

Biomedical Horizons – realising your future

Whether you are thinking about your career options, deciding what subjects to take or would just like to find out what people actually do in their jobs we hope you will find this careers resource useful.

The aim of the Biomedical Horizons careers resource is to:

raise awareness of biomedical sciences and the variety of careers in this area

show what different jobs are like day-to-day

describe the career pathways some people have taken to get to their job in biomedical science

What the resource pack contains

Part 1: ***So you want to find out more about biomedical science & careers***

Part 1 of this resource is aimed at people who want to find out more about different careers in biomedical sciences. It contains:

- A selection of long and snapshot descriptions written by young people describing 31 different jobs
- Advice about work experience e.g. some Do's and Don'ts if you're looking for work experience, "A work experience diary"
- Further information about careers and useful websites for careers information, some other careers resources and details of some work experience projects.

Part 2: ***Making it happen: running your own event***

The second part of the resource is intended to help people who would like to raise awareness of careers in biomedical sciences and/or people who are interested in running their own science and careers event.

This section shares learning from the Biomedical Horizons project, outlines suggestions on how to use this resource (e.g. with a group of secondary pupils), contains activity ideas and points towards some useful links.





Part 1:

So you want to find out more about biomedical science & careers



In Part 1 you will find:

31 different jobs described by young people

Over 500 people (12 – 18+ years old) visited the Biomedical Horizons events held in Edinburgh in 2006. Each visitor interviewed a person working in biomedical sciences about their job and career pathway and then wrote their own interpretation of what that person actually did in their job. We have included as many of these descriptions as we could in this resource.

Visitors didn't have long to write the job descriptions and as a result a few of the details may not be 100% accurate. But do remember these job descriptions have been written by everyday people. We have not changed them (except for the odd typo). They are written in the visitors' own words and give you their honest view about a job NOT something written by someone just to promote careers. So, these descriptions should give you a really good flavour of what the people interviewed do for a living and some of the pathways to those jobs. Several visitors' descriptions have been included for many of the jobs because each one highlights slightly different aspects of the jobs they are describing. Lastly, remember this is only the tip of the iceberg! There are many more jobs than there was room to include here so have a look at the useful links at the end of Part 1 to discover even more jobs in biomedical sciences.

Work experience tips

Work experience is a great way to find out more about what a job really involves. If you are planning to apply for work experience you might find the tips in this section useful:

Some Do's and Don'ts when you're approaching someone about work experience

- An example of a good application letter
- An example of a real work placement – *Gillian's photo diary*

Further careers information and useful websites

If you've been inspired by some of the jobs described in Part 1 and would like to find out more or even if you haven't found what you're looking for, the further information and websites included in this section should help you continue your search.

Long Job Descriptions

- **Biomedical Engineer/Postdoctoral Research Associate:** Aimee
- **Biomedical Scientist (Biochemistry):** Louise
- **Biomedical Scientist (Cervical Screener):** Nicola
- **Senior Biomedical Scientist (Biochemist):** Sheila
- **Biomedical Scientist (Haematology and Blood Transfusion)/ Clinical Manager:** John
- **Biomedical Scientist (Microbiology):** Ailsa
- **Biomedical Scientist- Grade 1 (Pathology):** Lynne
- **Clinical Scientist (Senior Clinical Gastro-intestinal Physiologist):** Sarah
- **Head of Chemical Development:** Ian
- **Medical Research Technician (Human Reproductive Science):** Sheila
- **Postdoctoral Scientist (Human Reproductive Science):** Vincent
- **Orthopaedic Engineer:** Andrew
- **Patent Attorney (Technical Assistant – Patents):** John
- **Trainee Patent Attorney:** Richard
- **PhD Student (Molecular Biology):** Robert
- **PhD Student/Research Assistant (Neuroscience):** Roger
- **Physiotherapy Manager (Sports Medicine):** Treena
- **Research Group Leader/Cell Biologist:** Bill
- **Research Scientist in Bacteriology:** Kathleen
- **Stroke Nurse:** Katie
- **Tissue Donor Co-ordinator:** Chrys
- **Vice President of Pre-Clinical Sciences:** Tim



Biomedical Engineer/Postdoctoral Research Associate: Aimee

Job described by Megan aged 15

What this person does for a job:

Develops small bone scaffolds to add human cells to. If the right chemicals are used the bones will grow.

What the job is like day to day:

Lab based – feeding cells with Glucose and Oxygen
Look under microscopes
Staining – cut up samples
Write papers on what's found (main goal!)
International conferences

Key skills needed:

Good communication skills
Good at Maths and Physics
Able to work independently
Creative
Careful and attentive to detail
Cleanliness

Career Pathway:

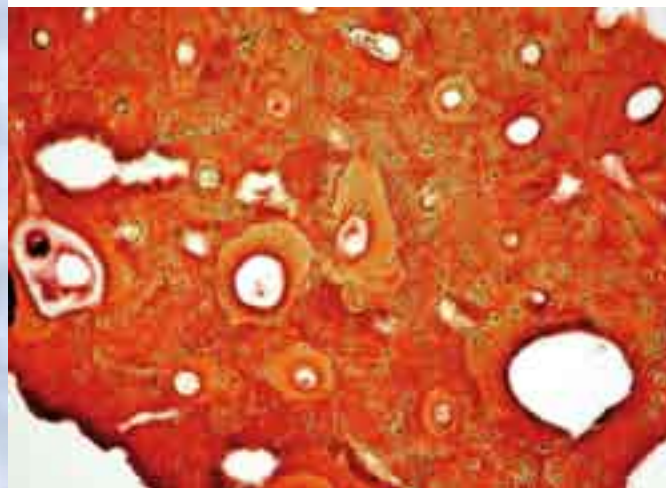
Initial Chemical Engineering Degree
3 years work
PhD in Biomedical Engineering
Postdoctoral Researcher

Job described by Fiona aged 16

This job involves developing implant replacements, for example, to help with bone repairs. This also means making tissues again to use to repair bones.

The most common subjects studied for this job are Biology, Chemistry and Physics. In this case Aimee studied all of these subjects, along with Mechanics. She also did a PhD on testing replacement heart valves.

On a day to day basis, Aimee works in a lab. Teamwork is a key skill to have for this job as she works with a biologist, engineers and surgeons. From a young age Aimee knew she wanted to do something medical, but she knew she did not want to be a doctor. She found Cell Engineering fascinating and feels it is a good job if you want to help people.



“Developing ‘scaffolds’ to allow cells to grow – can be turned into bone.
Use adult stem cells to turn them into bone using scaffold and growth factors.”

“She has to work in very sterile conditions and be extremely careful and have an eye for detail
as a simple mistake could ruin a whole 6 week experiment.”

“She develops tissue transplant replacements (makes tissues which can then be inserted
into a body to replace those missing, such as bones).”

“A lot of experiments are carried out and along with it comes a lot of paperwork.”

Biomedical Scientist (Biochemistry): **Louise**
 Biomedical Scientist (Cervical Screener): **Nicola**

****WINNER** Nicola's job described by Cara in 4th Year at Secondary School**

Nicola works in Cytology as a Cervical Screener. She checks slides under microscopes and if cells are abnormal she reports it to the Pathologist. She is mainly looking for Cervical Cancer and grading the severity.

Day to day:

She screens slides quickly for abnormalities. They are then rechecked for longer – if two people agree it goes to the Pathologist or put out as negative. If there is disagreement then it is checked by a third person. She also processes fluid samples for Pathologists to look at.

Key skills needed:

Microscope skills.
 Time management.
 Organisational skills.
 Communication skills.
 IT skills.

Career Pathway:

Highers – English, Maths, Biology, Chemistry and Physics.
 University – Biomedical Science.
 Got job straight away – year of training and oral exam, then another exam to be qualified as a screener. Currently studying for Masters in Biomedical Science. The job has a lot of variety. It involves meeting lots of people and gives the satisfaction of helping people.



Jobs described by Ewan and Peter in 4th Year at Secondary School

What these people do for a job:

Prepare the lab.
 Work with automated machines.
 Screen samples.
 Making diagnosis on vital things – how they would be treated, the degree of the abnormality.

Day to day:

Night shift sometimes.
 Also work from 9-5pm.
 30-40 screenings per day.
 Speak to Doctors/Nurses/Pathologists.

Key skills needed:

Organisation.
 Time management.
 IT skills.
 Communication.

Career Pathway:

Louise:

School.
 College doing lab work.
 Work in hospital.
 Went back to College.
 Trainee for a couple of years.

Nicola:

High School.
 University – 4 years.
 Straight into job.
 1 year's training to become state registered.
 Training for 1 year – microscopy work.
 I think it sounds interesting making the diagnosis for patients.



Jobs described by Jacqueln and Alison in 4th Year at Secondary School

What these people do for a job:

Investigating samples for disease so people can have a definite diagnosis.

This is a rewarding job as you know that you have helped people.

Day to day:

Screen samples.

Works with Doctors and Pathologists.

Check on diagnoses.

Check samples from transplant patients.

Key skills needed:

Organisation.

Time management.

IT skills.

Communication.

Sense of humour.

Career Pathway:

Louise:

5 Highers.

Went to College – lab work.

9 months at a hospital.

Back to College.

Nicola:

Biomedical course at University – 4 years.

Straight to job.

1 year's work before registration.

Training (1 year) – recognising things under a microscope.

Doing Masters part time.

Senior Biomedical Scientist (Biochemist): **Sheila**

Job described by Megan aged 12

The job involves testing blood and other parts of the body checking for illness. You then give the results back to the ward or G.P., who gives it back to the patient. To be a Biochemist you have to be highly qualified. You have to be good at working in a team, be very careful and good at concentrating.



Job described by Mathew in lower 6th Year at Secondary School

Sheila works in a hospital. She analyses blood and urine/faeces samples. She checks diabetics' blood and blood from people with abdominal pain, chest pain, heart problems, and the blood from new born babies. They provide results as accurately as they can then the doctor makes the diagnosis. This is a crucial job as you must get right answers. Sheila works 9am to 5pm or the 11pm to 9am night shift. The majority of work is done during the day. She takes all the G.P. samples from her area. She has been working for 30 years but must keep her knowledge up to date.

Key skills needed:

Conscientious/Careful
Technical ability
IT skills
Interpretation skills (of the results)
Biomedical knowledge
Wide knowledge base

Career Pathway:

School
Job in factory lab
Had to learn on the way (wouldn't happen now)
Job in hospital

Job described by Dominic in lower 6th Year at Secondary School

Sheila analyses blood, urine and faeces, helping doctors with diagnosis. With the aid of symptoms a diagnosis can be made. They receive G.P. samples everyday including samples from more serious cases in A & E.

What the job is like day to day:

On call service. Asked in if there is an emergency.
Alternating shifts (9-5pm, 5-11pm or 11pm-9am).
Only one person in the lab on 11pm-9am shift.
Providing information to the doctors in hospital.
Have to keep up with professional development.

Key skills needed:

Conscientious, decisive thinking and accuracy.
Technical knowledge of machines.
Ability to interpret several different slides.
In depth, detailed knowledge of blood films (analysing blood cells)
IT skills. Information of each person needs to be processed (preventing transcription error).

Career Pathway:

Quality controlling of products in a small lab after leaving school.
Saw an advert for a Biomedical Scientist wanted at a local hospital – she has been there ever since.
Attending skills development courses and lectures during her career.

Biomedical Scientist (Haematology and Blood Transfusion)/ Clinical Manager: **John**

Job described by Christine aged 15



The person we interviewed is a Biomedical Scientist and he has to do tests for the doctor so that the doctor can tell the patient what is wrong with them. The job sounds very interesting and he likes going into work every day because he knows he will make a difference in someone's life, and that is a very good thing - to do something you enjoy. To be able to do this job you need a BSc Degree and study a specialist Diploma.

Job described by Susan aged 16

Working in a lab testing 1000's of blood samples each day (Haematology and Blood Transfusion).

Cross-matching blood – identifying antibodies and matching them to a donated sample.

Testing blood – using machines to count the number of red blood cells and their size (for anaemia) and number and type of white blood cells (infections and leukaemia).

Monitoring the coagulation of blood from stroke patients on Warfarin.

Career Pathway:

Highers in Maths, Chemistry and Biology.

BSc in Biomedical Sciences.

Specialised in Haematology and blood transfusion.

Specialist Diploma.

Higher Specialist Diploma

**“Really interesting, every day is different.
A lot of work in a busy lab.”**

**“They never shut. The
Biomedical Scientists are
there all the time.”**



“Good at problem solving”

Biomedical Scientist (Microbiology): Ailsa

Job described by Alyth aged 15

Degrees You will need to have got:

At least 4 highers all B level or above, these have to include 2 sciences, maths, biology, chemistry, physics.

This will then lead onto an honors degree, then a masters degree in Biological Sciences!

Skills Used in the job will include:

A background knowledge in sciences.

You will have to have good communication skills

You have to be a good team worker.

Good computer skills.

And good at Decision making.

The Job will include:

Studying dishes taken from ~~jobs~~ swabs of the patients, which will hopefully lead to giving treatment.

The job will also include

answering phones, and discussing problems with other Doctors & nurses.

You will be working in a lab with up to 40 people or more.

“Her job is busy, yet fulfilling as the fact that interests her most about her job is the feeling that she has given that person answers and that is like solving a puzzle.”