Working in the Science Industry

National Curriculum subject content

BTEC L3 CERTIFICATE APPLIED SCIENCE (QCF)

Unit 2 - Working in the Science Industry

Project Summary

‘How can we, as scientists, improve global healthcare?’

In this project, students will experience and develop their knowledge of the science industry by researching the pharmaceutical industry and simulating the production of a new drug. They will also learn first-hand from an industry professional. From visiting MSD, the focus of this unit will be the synthesis of medication. They will consider the synthesis of a specific medication from raw materials to a commercial product. Learners will know communication practices, how laboratories are designed, how information is stored in laboratory information management (LIMS) and how to work safely in a scientific workplace.

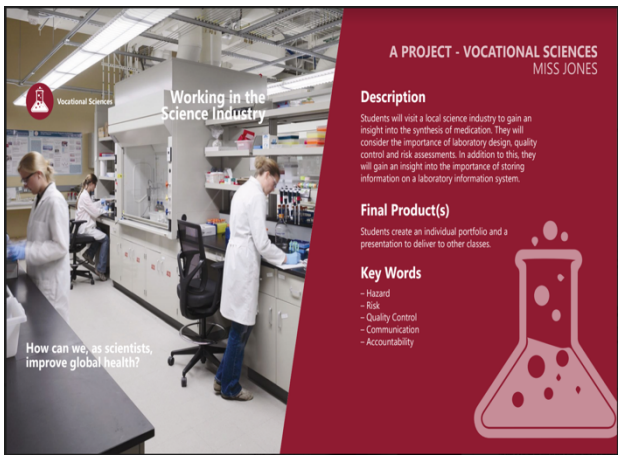
Skill development

Students will:

- Know how procedures are followed and communicated in the scientific workplace
- Be able to design a scientific laboratory (QC Lab).
- Know about laboratory information management systems
- Be able to demonstrate safe working practices in the scientific workplace.

Cultural capital

This project developed authentic scientific skills linked to the science industry, and in particular, the local pharmaceutical industry. Students learnt about the employment possibilities in their local area, and more generally, about the range of job opportunities within the field by simulating the creation and production of a new drug for the market. This actually tied in with the early stages of the global Covid-19 pandemic, so students were able to make authentic, real-world links and access authentic media reports and information.



The Edge Foundation

Newcastle University

Gatsby Benchmarks

BM4. Linking curriculum learning to careers

BM 5: Encounters with employers and employees

BM 6: Experience of workplaces

BM7: Encounters with further and higher education

Project activity and timescale

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Guest speaker – Pharmaceutical professional Visitor to lead the discussion	Visit to Net Park	Design a QC Lab	Research and use a LIMS system	Research how to put together an effective risk assessment for a laboratory.	Simulated laboratory conditions to develop new drug	Student Portfolio and Group Presentation (Google Slide). Students will deliver their project to other classes, teachers and SLT.

Launch event/ Final product and showcase

Launch event: Visit from Plant Manager at MSD, a pharmaceutical plant in the local area. This was followed up with a visit to Net Park.

Showcase: Individual product – Students produced a portfolio which was presented to a variety of invited guests. The team product was displayed on the classroom noticeboard.

Project feedback

"This project involved real-life scenarios and authentic science industry information and knowledge."

"Within this project I have been able to set out my own plan so as a long term effect this can help when designing things. This project helped me realise what's actually in a lab."

"We worked very well as a group, we all agreed on our roles and difficulties were sorted out by everyone helping each other. I enjoyed that throughout all of the project we all got to work together."

"I think I have developed better communication skills and I think they will help as I will be able to speak to others more openly."

The Edge Foundation

Newcastle University

Learning for next time

Students enjoyed the interactive, authentic aspect of the project and enjoyed working in groups:

> "As a group we worked well together and decided which roles each person had by saying what we would enjoy doing the most to help with the project and what we were best at."

There were elements which they felt could be improved next time. One student enjoyed the project but found her lack of prior content knowledge frustrating:

> "[It was difficult] Having to produce information or write about things I was not knowledgeable about. To resolve this, I asked my peers in my group or asked my teacher for help. Other than that I did not have any problems with the project."

The BTEC teacher acknowledged that not all students were on board with this approach to working or struggled with the amount of groupwork, but that this is quite common with this particular course:

> "there might have been resistance from the students, going actually miss no, I just want to do my assignments. I'm not interested in doing this.
> And unfortunately, I get that quite a bit. Tell me what I need to do to get into university. That's it, which isn't great."

She felt that the key to the success of this project was the collaboration with outside agencies – a visit to a local business, and a visit from a local industry professional inspired the students and helped them to understand the real-world connection between their course and their potential future careers:

> "But I think just in, you really do need experts, if you can get them. And you know what, it wasn't that difficult to organize a guest speaker. Yes, it took a bit more effort but just look at what's on your doorstep. There's so much and you don't need to go miles and miles away. We've got loads in the North East so just be a bit creative and form contacts."

Overall, she was happy that the project connected to the real-world industry:

> "It shows the real world link doesn't it, that authenticity that you wouldn't get if you were just in the classroom, just in the lab."

Useful links/resources/ideas

If your school isn't near Newcastle, find your local university/college outreach teams.

Resources relating to this specific project on our website.

General resources on our website: blank planning tools, links to useful websites, more case studies.