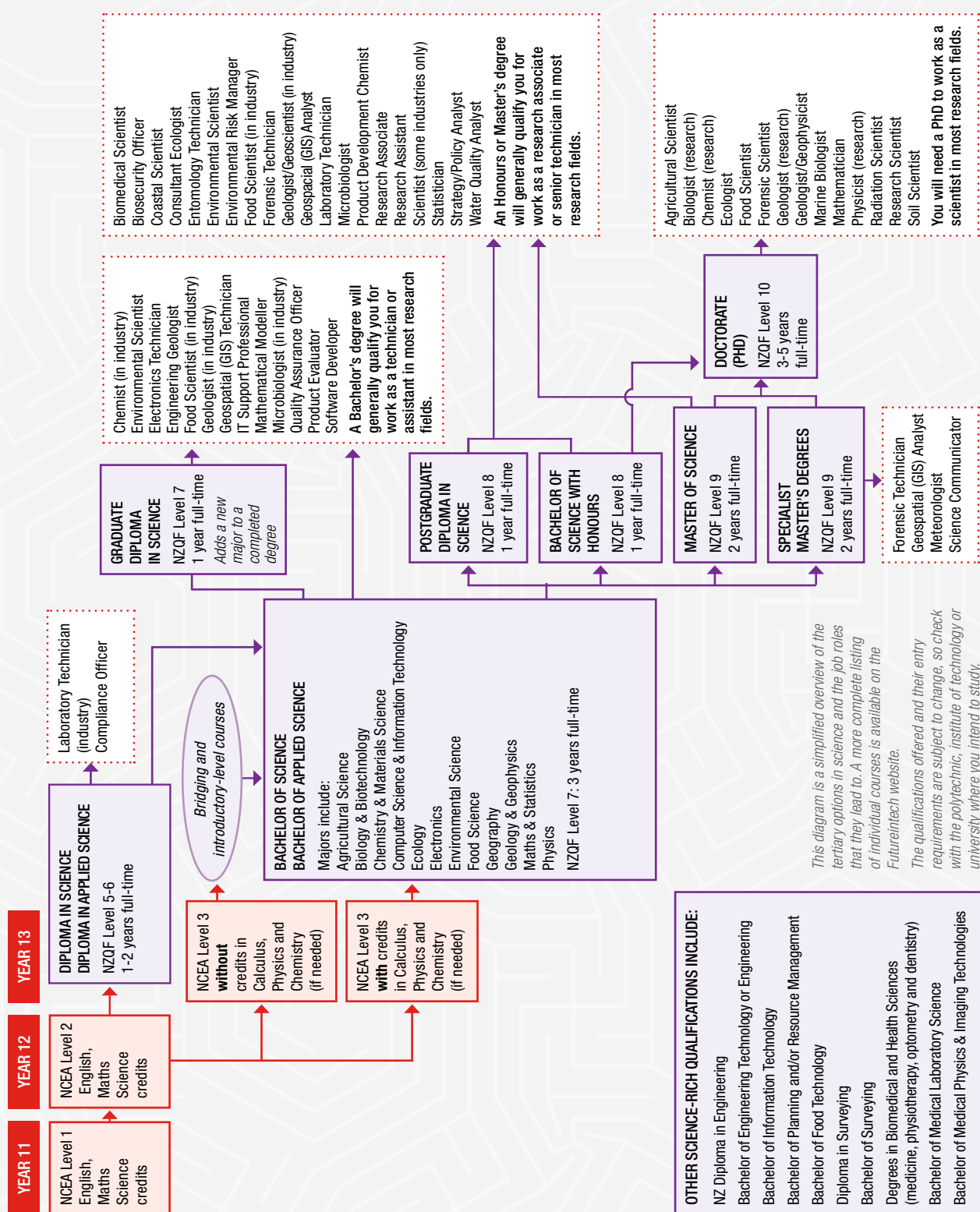


Medical Physics Registrar Ihab Ramadaan (Wellington Regional Hospital) carries out measurements, calculations and analysis for radiotherapy services to cancer patients.

Pathway: Manurewa High School, then UK high school, Year 13: Biology, Chemistry, Physics; University of Auckland: degree in Medical Physics and Imaging Technologies; University of Canterbury: Master's degree in Medical Physics

Qualification pathways into science-based jobs

Recommended Year 12-13 subjects: Maths (especially Calculus), Science (especially Physics and Chemistry), English



This diagram is a simplified overview of the tertiary options in science and the job roles that they lead to. A more complete listing of individual courses is available on the Futureintech website.
The qualifications offered and their entry requirements are subject to change, so check with the polytechnic, institute of technology or university where you intend to study.

Find out more

Visit the Futureintech website for:

- Stories about people who work in science-based industries
- Information on what subjects to take at school and where you can do bridging courses
- Our Course Finder, which lists science qualifications at polytechnics, institutes of technology and universities all around New Zealand
- Ask Someone – an online Q&A page where you can get advice from people working in science-based industries.



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