

# Developing Primary-Secondary Transition in STEM

## Astrobiology Project

This case study will be of interest to primary and secondary school leaders, curriculum leaders, upper primary practitioners, secondary science teachers and university partners.

### Rationale

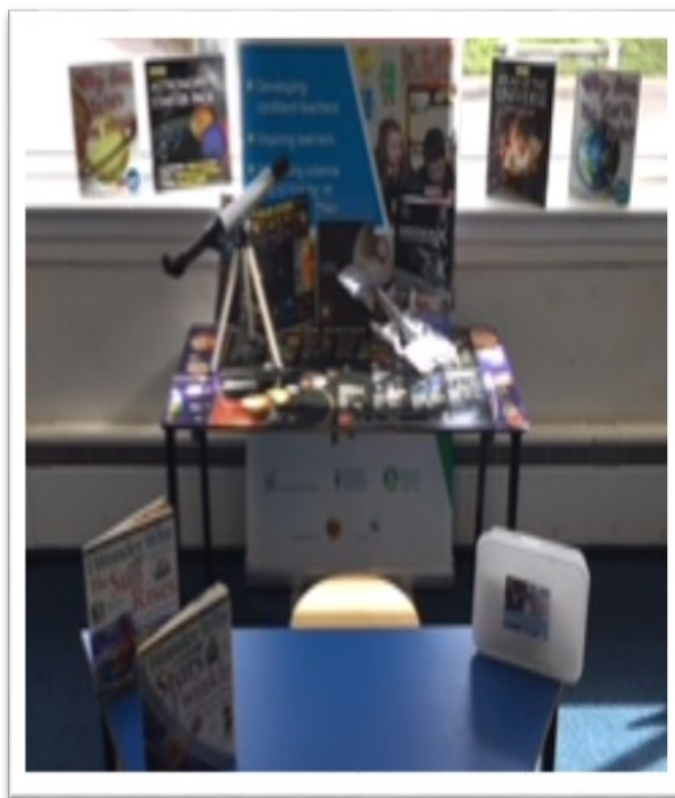
The University of Edinburgh [UK Centre for Astrobiology](#) and RAiSE's Astrobiology Transition Project provides a series of five learning and teaching modules on the subject of life on earth and beyond, involved resource development, professional learning for practitioners, school support and an evaluation.

RAiSE has an objective to develop cluster collaboration opportunities and enhance transition from primary to secondary school. The Astrobiology resource provides a range of learning experiences suitable for upper primary and early secondary which follows a progressive model.

The project developed a suite of resources around these five modules:

- Origin of life
- Habitability of earth and other planets
- Detection of life
- Life in extreme environments
- Exoplanets.

Teacher guides, background notes and learning materials were all created with everything being made available via a shared Google drive after the training session. Practical skills were a focus and opportunities to look at writing up experiments were included.



### What does it cost?

All resources required to complete the experiments are low cost and readily available in a local supermarket (with the exception of iodine solution, which may be borrowed from the secondary school). A kit list was created with links to each resource for ease of purchase.

### Where can I find out more?

For further information, please contact:

[gayle.duffus@educationscotland.gov.scot](mailto:gayle.duffus@educationscotland.gov.scot)

who will direct you to your local RAiSE officer

## Benefits

The benefits of using the Astrobiology resources to support transition include:

- Ensuring that the same experience is shared by learners across all feeder primaries – enhancing consistency of opportunity
- Engaging and motivating activities for learners that cover different areas of science
- Progressive modules which can be used as a programme of learning or as a one-off; based on a stimulating topical science subject
- Opportunity for cluster colleagues to collaborate on a shared project.



## Impact

The University of Edinburgh UK Centre for Astrobiology had experiment guides and resource kits for upper primary and early secondary learners already in existence. This project collaboration evolved to produce detailed lesson plans and digital resources to contextualise the experiments. Everything was linked to the experiences and outcomes so that practitioners could feel confident about the links to the curriculum that this opportunity provided. These links extended to curricular areas beyond the Sciences to demonstrate the ability of the work to bring together areas of the curriculum in a rich context. So far, around 1000 learners in different local authorities have been able to design experiments, formulate opinions, test

hypotheses and develop scientific literacy skills in relation to life in the universe.

For practitioners attending the professional learning sessions, further support was offered in the form of online professional learning videos based on the practical activities highlighted in the modules. These meant that anyone could access a short clip of each of the practical activities before teaching the section. This was praised by those practitioners involved in the pilot. In some cases, learners accessed these clips to lead themselves through the practical activities.

Since the initial pilot, several more professional learning sessions have been held with the RAiSE officers. The resources have been fully evaluated and tweaks made and they are continuing to be used across school clusters and by other teams work within schools such as Family Learning officers. The UK Centre for Astrobiology has created further video resources to introduce this area of Science which include short interviews with key members of the team which share their career journey and current research.

Feedback from teachers and learners has been very positive and focused on:

- Detailed background knowledge and useful links to clips that set the scene for each module
- High quality and accessible resources
- Links to several curricular areas
- Engaging experience for learners
- Opportunity to raise aspirations of learners
- Draw in literacy and numeracy into the reporting element

