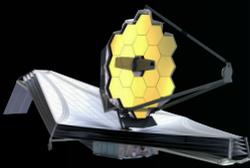


Cosmic Mining

Evaluation summary

COSMIC MINING



Project partners

About the project

Cosmic Mining covers physics and astronomy topics such as the 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 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

Cosmic Mining is a popular project and consistently attracts a large number of students.

	21-22	22-23	23-24	24-25
Number	410	389	233	267
Post-16	56%	37%	45%	48%
Female	-*	49%	38%	48%

*Data on gender was not collected until after 2022

Methodology

Data on the running and impact of the project has been gathered from the pre and post IRIS evaluation survey data since the inception of the project. The most recent evaluation data is included in this report.

Item	24-25
IRIS pre-participation survey	185 students
IRIS post-participation survey	82 students 29 teachers

Impact on students

This project supported students to develop valuable research, data analysis, and computer skills. Many students gained deeper STEM knowledge and career awareness, broadening their horizons and enthusiasm for science.

Students said that they:

- Found the project enjoyable and interesting
- Enjoyed 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

88% of students rated the project good or very good

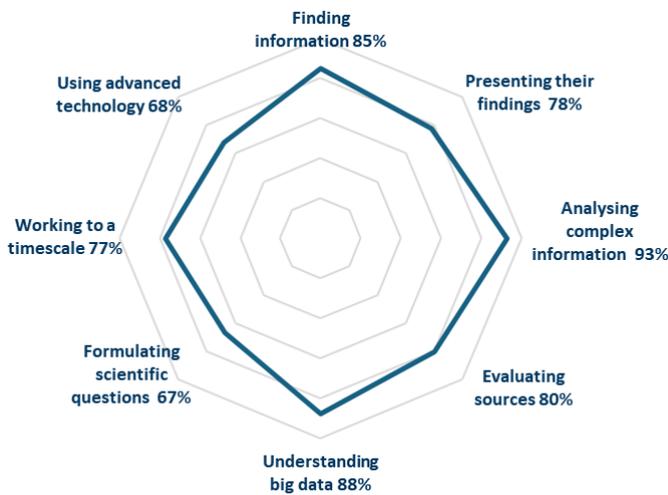
Cosmic Mining

Impact on students' skills

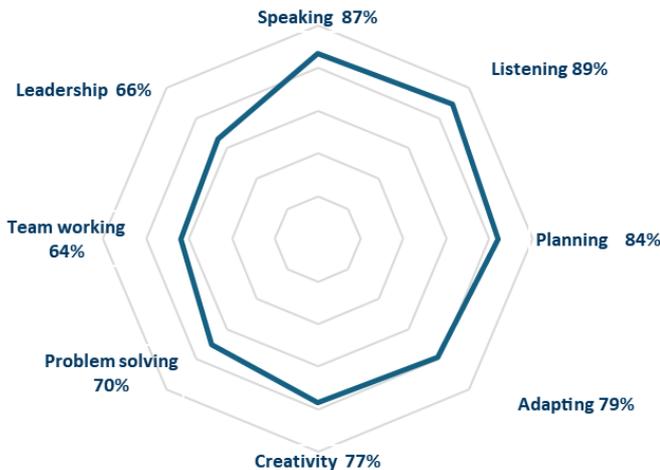
Students reported gaining valuable skills such as data analysis, problem-solving, and teamwork, which enhanced their confidence and academic readiness.

94% of students agreed that they developed important skills that will help them in the future.

Through the project, students agreed that they had improved their research skills...



...and their transferable skills



Evaluation Summary

“I learnt new skills, researched a topic I find interesting and practiced working collaboratively. Cosmic mining is good because you get to work on real data.”

Year 12, female student

“I think it is an amazing opportunity for someone who is or isn't thinking about continuing STEM into a career as it is a great team building exercise and good for problem solving whether you are looking at STEM for further education or not.”

Year 10, female student

Understanding of STEM and research

The project helps students to feel more positive about research and STEM. Students...

91%

...can make a valuable contribution to research

84%

...understand research can be hard work but is rewarding

“Perfect if you're interested in science, research or discovering new things. Good if you want to make an impact in your research.”

Year 10, female student

Cosmic Mining

The project helped students to explore areas of STEM beyond the classroom. Students...

92% ...know about STEM beyond the school curriculum

87% ...know how STEM can make a difference in the real world

“I found it challenging but I enjoyed gaining new knowledge that I could be proud of and use in future projects.”

Year 12, female student

Future career impact

The project impacted young people’s career knowledge and interests through the authentic exposure to STEM research. Many highlighted that the experience deepened their interest in STEM subjects, introduced them to new areas they had not previously considered, and helped them envision potential career paths, including research roles and further study in science.

Overall, the project broadened career horizons and inspired enthusiasm for STEM, making it a rewarding and transformative experience. Students...

90% ...have a better understanding of what it might be like to study STEM at a higher level

80% ...agreed that being a researcher would be an interesting career

81% ...know about a range of different STEM careers

Evaluation Summary

“It was a very unique experience, and it helped me think about a future in astrophysics.”

Year 12, female student

“I very much enjoyed the Cosmic Mining project as I was already interested in astrophysics and being able to learn more about that field was very rewarding.”

Year 12, female student

“It was inspiring to complete a research project as a year 12 student and seeing what I can do in my career.”

Year 12, female student

“It's good to understand how research works and experience how we may work as researchers in the future.”

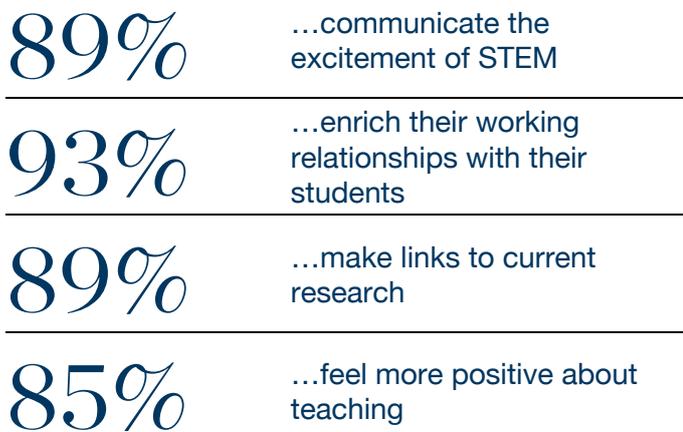
Year 12, female student

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 found that running the project helped them to...



“We already have a culture of research in the school, and this continues to develop that.”

Teacher

“Loved the opportunity to give year 10 pupils an insight into the research process. Looking forward to expanding to 6th form.”

Teacher

“Students have had a chance to see what real world research is like and develop confidence and skills, not available in current science curriculum.”

Teacher

“This certainly gave the students a chance to engage with real research, which is not normally possible.”

Teacher

