


Formative Assessment: Climate Change Model Revision

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Lesson Objective	Students will revise the climate change models they made after reading <i>My Wounded Island</i> . The revisions should incorporate new ideas they've learned during the climate change learning module.
Standards Addressed	<p>HS-ESS3-5. Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.</p> <p>HS-ESS3-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p> <p>Loftslagsbreytingar: útskýrt loftslagsbreytingar, ástæður, afleiðingar og mótvægisáðgerðir</p> <p>Einstaklingurinn og umhverfið: rætt á gagnrýnninn hátt tengsl einstaklinga, nærumhverfis og umhverfismála á heimsvísu</p>
United Nations Sustainable Development Goals Addressed	
Notes	<p>This mini-lesson could be taught at the beginning of another lesson or before or after another assessment.</p> <p>This revision process helps students see that changing one's ideas is a natural part of the scientific process as we gain more evidence. The emphasis should not be on fixing mistakes but on showing how learning and reasoning have evolved over time.</p> <p>The revision process also helps teachers formatively assess students' learning early in the unit. By reviewing the sticky notes students placed on their models, the teacher can gain a sense of where the gaps in learning still are and what interesting/novel ideas some students have that should be shared with the whole class.</p>
Acknowledgement	This lesson was adapted from the book <i>Teaching Climate Change: Fostering Understanding, Resilience, and a Commitment to Justice</i> by Mark Windschitl. I highly recommend this book to all environmental science teachers! The book (or ebook) can be purchased here .

Teacher Preparation

- Students may again need access to the book *My Wounded Island*. Digital licenses can be purchased from the publisher [here](#).
- The teacher should save & pass back students' initial models.
- The teacher should provide at least 3 sticky notes per student/group.

Lesson Agenda	What Students Will Do:	What Teachers Will Do:
Warm Up (5 min)	<p>Students will immediately begin working on the Warm Up activity as soon as they enter class. Students should complete the Warm Up within the first 3 minutes of class.</p> <p>At least one student (but ideally a few) will share their answers to the warm up.</p>	<p>The teacher should pass back student models.</p> <p>Teachers will take attendance while students work on Warm Up.</p> <p>Teachers will circulate the room to check on student answers and call on one (or more) students to share their answers.</p>
Student Work Time (10-15 min)	<p>Students will write or draw revisions to their model on sticky notes and place the notes on their initial model where relevant.</p> <ul style="list-style-type: none">• If students are working in a group on the model, students should discuss and reach a consensus about their revisions• If students are working individually, they should discuss their changes with a partner	<p>The teacher should circulate around the room and check in with each student as they are working. Some questions to challenge students' thinking include:</p> <ul style="list-style-type: none">• "Can you tell me how [science idea X, lab experience Y, &c.] influenced changes in your explanation or model?"• "Does your explanation or model account for how unobservable processes caused the phenomenon to happen in this way?"• "Is something causing this part of the phenomenon that goes beyond science, perhaps to choices that humans have made?" <p>Challenge students to add at least three different sticky notes for their revisions.</p>