

# Ethics of it all

## Rich Task 4 Activity 4

### Introduction:

We have looked at the positives and negatives of space exploration and should now focus on the next question: Should the Irish government invest in space exploration? This activity asks students to question the ethics of space exploration and other topics related to it. Ethics is an important discussion and so the activity is a walking debate (you can do it sitting depending on the restraints of the classroom, however the necessity to occupy one of the statements makes for a better debate). The instructions are limited and it allows students to direct the discussion and debate whilst still giving them questions and information. You can learn about walking debates [here](#).

### Preparation Required:

- Printing
- A classroom which allows students to walk around

### Downloadable Materials:

- [Worksheet 1.4 A](#)
- [Expected Student Responses to Worksheet 1.4 A or B](#)
- [Debate pdf/ powerpoint](#)

### Relevant Junior Cycle Learning Outcomes:

Students should be able to...

**E & S 8:** Examine some of the current hazards and benefits of space exploration and discuss the future role and implications of space exploration in society.

**NOS 10:** Appreciate the role of science in society; and its personal, social and global importance; and how society influences scientific research.

**NOS LO 2:** Recognise questions that are appropriate for scientific investigation, pose testable hypotheses, and evaluate and compare strategies for investigating hypotheses.

**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.

## Teacher Resource

### Learning Intentions:

Students will be able to...

- Research ideas of scientific ethics
- Communicate their ideas in a small group and whole-class setting.
- Discuss and debate in a classroom wide setting.

### Prior Knowledge/Horizon Content Knowledge:

- Ethics of science
- Environmentalism in space
- Private space travel

### Differentiation and Accessibility Suggestions:

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

The teacher shares the presentation or uses the pdf and facilitates class discussion. The teacher can guide the discussion.

Students could research one different topic each ahead of time through the use of the exit ticket. This allows less confident students to feel more able to communicate their ideas. The topics to research are

- Alien life exists
- The government should spend money on space exploration
- 'The Science' is always correct/true (science as a body of knowledge vs a method of testing)
- Private space travel should be allowed
- I would like to be an astronaut
- Is there a duty to protect the environment on other planets

The teacher can hold back some of the topics for on the spot debate or add more topics. This can be added into a wider debate of ethics of general science.

### Activity Outline:

<b>Activity Name</b>	The Ethics of it All
<b>Alignment to ISLE investigation</b>	Analysing data to form an argument in agreement or disagreement with the original hypothesis

<p><b>Rationale</b></p>	<p>Exploring different topics related to space exploration through debate</p>
<p><b>Activity Description</b></p>	<p><i>(please see downloadable materials for the resources for this activity)</i></p> <p><b>Before Class</b>  <i>Worksheet 4.4</i>            An exit ticket to allow research of one of the topics that will come up in the debate.</p> <p><b>During Class</b>            Students must pick one corner of the classroom (Strongly agree, agree, disagree, strongly disagree) for each statement. Students can be further prompted or chosen to give opinions. Allow time and ask students on opposing sides to respond. The teacher can also ask students on the same side if they agree for the same reasons.</p>
<p><b>Link to other activities</b></p>	<p>Links back to <a href="#">Rich Task 4 Activities 1-3</a></p>
<p><b>Link to current research in DIAS Dunsink Observatory</b></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 (<a href="https://solarmonitor.org">https://solarmonitor.org</a>) along with information about the Earths' magnetic field and space storms.</p> <p>More information on space weather and why we predict it can be found here: <a href="https://www.magie.ie/education/">https://www.magie.ie/education/</a></p>