

PARTICIPANT INFORMATION SHEET (under-16)

Title of Study: Stars for Schools

University of Surrey Ref: FEPS 22-23 010 EGA

PLEASE KEEP A COPY OF THIS INFORMATION SHEET FOR YOUR RECORDS

Section: Taking Part

Invitation Paragraph

We would like to invite you to participate in this research project. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. If you have any questions you can contact us using the contact details at the end of this information sheet.

What is the purpose of the study?

Stars for Schools is a programme to educate and inspire school students aged 11-17 in physics, mathematics and computing by providing interactive software so students can make their own stars on Raspberry Pis computers and carry out short research projects that attack real science questions. The project will teach young you new practical, theoretical and computational skills using stellar astrophysics, and hopefully motivate you to pursue a career in science.

We will be teaching you how to model stars using state-of-the-art software developed in Surrey, and obtaining feedback to improve the project. We are specifically interested in measuring the effectiveness of teaching physics in this way. Your age, school year, gender and economic status will be collected for statistical analysis.

The programme involves regular meetings of “mentors” with school students. Our mentors are professional scientists, and may be university staff, or physics degree or PhD candidates. They may be from the University of Surrey, where the programme is coordinated, or elsewhere depending on your school’s location. You can discuss your progress and ask any relevant questions of your mentor. Your mentor will help with the project work and its assessment. Your mentor is also responsible for returning information about your progress to the programme leader who will collate these pseudo-anonymized data and, at some point in the future, write an academic paper to assess the programme’s effectiveness.

Who is responsible for this study?

This study is the responsibility of and coordinated by Dr Robert Izzard at the University of Surrey. It also involves collaborators at other universities who act as mentors for the programme, currently Hertfordshire, Keele, Liverpool, Bristol, York, Cambridge and Exeter, with additional support through the BRIDGCE network (<http://www.bridgce.ac.uk/>).

Why have I been invited to take part?

You are invited to participate in this study because you are a keen and excited student in one of our participating schools. Your teacher will invite you.

Do I have to take part?

Participation is completely voluntary and you do not have to take part. We will describe the study in this information sheet and will give you 14 days to read this, so you can decide whether you wish to take part. Please contact us if there is anything that is not clear, or if you have any questions, or need more information.

Parental consent is required for participants under 16 years. Even with this consent, it is completely up to the participant whether they want to take part. The whole programme is voluntary.

What will happen to me if I decide to take part?

If you decide to take part, you will be given this information sheet to keep and will be asked to sign a consent form to confirm your agreement to participate. The form will be provided in an online format. Online forms, including the required consent forms (see below), will be hosted on the University of Surrey servers using "Teams". You will be provided a copy of your completed consent form to keep. You will then follow the programme under the guidance of your teacher and assigned mentor, as laid out in the "Stars for Schools" PDF document provided on the programme website, including some or all of the short projects.

If you are under 16, your parent(s)/guardian(s) will be provided their own information document and consent form, signature of which is required before you can start the programme.

By participating you agree to provide feedback to your mentor so that we can assess and publicise the programme. Audio/video/photographs of participants may be used, *with prior agreement*, to record and promote the programme. Participants may be identifiable in such recordings. Regular face-to-face and online meetings for the purposes of the programme will not be recorded.

What happens if I do not want to take part or if I change my mind?

If you have not yet started, simply do not sign up.

You are free to withdraw from the study at any time, without giving a reason, by communicating this information to your teacher who will pass it on to your assigned mentor, or a participant can contact the programme leader, Dr Robert Izzard, directly by email.

Not wanting to do the programme, or withdrawal from the programme, will not affect academic performance: the programme is entirely voluntary.

Participants can stop taking part in meetings, be these in person or online, at any time, by either leaving the meeting or by disconnecting. They will suffer no adverse effects because of such a decision.

What happens to my data if I want to withdraw?

On withdrawal you can choose to have all your data deleted by emailed request to the programme leader within three months after your withdrawal or the end of the programme. Naturally we would prefer to keep your data to further the programme and write subsequent scientific papers. Your data are pseudo-anonymized so there will no reference to your name in the data stored, except in the master name list.

What are the possible benefits in taking part?

Increases your employability prospects by teaching vital skills such as programming and independent work. You will be exposed to a level of physics beyond what is offered at school. Due to the open-ended nature of the project, it also allows you to develop this further with contacts from the university for support.

The information we will obtain from the study will help improve the quality of the programme so that it can be more successful and allow a wider range of people to participate effectively and gain knowledge of programming and physics.

Are there any potential risks involved?

A possible disadvantage to taking part in the study is that it is an extra-curricular project and will take your free time to carry it out.

This is a computer based project and will require you to have access to a computer and internet connection (although the school is hoping to provide Raspberry Pis to mitigate this).

To reduce any potential risks, the course material is available primarily for Raspberry Pi computers and also as a Virtualbox virtual machine (which can run on any platform supported by Virtualbox, currently these include Windows, MacOS, Linux, Solaris and OpenSolaris) and a Docker container. Both Virtualbox and Docker can be run in a fully sandboxed mode to prevent interaction with the underlying operating system meaning cybersecurity is maintained.

Also, the programme leader may exclude you, or the programme from your school, at any time at their discretion. Your teacher may also exclude you from the programme. These are, naturally, hoped to be only last resorts, e.g. in the event of misconduct.

How is the project being funded?

This project is currently funded by an STFC Spark grant, and Royal Society grants are pending. Contributions from its contributing staff and students acting as mentors are payments in-kind supported by various sources such as fellowships, studentships, and university funding.

Will my participation be kept confidential?

We are responsible for making sure your participation is kept confidential, any data is kept securely and used only in the way described in this information sheet. Data is pseudo-anonymously stored, meaning an identification number is used in place of your name in stored data files wherever possible.

Your information may be subject to review for monitoring and audit purposes, by individuals from the University of Surrey and/or regulators who will treat your data in confidence. Any information

that can be used to identify you will be stored on an encrypted file on the university's servers (e.g. its gitlab or OneDrive servers).

Will my data be shared or used in future research studies?

We would like your permission to share the pseudo-anonymized information you provide to publish a paper in a scientific journal, to maintain a record of the research that took place, and to share with like-minded colleagues and relevant funding agencies. We will keep non-identifiable data on the Surrey servers and would like to keep your email address so we can contact you in the future to determine whether the programme impacted your career choices.

What will happen to the results of the study?

All published results will be pseudo-anonymized and will only mention participants, e.g. for quotations, with the participants' explicit permission (e.g. by email).

We plan to publish the results of the programme in a paper in a scientific journal. This paper will use the data collected in the programme to statistically determine whether the programme has improved its participants' understanding of its content – physics, astrophysics, mathematics and computing – and changed their opinions and attitudes towards STEM subjects, and whether the programme has helped in their next career steps, e.g. university and job applications.

This research results will be published on publicly accessible websites such as the programme website, preprint serves (e.g. [arXiv.org](https://arxiv.org)), and the website of the academic publisher as required to publish the paper. This paper will be sent to participating schools for distribution and made available on the programme, and associated researchers' and funding agencies', website(s). Participants can request copies of this paper from the programme leader.

Who has reviewed this study?

The researcher completed an ethical self assessment.

This research has been reviewed by an independent group of people, called an Ethics Committee. This study was reviewed and given a favourable ethical opinion by the University of Surrey ethics committee.

Section: Your personal data

What is personal data?

'Personal Data' means any information that identifies you as an individual. We will be collecting and using some of your personal data that is relevant to completing the study and this section describes what that means.

The information that we will collect will include your name and email address, gender, town of residence, and economic status which are regarded as 'personal data'. We will use these data as explained in the 'What is the purpose of the study' section above.

Who is handling my personal data?

The [University of Surrey], who has the legal responsibility for managing the personal data in this study, will act as the 'Data Controller' for this study. The research team will process your personal data on behalf of the controller and is responsible for looking after your information and using it properly.

What will happen to my personal data?

As a publicly-funded organisation, we must only use **identifiable personal** information from people who have agreed to take part in research, and process this data fairly and lawfully. The University of Surrey processes personal data for the purposes of carrying out research in the **public interest** and special category data is processed on an additional condition necessary for **research purposes**. This means that when you agree to take part in this research study, we will use and look after your data in the ways needed to achieve the outcomes of the study.

Your personal data will be held and processed in the strictest confidence, and in accordance with current data protection regulations. When acting as the data controller, the University will keep identifiable information about you for 6 years after the study has finished after which time any identifiers will be removed from the aggregated research data.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways or the research to be reliable and accurate. If you decide to withdraw from the study, we may not be able to withdraw your data. We will keep and use the minimum amount of your personally-identifiable information that we have already collected in order to complete the study.

If you wish to complain about how we have handled your personal data, you can contact our Data Protection Officer who will investigate the matter (dataprotection@surrey.ac.uk). If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful, you can contact the Information Commissioner's Office (ICO) (<https://ico.org.uk/>).

You can find out more about how we use your information <https://www.surrey.ac.uk/information-management/data-protection> and/or by contacting dataprotection@surrey.ac.uk.

Section: Further information

What if you have a query or something goes wrong?

If you have a question or if something goes wrong the first point of contact is the programme leader, Dr Izzard, whose details are provided below (in "Who should I contact for further information?").

If Dr Izzard is unavailable, please contact either the head of the Department of Physics whose contact details can be found at <https://www.surrey.ac.uk/departments-physics>.

However, if your query has not been handled to your satisfaction, or if you are unhappy and wish to make a formal complaint to someone independent of the research team, then please contact:

Research Integrity and Governance Office (RIGO)
Research and Innovation Services
University of Surrey
Senate House, Guildford, Surrey, GU2 7XH
Email: rigo@surrey.ac.uk

The University has in place the relevant insurance policies which apply to this study. If you wish to complain or have concerns about how you have been treated during the course of this study, then you should follow the instructions given above.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact the research team using the following contact details:

Dr Robert Izzard, preferably by email r.izzard@surrey.ac.uk or, exceptionally, by post to:

Department of Physics,
University of Surrey,
Guildford,
Surrey,
United Kingdom.
GU2 7XH

Sources of support

Your programme mentor and teacher can advise further sources of support. It is not anticipated that this programme should lead to any distress or incapacity of any of its participants. Should they feel this way, they can leave at any time without prejudice.

Thank you for reading this information sheet and for considering taking part in this research.