

Learning Outcomes:

Nature of Science	Students should be able to research and present information on the contribution that scientists make to scientific discovery and invention, and its impact on society Students should be able to appreciate the role of science in society; and its personal, social and global importance; and how society influences scientific research
Earth and Space	Students should be able to research different energy sources; formulate and communicate an informed view of ways that current and future energy needs on Earth can be met Students should be able to illustrate how earth processes and human factors influence the Earth's climate, evaluate effects of climate change and initiatives that attempt to address those effects

Formative Assessment in Enquiry Learning in Junior Cycle Science

Throughout these activities, teachers can use evidence to scaffold science learning and improve science teaching to bring about more equitable outcomes, these practices could include:

1. Designing/adapting classroom assessment that is well integrated into instructional activities.
2. Circulating and interacting with students, using a variety of approaches (e.g. questions, comment only, verbal comment by teacher, prompts and traditional tests) to elicit evidence of diverse students' learning.
3. Provides timely, substantive, constructive and highly responsive feedback.
4. Is flexible and responsive in adjusting instruction and using alternative approaches to help all students to learn based on the results of diagnostic assessment.
5. Proactively involves students in the process of setting specific learning goals, and

students are fully aware of the assessment success criteria.

Task

You are on a team of Civil Servants attending a conference in Dublin Castle on climate change. Climatologists from all over the world will be on a panel to answer questions. In preparation, the Minister for the Environment has asked your team to come up with questions for the panel. He suggests researching the factors that provide evidence of a rise in temperatures over the past century. He reminds you

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to base your research on current data that exist on climate change and its overall effects on the planet, the climate, and human activities.

Think about how the amounts of greenhouse gases have changed in the past 100 years. What is causing these changes?

Brainstorm a list of factors that provide evidence of climate change as related to human activities or natural processes.

• Choose which climate-change factors you would like to research for your questions.

Think about the following:

1. What types of data are you thinking about collecting?

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2. What sources or key words will you use to research?

Key Skill - Working With Others

Divide your team so that each factor is researched by **at least one person**.

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Research and collect data about how your cause has contributed to the change in Earth's temperatures over the past 100 years. While conducting your research, think about the following questions.

Info from:	I	My peer	My teacher
Are you collecting local, regional, or global data?			
Are there certain areas that are more impacted by your factor?			
How does your factor affect Earth's average surface temperatures?			
What are the positive and negative effects of your factor?			
How has your factor impacted or been impacted by human activity?			
What can be done to reduce the effects that your factor has on Earth's climate?			
What will happen if these effects are not addressed?			

Once you have completed your research, evaluate the evidence you gathered.

Think about how you will word the questions to the experts.

How can you make sure that you get a comprehensive answer, rather than a simple "yes" or "no" response?

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Based on the data you collected, think about the answers that the climatologists are likely to give. Use those ideas to brainstorm follow-up questions.

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Organise your research results.

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Make a rough draft of your questions.

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Trade your work with members of your team and review their questions.

Offer suggestions to your team members to improve or clarify their work.

My team mates questions	Feedback to my peers

Discuss the following questions with your team.

	Record of my discussion
1. Are the main contributors to the rise in global temperatures well-represented?	
2. Is there anything else you can add?	
3. How well did your questions relate to the causes and effects of climate change? Explain your answer.	
4. What better understanding have you gained about why Earth's average surface	

temperatures have risen over the past 100 years?	
5. What can you personally do to slow or reverse climate change?	