

Smart Futures: Working in Science

What skills are needed?
What are the career paths?
What subjects should I study?

Smart Futures is a government-industry programme providing secondary school students in Ireland with **FREE** access to **role models** working in **science, technology, engineering and maths (STEM)**.

Keeping up to date on the many career paths available in STEM isn't easy. It's a fast-moving area, with multiple routes to entry and a high demand for graduates. From designing video games to medical devices, improving food science and sport, and even saving lives through cancer research, students need real insights into the many exciting and diverse STEM career opportunities in Ireland.

DID YOU KNOW ?

Over 170,000 people work in the science, technology and engineering sectors in Ireland

Smart Futures offers **free career talks** to all secondary schools in Ireland to give students the chance to ask practical questions about working in STEM and encouraging them to look beyond stereotypes.

Teachers, guidance counsellors, TY coordinators etc. can register via the 'Resources' section of www.SmartFutures.ie and request career talks at any time of the year. Talks are typically 40 mins, taking place in your classroom.

These talks are great for inspiring students to think differently about how they choose their school subjects, life after school and preparing for jobs of the future!

Why not invite a STEM volunteer to attend your parent evenings?

Visit www.SmartFutures.ie to read 100+ STEM career stories, watch videos, download posters and career infographics.

Smart Futures is managed by Science Foundation Ireland in partnership with Engineers Ireland.

Working in Biochemistry

Biochemists study the chemical and physical principles of living things, analysing the complex reactions of living organisms such as metabolism, reproduction and growth. They can be found working in genetics, microbiology, forensics, plant science, pharmacology, immunology, oceanography, toxicology, food science, environmental sciences, nutrition and more.

Also look up: Bioengineer, Biophysicist, Biotechnologist, Microbiologist

What does the job involve?

- Studying how hormones, vitamins, allergens, minerals and enzymes work on body functions
- Looking at the chemical aspects of the formation of antibodies, and researching the chemistry of cells
- Using computers to analyse data and managing laboratory teams
- Sharing research findings, writing scientific articles and making presentations at conferences

What skills are needed?

- Critical thinking
- Communication skills
- Analytical thinking
- Problem-solving abilities

Typical employers

- Universities, research institutes
- Environmental/ agricultural bodies
- Pharmaceuticals and medical devices sectors; small companies employing specialist services, e.g. toxicological studies

Typical qualifications

Typically, a bachelor's degree in biochemistry, but students may also begin in common entry science and specialise later. Alternative routes include Post-Leaving Certificate (PLC) qualification in a related course or general science certificate or diploma. These students often progress to a bachelor's degree later.

DID YOU KNOW ?

The EU's commitment to drastically reduce greenhouse emissions by 2050 has seen Ireland become a hotbed for energy efficiency development

Working in Food Science

A food scientist studies the microbiological, physical and chemical properties of food, ingredients and processes within manufacturing companies, or as part of a research laboratory. They also look at how consumers behave in relation to buying food and trends in eating habits. Food scientists may move from industry into research or vice versa; into consultancy or even working for themselves developing food products etc.

Also look up: Food Technology, Product Development, Dietetics

What does the job involve?

- Testing products for safety, quality and nutritional value
- Testing new products for flavour, texture, colour; analysing levels of vitamins, fat, sugar and protein
- Testing new products under government legislation, related to processing, consumer and industry standards

What skills are needed?

- Critical thinking / problem-solving abilities
- Attention to detail
- Business, IT, analytical, numeracy abilities
- Being a good team player

Typical employers

- Food and drink manufacturing and retail companies
- Government organisations, universities
- Research organisations and consultancies

Typical qualifications

Typically, a degree in agricultural or food science. Courses often offer hands-on, industry experience through internships. Post-Leaving Certificate (PLC) qualifications in a related subject or general chemistry certificate or diploma can also offer an alternative route, progressing to a bachelor's degree if students wish to.

DID YOU KNOW ?

13 of the world's top 15 MedTech companies are located in Ireland

Working in Environmental Science

Environmental scientists study the impact of human activity on the environment, using subjects such as chemistry and biology. They can work as a field scientist, lab manager, project manager, environmental consultant or environmental engineer.

Also look up: Ecologist, Water Quality Scientist, Environmental Consultant

What does the job involve?

- Carrying out field surveys (collecting data to establish levels of pollution or contamination of a site)
- Conducting lab tests on water, air and soil. Interpreting data to identify any contamination in accordance with environmental laws
- Building conceptual models to identify potential contamination sources

What skills are needed?

- Investigative skills
- Analytical skills
- Interest in ecology
- Innovative thinking

Typical employers

- Government, semi-State bodies, universities
- Environmental and wildlife conservation groups

Typical qualifications

Typically, a bachelor's degree in environmental science, environmental engineering, or environmental bioscience. Students may also begin in common entry science and specialise later. Alternative routes include Post-Leaving Certificate (PLC) qualification in a related course or general science certificate or diploma, progressing to a bachelor's degree if students wish to.

DID YOU KNOW ?

9 of the top 10 global pharmaceutical companies are located in Ireland

DID YOU KNOW ?

Graduates in Life Sciences, Pharma, Engineering, IT and Finance are all in high demand in Ireland and globally

Next Steps?

So now you've read some examples of STEM careers, there are so many more still to explore! From nanotechnology to clinical research, exploring data analytics and even Space, science offers a fulfilling career, with skills in demand across the globe, to help improve lives and the world we live in.

Thinking about #STEMcareers? Follow your passion and #DoWhatYouLove!

Who can I talk to?

Before choosing your school subjects, CAO options or PLC course, ask your teacher, guidance counsellor or TY coordinator to register on www.SmartFutures.ie for FREE career talks. Real people working in STEM can visit your class and answer your questions. The website also has 100+ examples of people's STEM career stories, videos and more!

How can I get involved?

There are hundreds of free STEM-related events and activities going on around the country, here are just a few:

- ScienceWeek.ie (November)
- EngineersWeek.ie (March)
- SpaceWeek.ie (October)
- SciFest.ie
- MathsWeek.ie (October)
- TechWeek.ie (April)
- CoderDojo.com
- GirlsHackIreland.org

Further resources?

Looking for information on PLCs, apprenticeships, course points or subject requirements? Visit:

www.CareersPortal.ie
www.CareersNews.ie
www.Qualifax.ie
www.Collegeaware.ie

www.GradIreland.ie
www.plccourses.ie
<http://FIT.ie>
www.STEPS.ie

SMART
FUTURES

Science
Foundation
Ireland
For what's next

STEPS
ENGINEERS IRELAND