

PALAEOCEANOGRAPHY WITH DR BABETTE HOOGAKKER AND DR CATHERINE DAVIS

TALKING POINTS

KNOWLEDGE

1. What percentage have oxygen concentrations in seawater decreased by in the past 50 years?

COMPREHENSION

2. Why do you think it is important that scientists and researchers understand dissolved oxygen concentrations in the geological past?
3. Why is the Pacific Ocean such a valuable area for palaeoceanography researchers?
4. What are the issues with current climate models?

APPLICATION

5. How might the findings from the FARGO project help mitigate the problems of ocean deoxygenation?
6. What research questions would you investigate if you were a palaeoceanographer?

ANALYSIS

7. What can chemical analyses of foraminifera samples reveal?

EVALUATION

8. Considering Babette and Catherine's experiences, what do you think you would enjoy about a research career in palaeoceanography?
9. Babette's team is working to expand its network of researchers. What is the value of international networks of researchers?

ACTIVITY

Apply for funding!

Babette and Catherine's research relates to the UN Sustainable Development Goals (SDGs), in particular, goal number 14 – 'Life Below Water'. Learn about the goal by visiting the UN webpage:

www.un.org/sustainabledevelopment/oceans

Imagine you are a researcher in Babette and Catherine's field. You are aiming to lead a research project that will contribute to SDG 14. To conduct your research, you will first need to apply for funding.

Write a letter to your funder outlining:

- the research project you want to undertake
- the research questions your project will aim to answer
- the wider, long-term implications of your findings
- how your project is related to SDG 14.

If you can, share your letter with a friend and ask them to imagine they represent the funder:

- How persuasive do they think you have been?
- Have you convinced them your research project will help society achieve SDG 14?
- Will they fund your project?!

MORE RESOURCES

What is happening with oxygen in the ocean?

The FARGO team has put together a video that helps to explain what is happening in the ocean: www.youtube.com/watch?v=mMBNKK8zBH0&ab_channel=BritishGeologicalSurvey

The Very Simple Climate Model

This climate model helps to show how much the temperature will rise in the future depending on greenhouse gas emissions. Use the model to understand the interactions at play, but also how climate models work: www.scied.ucar.edu/interactive/simple-climate-model

Future Climate: Explore the Possibilities

In this model, you suggest the rate at which you think humans will release CO₂ into the atmosphere in the future, and the model calculates what that means for atmospheric CO₂ concentration and global temperature: www.scied.ucar.edu/learning-zone/climate-solutions/future-climate-explore-possibilities

Foraminifera

This article from the British Geological Survey will help you understand more about foraminifera and how they help scientists from across a broad range of disciplines: www.bgs.ac.uk/discovering-geology/fossils-and-geological-time/foraminifera