Cosmic Mining

Impact summary

Project partners

IRIS The Institute for Research in Schools

James Webb Space Telescope UK

UKRI Science and Technology Facilities Council

About the project

Cosmic Mining covers physics and astronomy topics such as electromagnetic spectrum, spectral analysis and stellar evolution. Through the project, students analyse data from the Spitzer Space Telescope. They learn how to examine and classify stellar objects based on the light they emit. Their work contributes to the first fully classified catalogue of these sources, which will be an extremely valuable resource for astronomers.

The ultimate aim is to assist astronomers with the identification and selection of potential targets for the James Webb Space Telescope – the most powerful and complex space telescope to ever be built. If successful, students will contribute to the development of an observing proposal which makes the scientific case for pointing the huge space observatory at these objects.

Student registrations

	21/22	22/23	23/24
Number	410	389	342
Post 16	56%	37%	44%
Female	—	49%	41%

Impact on students

This project supports students to develop:

- skills in carrying out research
- skills in analysing complex information
- computer skills, in particular, learning how to use spreadsheets

Students said that they:

- found the project enjoyable and interesting
- liked working in a group independently of the teacher
- developed many transferable skills
- gained new knowledge about space and the classification of spectra

"Exciting to apply science knowledge to stars, as well as work on real scientific data."
Year 12 female student

"It was really interesting to see data that could potentially influence the future of STEM and our knowledge of space and planets."
Year 12 female student

96%
Of students rated the project good or very good

98%
Of students would recommend IRIS to another student

84%
Felt more certain that people like them are researchers

80%
Felt more certain that being a researcher is an interesting career

94%
Were more aware of what it is like to work in STEM

83%
Were more certain about the exciting opportunities for them in STEM in future

65%
Were more aware of different jobs in STEM

77%
Were more aware of how STEM can help in the real world

Students reported they had:

- Improved their teamworking and communication skills
- Developed transferable skills in a creative and interesting way
- Developed good organisational and team working skills

Students told us the project helped them:

- explore new areas of science
- work like a scientist
- understand more about STEM
- contribute to STEM research
- increase their interest in a STEM career

Just over a quarter of students had changed their future study or career plans as a result of the project.

"I wasn't too sure about taking physics for A-levels but now I am."
Year 10 female student

"Fun, and really useful for studies. You shape the future of the world of space."
Year 10 male student

"Very exciting and very rewarding, shows how fun STEM can be and requires hard work but keeps you engaged."
Year 10 female student

Impact on teachers

Teachers reported that the project:

- helped students feel like researchers
- provided stretch and challenge
- enabled the school to provide a unique opportunity
- improved students' awareness of STEM careers

Teachers said:

94%
Helped students feel like researchers

89%
Provided a new opportunity for students

92%
Helped students develop creative problem solving skills

97%
Increased the science capital of students

97%
Helped to communicate the excitement of STEM

"An excellent experience. Good scaffolding for our development."
Teacher