

Nuffield Research Placements Programme guide for students

Introduction

Nuffield Research Placements (NRP), formerly known as Nuffield Science Bursaries, has supported approximately 20,000 post-16 students over the last 25 years to engage in real life research working alongside Science, Technology, Engineering and Maths' (STEM) professionals. The collaborative nature of NRPs has seen young people work on a range of cutting-edge projects from machine learning for obstacle detection and collision avoidance in robot boats, to investigating the onset of cognitive deficits in rat models for Alzheimer's disease and exploring the environment of supernova remnants.



In summer 2020 alone, students were at the forefront of pandemic research. For example, some students worked on computing projects using agent-based modelling to simulate and visualise how COVID-19 spreads in a crowd. Others had environmental projects that explored the impact of COVID-19 on air quality in Edinburgh or the growth rate of atmospheric CO₂. Bioinformatic projects had students analysing different sequences of Coronavirus to work out amino acid changes whilst others engaged in relevant aspects such as the impact of social

distancing on young carers and analysis of coverage in U.S. and U.K. print media.

All this inspiring work not only has a hugely positive effect on each student, but it also leads to fantastic opportunities. Nuffield students' work is regularly published in peer-reviewed journals as well as presented at UK and international competitions. Former Nuffield students have gone on to become deputy editor at the New Scientist, founder of the Youth STEM summit and CEO of the Journal of Young Investigators to name but a few. One former student, now a Professor of Clinical and Bioanalytical Chemistry, hosts current students and has done since 2010 saying:

“inspiring the future generation into the field of research and developing their transferable skills was something I felt would be of great benefit to the students... It would also give them the glow and joy of what research can bring and hopefully spark their interest in a subject area.”

Responding to COVID-19

The outbreak of Coronavirus has meant that we have all had to adapt to new ways of going about our daily lives. Equally, for the last two years we have had to radically re-shape the NRP programme that we usually offer eligible students over the summer.

We are hopeful, however, that by the time placements are due to go ahead next summer, the Nuffield Research Placements (NRP) programme will be able to return to an in-person model. This means real-world research collaborations going ahead **on-site** over July and/or August. However, this will be subject to Government guidelines and host organisation limitations during summer 2022 and so there may need to be a blend of both in-person and virtual working.

Given this possibility for variation, students should discuss what is possible, and what they feel comfortable with, early on in the process with their regional coordinator so the necessary arrangements can be made.



What is the NRP programme model?

Within the NRP offering, Nuffield students will be guided through the following: -

- an independent study support package consisting of online module assignments designed to develop essential professional, data, digital, communication and research thinking skills
- collaboration with a knowledge expert on a 'live' research question relating to an area of Science (inc. social science), Technology (inc. computing), Engineering or Maths (or a combination!) to develop essential STEM skills and result in a research poster & report
- a timetable of optional supplementary workshops and webinars that are geared towards careers guidance and training on key topics e.g. Python.

NRPs are not about shadowing but about an authentic working relationship where young people can make an active and notable contribution to real-life research.



The activities that sit alongside the potential on-site placement will not only contribute towards a meaningful and rewarding experience but also help development of a range of skills; these are key outcomes that Nuffield students acquire through their participation. They will also help in generating a high-quality and credible research report and poster and also make a great contribution to future applications to higher education and employment. Some students may also want to have their project accredited through the British Science Association CREST Award scheme; more information regarding that can be found [here](#).

This model will still require a high degree of motivation and self-direction from students, but we will be asking placement providers to fulfil a subject-specific role in tutoring and guiding participants through a structured and research-focused experience. This partnership with placement providers may be a novel experience for many and we hope, therefore, also an exciting one. Students will, of course, always be able to refer to their Regional Coordinator for guidance, too

We and our network of National and Regional Coordinators are very much looking forward to supporting as many students as possible to complete the Nuffield Research Placements programme. The following information will set out what students should expect, what we expect from them and what they can expect from their placement provider.

What Nuffield students should expect

Independent study support package

The idea with these initial activities is that they will help prepare students for the research collaboration element. These activities:

- will run online
- are to be completed at the student's own pace **before** the start of their placement collaboration with a placement provider.
- will come with feedback built into the process so that once an assignment is completed, solutions, answers or further reflections are provided.



Collaboration with a knowledge expert

The collaboration part is the point at which there is the majority of input from, and partnership with, a knowledge expert. We anticipate that this module will comprise of activities set by the placement provider. It may include tasks such as the detailed analysis of research papers and associated materials, use of selected equipment to run testing, development of new ideas and/or data analysis.



Students will, of course, be in contact with their placement provider regarding this part of the programme and, perhaps, other expert colleagues that the placement provider has identified as useful co-workers. This is so that they can help to support and shape students' thinking and ideas, sharpen the focus of the project, and establish a way to carry out the project in the available time. For this, email and video conferences should be arranged alongside meetings in person. Regional

Coordinators can also provide an editable Project Plan template to help support this part.

This collaboration will also include written work in the form of a report and a poster that are included to improve students' ability to communicate their findings. We will provide guidance and templates for both, but comments on these pieces of work can also be requested from the placement provider, as they will hold the more specialist and technical subject knowledge. They have been encouraged to provide constructive feedback on both, but we support any decisions from them regarding setting clear boundaries with what this feedback, and the processes around it, will look like so students should take their cue from them.

Note: Students may end up working individually by themselves on a project, paired up with another student or group on the same question or with students working on a similar topic but different research questions.

Regardless of which format students end up in, there will always be support available and opportunities to meet and network with other students.

We hope to showcase everyone's successes and achievements at a celebration event (or events) later in 2022. Moreover, we would encourage use of a Nuffield project not only as part of university applications but also as the foundation for submission to the British Science Association Crest Awards scheme or Big Bang Competition. It may also be possible to include it as part of an Extended Project Qualification (EPQ) or the Welsh Baccalaureate Skills Challenge.

Please check with your relevant EPQ coordinator or similar at school/college as to whether this will be possible.



Timetable of optional supplementary workshops and webinars

For students who have the time and interest in broadening their learning beyond what is contained within the independent study support package and placement collaboration, there will also be additional online workshops and webinars available.

These will look to:

- develop students' STEM or STEM-related career aspirations
- detail how experiences like the NRP programme and development of transferable skills can support them on their career journey
- leverage support from a range of professionals to provide valuable insights into STEM and STEM-related higher education and employment
- offer training in key skills, such as Python programming language.

Through these online activities, our aim is for students to broaden their horizons, discover the full range of their own potential and better understand what they can do to realise their chosen future.

What we expect from Nuffield students

Nuffield students will need to come motivated and prepared to work independently at times, a skill that many have steadily been developing since disruption to schools and colleges in Spring 2020, but they will also be working closely with a placement provider. Placement providers will be the ones to propose some research topics and questions for students to tackle with support from them.

Nuffield students will be working with professionals and therefore appropriate language, behaviour and conduct are important. Successful students will be asked to read and agree to adhere to specific policies around keeping them safe and appropriate professional working.

It is essential that students know they will need to be ready to use their initiative, manage their own time and communicate effectively with their placement provider and Regional Coordinator who may not know what other competing commitments students have and therefore will rely on the student to make these known. When a student receives confirmation that they have been successfully matched to a placement, they should contact their placement provider via email to formally introduce themselves and discuss any necessary steps for before the placement starts.

We recognise, however, that for some students, going on a placement is unfamiliar territory and so we urge students to discuss any worries or concerns with their Regional Coordinator who is there to help throughout the entire process. If any student does not feel comfortable doing this, they can also contact the NRP Central Team via nrpenquiries@stem.org.uk.

To qualify for the final programme certification and, if eligible, for a bursary payment, students will need to complete:

- all assignments in the independent study support package
- the placement collaboration with knowledge expert(s)
- written work in the form of a research report and poster
- feedback survey.

Note: Students will not be formally assessed during the independent study support package, however, Regional Coordinators will monitor completion of the activities.

What Nuffield students can expect from their placement provider

On confirmation that a student has been successfully matched to a placement and after they have sent their initial email introducing themselves, the placement provider is now able to provide more detailed information about the placement. This may be in the form of an introductory slide set, related videos or articles, call(s) with the student etc. Placement providers may indicate that they expect the student to undertake some independent research into the topic of the placement and should provide some pointers of where to go for this information.

Placement providers may also indicate that they are happy to support the students with the independent study support package assignments, but this is entirely optional for the placement providers and therefore should not be assumed. If they do decide to lend their support, students will need to be mindful of their placement provider's availability and capacity, given their other home and work commitments.

When it comes to the placement collaboration, the placement provider is there to help coach and support students as they shape their ideas and begin to explore evidence and research. Assignments they set may build on the research skills activities set during the independent study support package or may go beyond them to continue fostering students' thinking skills and analytical questioning. Placement providers will be requested to provide students with a variety of concise activities



Students should note that this collaboration may comprise a tapering approach to communication, with video, meetings and phone calls happening more often in the initial stages and the balance shifting more to email as the placement progresses. This is particularly relevant for when students must write a synthesis of the evidence they have digested, in the form of a report and poster. The placement provider will have been asked, as part of their responsibility in hosting a placement, to be ready to provide technical feedback to students on these pieces of work. As mentioned previously, the placement provider will be encouraged to set clear boundaries around what this feedback, and the processes around it, will look like so students should pay attention to this and respond accordingly.



Timeline and flow of activities

We anticipate the following timeline for the 2022 Nuffield Research Placements programme:

April/May	Students to have access to the independent study support package assignments and to complete these at their own pace <u>ahead</u> of when their placement is due to start.
June	Regional Coordinators to hold virtual inductions with students and students to contact their Placement Provider to introduce themselves and organise access to any relevant resources.
July - August	Students to begin and complete the placement collaboration, report and poster with their placement provider. This to include 2 weeks of on-site experience if possible and dependent on Government guidelines and/or host organisation limitations.
September	Deadline of completed report and poster to be uploaded to the online system along with survey feedback.

If you have any queries or questions regarding the Nuffield Research Placements programme, please scan this QR code or visit [our website](#) where you can also find contact details of all Regional Coordinators.

