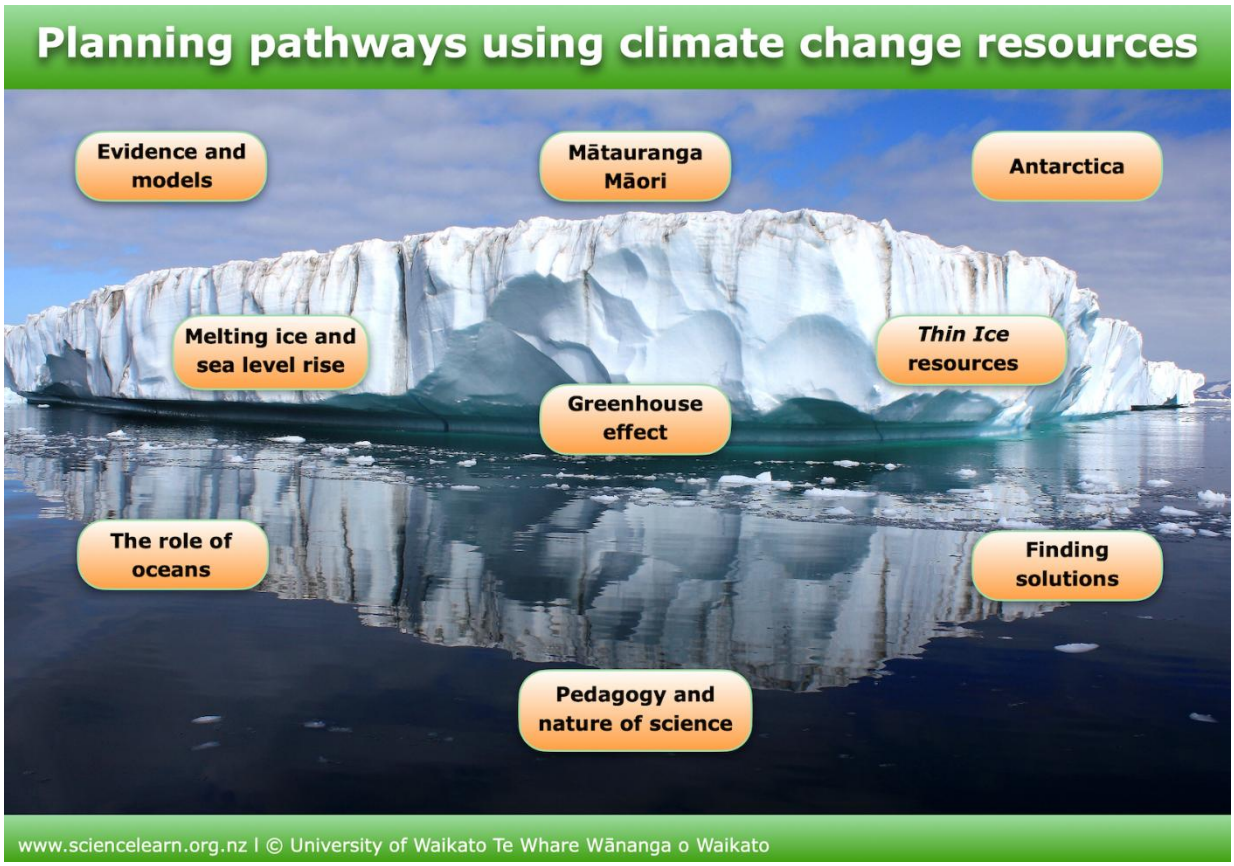
Planning pathways using climate change resources

This interactive groups Hub resources into key science and teaching concepts. The article Climate change resources – planning pathways provides pedagogical advice and links to the New Zealand Curriculum.



This interactive diagram provides a selection of pathways that allow for differing approaches and starting points using some of our climate change resources. The aim is to assist educators with their planning of lessons and units of work by providing options that cover multiple science concepts. If using the online version, click on the labels for links to supporting articles, media, data and student materials.

Background image courtesy Christine Zenino, Creative Commons 2.0

Transcript index

Transcript

Evidence and models

To understand how the climate is changing and to support the claim that changes are due to human actions, scientists gather and interpret data as evidence. They use this data to build and validate complex climate models.

Related articles

- What is climate change?
- Human contributions to climate change – how we know
- Evidence of climate change in Aotearoa
- Carbon dioxide and climate
- Clues to the past
- Collecting data in Antarctica
- Ice ages unearthed
- Carbon dioxide in the ocean
- Carbon dioxide in the atmosphere
- Climate models
- Measuring greenhouse gas emissions
- Measuring gases using eddy covariance

Video: Thin Ice/University of Waikato

Related activities

- Interpreting representations using climate data
- Using weather data
- Climate data analysis

Related media

- The ocean, CO_2 and climate change – timeline
- Models in marine science
- Why study ice from Antarctica?
- Increasing atmospheric carbon dioxide

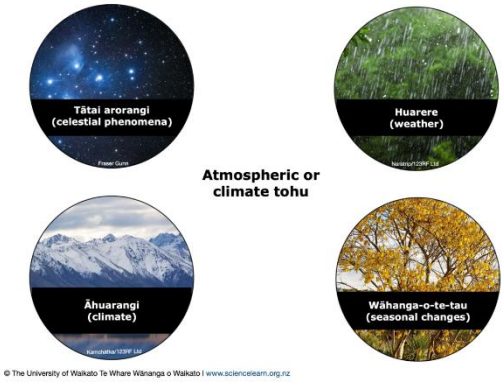
Select here for the video transcript and copyright information.

Mātauranga Māori

The following resources provide te ao Māori insights regarding mātauranga and climate change.

Related articles

- Earth systems and climate change
- Māori ways of knowing – weather and climate
- Why climate change matters to Māori
- Climate change and impacts on biodiversity
- Milly Grant-Mackie – kairangahau Māori



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Antarctica

Antarctica is an ideal location to study local-to-global scale climate change. Experts use clues from the past to study the impact of greenhouse gases and use this knowledge to make predictions about climate change.

Related articles

- Antarctica and global climate change
- Discovering the secret past of Antarctica
- Adventure and innovation on the ice
- Collecting data in Antarctica
- Climate change, melting ice and sea level rise
- Trapped in ice

Dr Adrian McDonald

Related activities

- Investigating sea level rise
- Antarctica – literacy learning links

Related media

- Dating ice cores
- Why study ice from Antarctica?

Melting ice and sea level rise

One implication of climate change is sea level rise. The rising global temperature is causing both land ice and sea ice to melt. Land ice and sea ice are not the same. They form differently, and the consequences of their melting affect the planet in different ways.

Related articles

- Climate change, melting ice and sea level rise
- Satellites measure sea ice thickness
- Glaciers provide global climate puzzle
- Disappearing glaciers
- Rising seas – a *Connected* series article

Pseudopanax@Wikimedia, Creative Commons

Related activities

- Investigating sea level rise
- Melting glacial ice
- Temperature, salinity and water density

Related media

- Shrinking tropical glaciers
- Ice in Antarctica
- Rocks and ice ages

Greenhouse effect

The greenhouse effect is the natural warming of the Earth's atmosphere.

Related articles

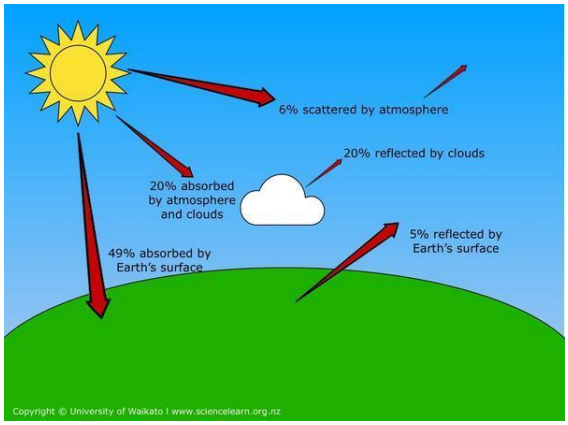
- Greenhouse effect
- Greenhouse gases and the atmosphere
- Measuring greenhouse gas emission

Related activities

- Greenhouse simulation
- Greenhouse gases and the atmosphere

Related media

- Greenhouse gases



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Thin Ice resources

The film *Thin Ice – The Inside Story of Climate Science* provides a look at our planet's changing climate, with a range of Science Learning Hub resources designed to support its use in the classroom.

Related articles (with embedded media)

- Climate change, science and controversy
- Climate action
- Adventure and innovation on the ice
- Carbon dioxide and climate
- Clues to the past
- Climate models
- Disappearing glaciers
- Climate change, melting ice and sea level rise

Video: Thin Ice/University of Waikato

Related activities

- Investigating sea level rise
- Melting glacial ice
- Temperature, salinity and water density

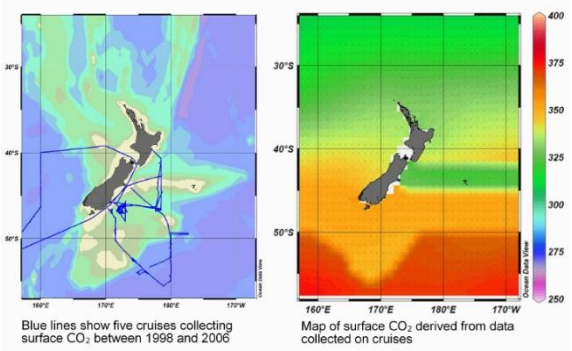
Select here for the video transcript and copyright information.

The role of the oceans

The oceans play an important part in controlling climate. They also act as carbon sinks – holding more carbon from the atmosphere than they give up.

Related articles

- The ocean in action – introduction
- Argo project
- Carbon dioxide in the ocean
- The ocean and the carbon cycle
- Ocean dissolved gases
- The Southern Ocean's ecological richness and significance for global climate



Kim Currie

Related activities

- Ocean acidification and eggshells
- Temperature, salinity and water density
- Investigating sea level rise

Related media

- Carbon dioxide and the oceans
- Southern Ocean carbon sink
- Ocean acidification
- The ocean, CO_2 and climate change – timeline

Pedagogy and the nature of science

Climate change is a rich and relevant context. The following resources provide suggestions for scaffolding learning pathways. The nature of science is interwoven through many of the resources featured throughout this interactive – in the articles listed below and in the activities.

Related articles

- Climate change – a wicked problem for classroom inquiry
- Climate change – classroom competencies
- Thinking about science education for the future
- Thin Ice in the classroom
- Dairy farming and climate change – a context for learning
- Climate change literacy links
- Climate change – key terms
- Climate change, science and controversy
- Climate action
- Adventure and innovation on the ice

Public domain

Related activities

- Climate change – challenging conversations
- Using infographics
- What might we miss?
- The extra piece
- Scrambled sentence

Related citizen science

- ClimateViz

Related PLD webinars

- Tackling planning in science

Finding solutions

Climate change is a wicked problem, but it is also an opportunity to get involved and take action. Thousands of scientists worldwide are looking for ways to slow or mitigate the effects of climate change. We can all do our part to help out.

Related articles

- Climate action
- Renewable energy sources
- Measuring methane from space
- MethaneSAT – turning data into action
- Dairy innovations – targeting climate change
- Breeding low-methane sheep
- New Zealand's National Science Challenges
- Environmental benefits of potato plates
- The environmental footprint of electric versus fossil cars
- Global action

Yarruta, 123RF Ltd

Related activities

- Utilising Our climate, our biodiversity, our future
- Drive it Down! – reducing emissions at your school

Related media

- Finding solutions to climate change
- Electric car history

Related citizen science

- ClimateViz