

GREAT GLASS SHARE

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Science
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for SCHOOLS

How could we prevent polar ice from melting?

AGE RANGE: 5-7 years

OVERVIEW

Pupils explore possible solutions to the melting of the polar ice caps, drawing on knowledge of polar habitats and the dangers for animals living there. They make observations over time to explore the effect of glass on melting times.

In the 'Arctic Ice Project' the effect of adding a thin layer of tiny, hollow, glass beads in key places is being investigated. In this investigation, children will mirror the research to see whether glass beads might reflect sunlight and reduce melting.



VIDEOS



Great Science Skills Starters will support pupils to develop their skills in **Asking questions**, **Interpreting data** and **Drawing conclusions**

LEARNING OBJECTIVES

- To identify that most living things live in habitats to which they are suited
- To identify and name a variety of everyday materials
- To describe the simple physical properties of a variety of everyday materials
- To identify and compare the suitability of a variety of everyday materials for particular uses

WORKING SCIENTIFICALLY FOCUS

- To perform simple tests
- To observe closely, using simple equipment
- To use their observations and ideas to suggest answers to questions

See page 38 of the PSTT **Bringing back glass** resource



RESOURCES

FOR EACH GROUP (2/3 pupils)

- A desk lamp with adjustable height and incandescent bulb (not LED)
- stopwatch
- cling film
- 7 glass beads/marbles
- a block (wood/book)

FOR EACH REPEATED TEST

- 2 x chocolate buttons
- 2 x cake cases

TO SUPPORT TEACHING

- Supporting teaching slides deck
- [5-7 Conclusion Creator](#)
- Videos - Inspire further questions about how glass affects the speed at which polar ice caps melt with these videos from the The Ice911 project:
 - [Arctic Ice loss since 1990](#)
 - [A glacier break](#)

KEY WORDS

See Slide 11 of the teaching slide deck



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Demonstrate how to use the equipment to model sunlight falling on Arctic ice and causing it to melt by: placing the chocolate buttons (representing the ice caps) into both cake cases. Cover them with a single layer of cling film on each case. On one case, add the beads/marbles. Now, place the lamp (representing the sunlight) so that light shines down onto both cases. Encourage them to identify what we are changing. **How does glass change the speed chocolate melts?** This is a modelling enquiry that will lead them to think about issues over climate change.



Pupils collaborate to set up their own observations over time enquiries, with support where needed. By turning the light on, they can record observations every 2 minutes by removing the light and checking if the buttons have melted. Discuss how they will know the chocolate has melted. They can do this by simply pressing the chocolate buttons.

Record the time it takes for:

- the chocolate to change shape when pressed
- chocolate to melt completely.



Pupils **analyse** their data by looking at the difference in time between the chocolate buttons with glass on and those without.

How could we prevent the polar ice caps from melting? What may make them melt quicker or slower?



Pupils draw **conclusions** to respond to the scientific question. They should consider how their conclusions can be used to understand whether glass could prevent polar ice caps from melting. What properties of glass make it useful in the polar regions?

Enhance this by using the **GSSfS Conclusion Creators**



Pupils can choose their method of sharing their evidence with new audiences. They may consider:

- information writing
- writing a postcard to polar scientists
- creative writing, taking the perspective of writing to the animals of the Arctic, explaining how what they have found out may help them and protect their habitats
- giving a talk in assembly bringing out how the properties of glass can be helpful to climate change



Have pupils got ideas for **further scientific questions** for enquires they could undertake? Encourage them to use their imagination for how solutions can be found to protect our environment.

Enhance this by using **Question Makers** to inspire question-asking.

