

Star Formation

Rich Task 3 Activity 4

Introduction:

This activity focuses on star formation, celestial bodies and gives some basic information on black holes. Students are required to describe celestial and man made objects further developing understanding. The worksheet provides a space for students to bring [Rich Task 3 Activities 1 - 3](#) together and reflect on what they have learned and how their perception of outer space has changed compared to their original drawing.

Preparation Required:

- Printing

Downloadable Materials:

- [Worksheet 3.4](#)
- [Expected Students Responses to Worksheet 3.4](#)
- [Guess Which Activity](#)

Relevant Junior Cycle Learning Outcomes:

Students should be able to...

NOS LO 7: Organise and communicate their research and investigative findings in a variety of ways fit for purpose and audience, using relevant scientific terminology and representations.

NOS LO 5: Review and reflect on the skills and thinking used in carrying out investigations, and apply their learning and skills to solving problems in unfamiliar contexts.

E & S LO 4: Develop and use a model of the Earth-sun-moon system to describe predictable phenomena observable on Earth, including seasons, lunar phases, and eclipses of the sun and moon.

E & S LO 2: Explore a scientific model to illustrate the origin of the universe.

Learning Intentions:

Students will be able to...

- Compare different celestial bodies and human space technologies
- Describe how a black hole changes the appearance of its surrounding
- Discuss what they have learned throughout rich task 3

Teacher Resource

Prior Knowledge/Horizon Content Knowledge:

- Communicating
- Summarising

Differentiation and Accessibility Suggestions:

This activity requires some prior knowledge. Students can decide the depth of questioning and discussion in the class.

Guess which should be done in pairs

The reflection section can be done alone or as a discussion in small groups or pairs

To extend the activity students could do further research and make a presentation/ poster on a particular area/topic which they found interesting.

Activity Outline:

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| Activity Name | Star Formation |
| Alignment to ISLE investigation | Analysing data to form an argument in agreement or disagreement with the original questions |
| Rationale | To understand the formation of stars and black holes. To reflect on learning |
| Activity Description | <p><i>(please see downloadable materials for the resources for this activity)</i></p> <p><i>(Q1. Worksheet 3.4)</i> Students watch a video here which explains star formation. Students then illustrate the different stages and write down some of their characteristics.</p> <p><i>(Q2. Worksheet 3.4)</i> Students, in pairs, play a game of guess who but with celestial objects. The aim being to guess which object one person picked through yes/no questioning and elimination. Good descriptions can be recorded and shared with the class.</p> <p><i>(Q3. Worksheet 3.4)</i> Students watch a visualisation of black holes created by UCD researchers. https://sidequestvr.com/app/643/black-holes-light-matter</p> |

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| | <p>(Q4. Worksheet 3.4) Students compile any remaining questions</p> <p>(Q5. Worksheet 3.4) Students reflect on what they have learnt in the rich task.</p> |
| <p>Link to other activities</p> | <p>Links back to Rich Task 3 Activity 1 - 3.</p> |
| <p>Link to current research in DIAS Dunsink Observatory</p> | <p>The Solar and Space Weather group at DIAS Dunsink consists of PhD students, postdocs and professors who study different aspects of the Sun and Space Weather.</p> <p>Through their research, scientists can get daily updates on the activity of the Sun (https://solarmonitor.org) and advise on precautions that can be taken to protect Ireland's power grid from potential solar storms.</p> <p>More information on specific projects can be found here: https://www.dias.ie/solarphysics</p> |