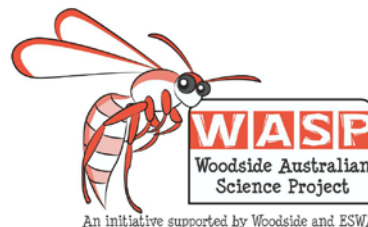


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In support of students and their Earth and Space Science learning, the following is a sequence of tasks and activities that could be carried out at home.

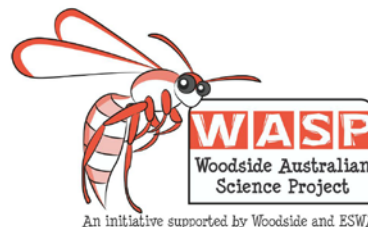
Objectives:

At the completion of this unit of work students will:

- Understand the major spheres of the Earth
- Be able to describe, in detail, the carbon cycle
- Understand the enhanced greenhouse effect and its possible consequences
- Be able to describe oceanic circulation and some of the possible impacts of climate change on our oceans

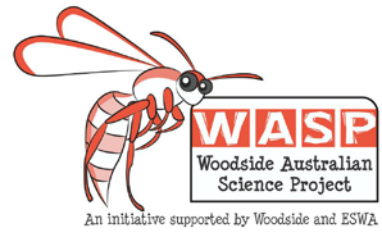
Focus	Activity/ies	WASP Support Resources
Spheres and cycles	<ul style="list-style-type: none"> • Research the major spheres of the Earth • For the major cycles on Earth (carbon, water and nitrogen) consider the terms source, reservoir, sink and forcing factor • Consider balance in a system and for a bit of fun consider our human activity problem 	Spheres and cycles - https://www.wasp.edu.au/mod/resource/view.php?id=603 Source to sink - https://www.wasp.edu.au/mod/resource/view.php?id=319 Human activity - https://www.wasp.edu.au/mod/resource/view.php?id=321
Carbon cycle	<ul style="list-style-type: none"> • Research the carbon cycle • Explore the carbon cycle through a series of activities • Represent the carbon cycle as a poster, presentation or video 	Lithification - https://www.wasp.edu.au/mod/resource/view.php?id=337 Radiocarbon - https://www.wasp.edu.au/mod/resource/view.php?id=340 Age graphing - https://www.wasp.edu.au/mod/resource/view.php?id=342
The greenhouse effect	<ul style="list-style-type: none"> • Research the Greenhouse Effect • Why is it important to life on Earth? • Find out more about the important phenomena – El Nino and La Nina 	Plant enzymes and heat - https://www.wasp.edu.au/mod/resource/view.php?id=350 El Nino and La Nina animation - https://www.youtube.com/watch?v=ifGOjSTwbM8 El Nino and La Nina - https://www.wasp.edu.au/mod/resource/view.php?id=354

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Focus	Activity/ies	WASP Support Resources
<p>The enhanced greenhouse effect</p>	<ul style="list-style-type: none"> • Research the enhanced greenhouse effect (otherwise known as global warming or climate change) • Consider the relationship between carbon dioxide in the atmosphere and global temperatures • Consider the relationship between carbon dioxide release, human activities and climate change • Explore changes in human population over time and how this might relate to climate change 	<p>The enhanced greenhouse effect - https://www.wasp.edu.au/mod/resource/view.php?id=352</p> <p>Carbon dioxide and temperature - https://www.wasp.edu.au/mod/resource/view.php?id=593</p> <p>Humans and climate - https://www.wasp.edu.au/mod/resource/view.php?id=601</p> <p>Human population statistics https://www.wasp.edu.au/mod/resource/view.php?id=599</p>
<p>Impacts of climate change</p>	<ul style="list-style-type: none"> • Explore the link between climate change and sea levels • Investigate the link between climate change and biodiversity • Examine the impact of past climate change on fauna (megafauna) • Experiment to find out the possible impacts of climate change on sea ice • Investigate what happens as permafrost melts • Explore the 'methane gun' (methane clathrates) 	<p>Climate change and sea levels - https://www.wasp.edu.au/mod/resource/view.php?id=597</p> <p>Extinctions and climate change - https://www.wasp.edu.au/mod/resource/view.php?id=359</p> <p>Climate change and biodiversity - https://www.wasp.edu.au/mod/resource/view.php?id=595</p> <p>Fire loss and biodiversity - https://www.wasp.edu.au/mod/resource/view.php?id=361</p> <p>Megafauna - https://www.wasp.edu.au/mod/resource/view.php?id=363</p> <p>Sea ice thickness - https://www.wasp.edu.au/mod/resource/view.php?id=372 (use a tub or sink of warm water instead of a pneumatic trough)</p> <p>Melting sea ice - https://www.wasp.edu.au/mod/resource/view.php?id=374 (use measuring cups instead of cylinders and straws instead of Pasteur pipettes)</p> <p>Permafrost feedback loops - https://www.wasp.edu.au/mod/resource/view.php?id=377</p> <p>Methane clathrates - https://www.wasp.edu.au/mod/resource/view.php?id=381</p>

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Focus	Activity/ies	WASP Support Resources
Oceans	<ul style="list-style-type: none">• What is the global conveyor belt?• How is oceanic circulation driven?• What are gyres?• How have bath toys helped us to better understand global ocean currents?	Global conveyor belt - https://www.wasp.edu.au/mod/resource/view.php?id=386 Duck dispersal and gyres - https://www.wasp.edu.au/mod/resource/view.php?id=390
Quizzes	<ul style="list-style-type: none">• Test how much you have learnt in this unit by taking our online quizzes	Quizzes - https://www.wasp.edu.au/mod/page/view.php?id=108