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P2 NSO  
introduction and  
Vision

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P4 Outcomes and  
GLOs

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# Evaluation Framework 2017 - 2022



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**Our Vision:** To become a recognised world-leading resource for the enrichment of STEM subjects.

# National Schools' Observatory - Vision

The NSO uses astronomy to support and promote science, technology, engineering and maths (STEM) education, utilising privileged access to the world's largest fully robotic telescope. Astronomy not only excites and motivates pupils; it also links together many STEM areas. Science is at the root of astronomy, but it also depends upon cutting-edge technology, advanced mathematics, and high-tech engineering.

One of the largest astronomy education projects in the world, the NSO currently has over 4500 active users, our website attracts well over 1 million hits every year, and there have been over 140,000 telescope observations requested by teachers and pupils since our inception in 2004.

We feel strongly that astronomy creates a sense of excitement and wonder in people of all ages and we tap into that interest to expand our users' knowledge of science and mathematics. At the same time developing their computer literacy and communications skills, strengthen critical thinking and give experience of the real-world application of science and technology.

As well as having a significant impact on teaching and learning within schools, the NSO is also committed to providing outstanding public engagement. Working with LJMU's Astrophysics Research Institute, we organise and deliver a wide range of events for the wider public from talks to street theatre. Collaborating with a diverse range of people and institutions from artists and filmmakers, to garden designers and festivals allows us to bring the wonders of the Universe to a completely new audience.

As detailed in our strategy document, we have identified four core aims to guide our development over the period 2017-2022:

1. To increase the scope and recognition of the NSO as a resource for all STEM education
  - Broaden the scope of resources to ensure that each branch of STEM is well represented
  - Increase the involvement of primary schools
  - Double the number of users actively involved with the NSO
  - Increase the visibility of the NSO outside of the UK and Ireland
2. To increase engagement with under-represented groups in STEM
  - Open access to individual users on the NSO, including the development of a suite of student-led activities and research projects
  - Broaden the range of teachers registered on the NSO beyond specialist physics and astronomy teachers
  - Engage with three defined under-represented communities to create more positive attitudes towards STEM. Specifically:
    - Poor socio-economic areas in the north of England
    - Geographically remote schools and their communities
    - Hearing-impaired users
3. To demonstrate the impact of the NSO
  - Use an external organisation to evaluate the NSO
  - Gather user feedback via internal methods
4. To ensure the long term success of the NSO
  - Produce a robust plan for the future of the NSO which maximises the opportunities, and minimises the risks, of the development and operation of LRT
  - Continue to attract external funding to enhance the scope and impact of the NSO
  - Increase the visibility of the NSO with stakeholders

Over the course of the next 5 years, the NSO will deliver these aims and collate data in order to address various dimensions of this strategy:

- Inputs (the staff time, NSO budget and training needed to deliver the aims)
- Outputs (resources created and marketing events conducted)
- Reach (the number and type of people engaged, including the length of interventions where appropriate)
- Outcomes (detailed in the Generic Learning Outcomes of the NSO)
- Processes (the way we plan and deliver the NSO events)

This document outlines the framework within which we will measure our success against this strategy and will cover NSO engagement as detailed below in the Programme for Evaluation.

### **Programme for Evaluation:**

1. The NSO website as a resource for:
  - a. NSO Teachers
  - b. NSO Students (under teacher accounts)
  - c. NSO Users
2. The NSO marketing and events:
  - a. Attending conferences
  - b. Teacher training events
  - c. Printed and posted (e.g. social media) marketing
3. Partnerships with other organisations (e.g. STFC, RAS)

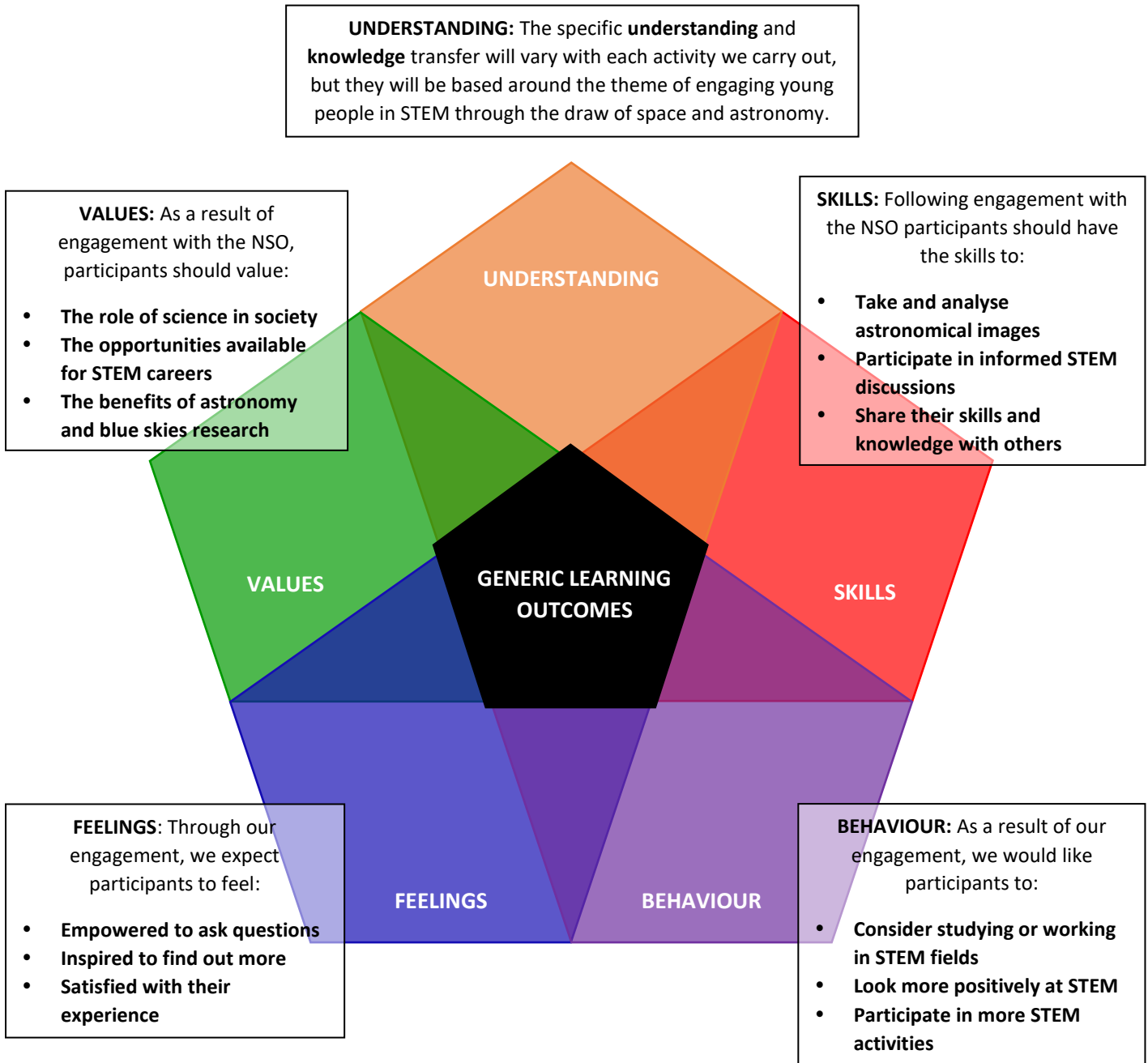
### **Aims of Evaluation:**

- **Report:** To enhance the reporting from the NSO to its advisory board and stakeholders by the systematic collection of qualitative and quantitative data linked implicitly to the strategy and outcomes
- **Improve:** To continually improve the NSO and its offering in order to increase the impact the project has on its users.

This evaluation framework will cover the inputs, outputs, reach, and outcomes of the NSO, with the information from these feeding into reviewing the processes used by the project. It will not attempt to the measure of impact of the project that will be commissioned by the NSO from external evaluators, professionals who are trained to collect and analyse appropriate data for measures of impact.

# Outcomes and Generic Learning Objectives

For the first time the NSO has adopted Generic Learning Outcomes (GLOs), used widely in the museums and visitor centres sector, and proven to guide more informed evaluation of projects, by collecting information across more than just the outputs of the project, and the knowledge transfer carried out. The GLOs of the NSO are detailed here:



Although the knowledge and understanding conveyed through the activities of the NSO will be collected here, and is important, these GLOs also cover wider potential outcomes for the project; skills gained changes in values, the participants’ feelings, and any future behaviour informed or encouraged by their engagement in the project.