

WithOnePlanet

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Investigate

Lesson 6

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Round and round the carbon cycle

Years **9** to **10**



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WithOnePlanet

Open education
An xpanse Foundation initiative

Round and round the carbon cycle

Lesson 6: Teacher notes

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

At a glance

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

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 concepts involved in answering their essential question and the WithOnePlanet *Big ideas* questions.

Summative assessment of the science inquiry skills is an important focus of the *Review* phase. It involves assessing students' understanding of:

- > the concepts involved in answering their essential question and the WithOnePlanet *Big ideas* questions.

It is recommended that the teacher develops a meaningful rubric to capture the students' learning at this point. 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 overarching understanding of carbon, the carbon cycle, climate change and how their actions can help to mitigate the effects of climate change in the Asia Pacific region.

Literacy

Students will be able to:

- > contribute to discussions about the concepts of carbon and climate change
- > record understandings and ideas using any suitable written media.

Equipment

For the Class

- > Access to resources (e.g. library, internet) in order to research any remaining ideas/concepts/questions from Lesson 2.

For each Student

- > *A burning question about carbon Student worksheet* (students have already begun using this worksheet during Lesson 2).
- > *Round and round the carbon cycle – Student worksheet*.

Preparation

- > Review students' responses on *A burning question about carbon Student worksheet* in order to identify any concepts/ideas/questions that have not been covered during previous *Investigate* lessons.
- > Organise access to resources, as mentioned in the *Equipment* section above.

Lesson steps

1. Ask students to review the class essential question and their responses in *A burning question about carbon – Student worksheet* and complete these sections of the *Round and round the carbon cycle – Student worksheet*.
2. Ask students to identify any responses written in the table (under the headings 'What information do I need?' and 'What other questions do I need to ask?') that have not been covered during the previous *Investigate* lessons (i.e. lessons 3 to 7) and complete the relevant sections of the *Round and round the carbon cycle – Student worksheet*, to prepare for additional research.
3. Students to use resources available to conduct further research into the remaining concepts/ideas/questions from their *A burning question about carbon – Student worksheet*. Research can be recorded on the *Round and round the carbon cycle – Student worksheet*.
4. Once students are satisfied that they have completed their research, facilitate a discussion about possible answers to the class essential question. Summarise students' responses during the discussion and seek to clarify the summary in order to make sure it clearly represents what students are thinking. If and when consensus is reached about possible answers to the essential question (or indeed that the essential question cannot be answered at this point), provide the students with a summary of their collective understandings. This summary can be entered into the *Round and round the carbon cycle – Student worksheet*.