

Iceberg Ahead

The World Around Us

ICL: The Blue Planet
Year 6/7



Cross Curricular Skills developed/displayed in this assessment activity

Communication	<ul style="list-style-type: none">- Reading- Talking and Listening
Thinking Skills and Personal Capabilities	<ul style="list-style-type: none">- Thinking Problem Solving and Decision MakingBeing CreativeWorking with othersSelf Management

What It's About

Major plans are being drawn up to transform a disused shipyard in Belfast into a dedicated heritage centre for RMS Titanic. This task uses this context to explore the different types and properties of water and the changes that occur in the water cycle.

Where It Fits

Change Over Time

- How change is a feature of the human and natural world

Key Questions

- How do things change?

Suggested Learning Intentions

- To express opinions and give reasons based on what has been read.
- To explore and develop ideas and respond to others' points of view.
- To make links between possible cause and effect (designing and carrying out fair tests)
- To know some of the factors that can affect the melting process
- To understand how learning in science relates to news in the world around

Discussion Starters

When the children are looking at the introductory task:

- Do you think an accident like the sinking of the Titanic could happen today?
- Why could it be difficult to see icebergs when they are so big?

When the children are thinking about types and uses of water

- How is water important to living things?

Running the Activities

1. Use the illustration and text on page 1 as a stimulus to introduce and discuss the story of the Titanic. Encourage the children to talk to each other about the facts on the Iceberg Fact Sheet, asking them to think of other things they'd like to find out about icebergs.
2. Use the text at the top of page 2 to introduce the idea that various factors could affect how quickly an iceberg melts. Challenge the children to discuss in pairs and then small groups any factors that they think would affect melting. (Tip: List these factors on a white board and ask the children to use them later when they are planning their fair test.) Some examples may be, the size of the iceberg, the temperature of the water, the shape of the ice berg.
3. Ask each group to choose a factor to investigate. Discuss with the children their ideas about how mini-icebergs could be made and encourage them to use the helpful steps on page 2 as a

basis for planning and carrying out their investigation. This activity could be done in small groups of 3 or 4. Groups could later show each another group their investigation, describing what they did and why.

4. Use the text and illustration on page 3 as a stimulus to discuss and identify different 'types' of water. Use the think-pair-share approach to encourage the children to think about and discuss different ways in which the water is being used. Emphasise that they should think about water both on the ship and around it in all its different forms. Responses could be presented either verbally or on a poster with similar uses or 'types' of water grouped together with simple explanations.

Web links

www.warrinerprimaries.com/Topic/solidliquids.htm

A link to many more websites for children about solids and liquids.

www.bbc.co.uk/schools/revisewise/science/materials/

A look at a range of science topics exploring the different facts children would like to know about materials and their properties. There are activities, fact sheets and quizzes on materials for children. See Solids, Liquids and Gases.

www.titanicstory.com

Lots of interesting information about the Titanic for children and teachers.

www.magni.org.uk

The National Museums Northern Ireland website.

Assessment for Learning Smart Grid*

Use the Smart Grid to help the class review their learning. For additional information about how to use a Smart Grid view the 'How to use' guide.

Thumbs Up	We were great at the task because...	<p>we were able to come up with some different factors that could change the time it took for an iceberg to melt.</p> <p>we made a prediction about what would happen in our investigation.</p> <p>we were able to say how the investigation could be set up as a fair test.</p> <p>we decided what measurements or observations we would take for our results.</p> <p>we thought up a story about the water cycle which had the water travelling to lots of different places.</p> <p>we identified lots of different types of water and were able to explain the different ways in which it was being used.</p>	<p>Next time we will...</p>
Thumbs Sideways	We were good at the task because...		
Thumbs Down	We were OK at the task because...		

* Smart Grids are part of the Smart Science series developed by the Centre for Science Education, Sheffield Hallam University

Science at your Fingertips

How can you make a mini-ice berg?

Freeze water in small yoghurt pots and then pop them out into water. They will float and can be used to mimic a mini-ice berg.

What could change how quickly icebergs melt?

Several factors could affect this but the size of the iceberg, the shape of the iceberg and the temperature of the water it is floating in are probably the most likely.

The more ice there is in an iceberg the longer it will take to melt. However, the shape of the iceberg is also important; some shapes have more of their surface in contact with the water around them and this will speed up melting.

The higher the temperature of the water, the quicker the iceberg would melt as heat from the water speeds up the melting process.

Other factors that might also affect the speed of melting include air temperature, whether the iceberg turns over and whether the 'sea' is moving, which would have a stirring effect.

Why does only a small amount of an iceberg stick up above the surface of the water?

When water freezes the ice that forms is slightly 'lighter' than the surrounding water. This is why the ice floats. Usually about one-seventh of an iceberg is above the surface.

What different forms can water take?

Water is one of the few materials that can exist as a solid, liquid or gas within the range of temperatures that we find on Earth. Although usually found as a liquid we are also familiar with water in its solid form – ice. Water vapour, however, is more difficult to see. When water evaporates to form water vapour the tiny droplets that are present in the air are often too small to be visible. It is only when the droplets are slightly larger that they are visible as clouds; when they are larger still they can fall as rain.

Connecting the Learning

Water Journey

Think of a story about what might have happened to some of the water that was in the iceberg that the Titanic hit. What places could it have traveled to in the last 95 years? Who or what could it have come into contact with? Could it have been trapped somewhere, like in your garden pond, or even ended up as another iceberg somewhere? The possibilities are endless.

Time to get to New York

The people travelling on the Titanic were expecting to get to New York in a few days but now we can get to New York in only a few hours. How have the time needed and forms of transport used to cross the Atlantic changed over the years?

News of the sinking

In 1912 news of the sinking of the Titanic was transmitted round the world using a system called telegraph and reported in newspapers. Think about how a disaster like this would be reported today. Prepare the text for a brief television news report about the sinking.

Earth, Water and Ice

A view of the earth from space would show some of the earth covered by water, some as land and some covered by ice. How much of the surface is covered by each of these? Is this changing and why?