

WithOnePlanet

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Investigate

Lesson 5

Teacher notes

I can change your mind about climate

Years **9 to 10**



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INQuIRY



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Open education
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I can change your mind about climate

Lesson 5: Teacher notes

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This document provides the teacher with the details of the lesson.

At a glance

To provide students with hands-on, shared experiences of climate change as an issue, including the scientific facts, the misconceptions and misinformation surrounding it, and the predicted environmental, economic, social and cultural impacts.

To provide students with the skills and tools to calculate their own carbon footprint and to take positive actions to reduce it.

To support students to represent and explain their understanding of the climate change, the issues surrounding it and the actions they can take to reduce their carbon footprints.

To support students to conduct specific research and investigation in order to answer their own essential question developed during the *Question* phase of the *INQuIRY* process.

Climate change – creating critical thinkers ... not sceptics!

Students:

Analyse a range of carbon dioxide concentration data for trends and patterns over time.

Big feet, small footprints

Students:

Develop an understanding of what carbon footprints represent in terms of greenhouse gas emissions and consumption of Earth's resources.

Determine their own carbon footprint and begin to explore the different strategies to reduce it.

Compare their own carbon footprints to those of their Asia Pacific neighbours.

Lesson focus

The *Investigate* phase is designed to provide students with hands-on experiences of the science phenomenon. Students explore ideas, collect evidence, discuss their observations and keep records, such as science journal entries. The *Investigate* phase ensures all students have a shared experience that can be discussed and explained.

In the *Investigate* phase students develop a literacy product to represent their developing understanding. They discuss and identify patterns and relationships within their observations. Students consider the current views of scientists and deepen their own understanding.

Assessment guide

This assessment guide supports teachers in identifying the types of assessment that are appropriate for this lesson.

Formative assessment is an important aspect of the *Investigate* phase. It involves monitoring students' developing understanding and giving feedback that extends their learning. It involves monitoring students' developing understanding of:

- > the viewpoints surrounding the issue of climate change
- > carbon footprints in terms of greenhouse gas emissions and consumption of Earth's resources.
- > different strategies that can be used to reduce personal carbon footprints
- > similarities and differences between their own carbon footprints and those of their Asia-Pacific neighbours.

This lesson also provides opportunities to monitor the development of students' general capabilities.

Key lesson objectives

Science

Students will be able to represent their current understanding as they:

- > develop an understanding of a variety of viewpoints surrounding the issue of climate change
- > learn about carbon footprints, calculate their own carbon footprint, explore strategies to reduce it and compare it to that of their Asia-Pacific neighbours.

Literacy

Students will be able to:

- > contribute to discussions about the issues surrounding opinions about the reality of climate change
- > record understandings and ideas using summaries, diagrams and drawing.

Teacher background information

Lesson 5a: Climate change - fact, forecast or fiction?

Please refer to the Australian Teachers of Media ATOM Study Guide: *I can change your mind about climate* by Robert Lewis.

Lesson 5b: Big feet, small footprints

An ecological footprint is a measure of an individual's resource consumption over the course of a year. To calculate this, the whole lifecycle of each product (e.g. a car) or service (e.g. home gas use) used by the individual is taken into account. Once the individual's frequency and volume of use of each product or service is identified, this information is converted into an equivalent amount of land needed to supply the resources consumed and to deal with the waste generated.

The amount of land is given in global hectares. A global hectare refers to one hectare (approximately soccer field size) of biologically productive space with world-average productivity. The information can also be used to calculate the 'number of planet Earth's' that would be required if all individuals on the planet used the same number of global hectares to sustain their livelihoods.

An individual's ecological footprint can be compared to that of other individuals, or compared to averages for a region (such as the state of Victoria), a country (such as Australia or Timor Leste), or the entire world. Comparisons can be analysed for similarities and differences in resource consumption, along with any underlying reasons.

An individual can also analyse the components of an ecological footprint and identify sectors where resource consumption could be realistically reduced without excessive impact on the individual's livelihood. Where under-age students are concerned, strategies for reducing an ecological footprint can be limited owing to the student's dependence on adults for sustaining their livelihoods. However, there are still plenty of opportunities for teenagers to make conscious personal decisions to reduce their resource consumption.

Equipment

For each Student

> *I can change your mind about climate - Student worksheet.*

Preparation



Download ABC documentary, *I can change your mind about climate* (Thursday 25 April 2012), or watch the documentary on YouTube at this link:
<http://www.youtube.com/watch?v=b9qebUJK5l0>
 (Running time: 66 min)



Download ABC Q&A Climate Debate episode (Thursday 25 April 2012),
<http://www.abc.net.au/tv/qanda/txt/s3487316.htm>
 (Running time: 60 min)

Lesson steps

1. Ask students to imagine that there is a line from one side of the room to the other. This imaginary line represents a climate change continuum. At one end there exists the 'die-hard believers' – those that are completely convinced that climate change is a real phenomenon. At the other end are the 'climate change deniers', or sceptics, who believe that there is no such thing as climate change – it is a manufactured issue that doesn't really exist.

Ask students to place themselves along the continuum. Ask a selection of students to justify their placement.

2. Explain to students that their opinions about climate change may or may not change as a result of the following documentary. Either of these results is acceptable when justified with underlying reasons.
3. Students to view the ABC documentary *I can change your mind about climate* (<http://www.youtube.com/watch?v=b9qebUJK5l0>) and complete the student worksheet as the documentary is being played. The teacher will need to pause the documentary at various places in order for students to discuss and record their responses.
4. At the end of the documentary, invite students to place themselves along the continuum again. Ask a selection of students to justify their placement and explain whether or not the documentary had any influence on their decision.
5. OPTIONAL: In addition to the documentary, students could also view a follow-up ABC Q&A *Climate Debate* episode. This episode involves an informal debate between both individuals from the documentary itself, along with other guests with various viewpoints about climate change.

Source:

ABC documentary, *I can change your mind about climate* (Thursday 25 April 2012) online video viewed 24 February 2014, <<http://www.youtube.com/watch?v=b9qebUJK5l0>>.
 ABC Q&A, *Climate Debate* episode (Thursday 25 April 2012), online video viewed 24 February 2014, <<http://www.abc.net.au/tv/qanda/txt/s3487316.htm>>.