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| **Subjects**: Biology, Physics, Social Studies (Geography), Language Arts (Critical Thinking)**Topics:** Effects of Global Warming, Cultural Perspectives on Environmental Stewardship |
| **Essential Understandings/Learning Intentions**: What do you want students to understand and/or be able to do?* Use a digital map to navigate in a physical space and to find an unknown, digitally-represented location.
* Use and understand augmented reality.
* Type and submit a digital written response via an app.
* Demonstrate an understanding of the laws of thermodynamics.
* Find familiar and unfamiliar locations on a map.
* Find a physical location depicted on a map.
* Compare cultural views from two locations.
* Structure a written argument arguing a point.
* Compare and contrast like/unlike information.
* Explain how creek bed features control water temperature.
* Explain how rivers reduce nitrogen in the water prior to reaching the ocean and why that’s important.
* Explore how indigenous populations view the natural world and compare it to what the student is seeing right now.
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| **Technology Required:** 5G-enabled device with a camera, Classroom GO app, and a 5G network connection |
| **Task**: Use an app involving a digital map and augmented reality to develop an understanding of creek bed thermodynamics with relation to global warming and cultural perspectives. | **Hook**: Classroom Go app |
| **Subtasks and Assessment Plan** |
| **Subtasks** | **What are the students doing?** | **What is the teacher doing?** |
| Use map to find the app-recommended creek location.  | Independently using the app to navigate to the creek location. | Observing students and assisting as required. |
| After posting the challenge reflections, read and respond to another student’s reflection from a different location. Find that other student’s location on a global map.  | Posting responses to challenge reflections.Reading other students’ responses.Responding to one other student’s reflection.Locating other student’s location on map. | Providing feedback to student reflections.Assisting students with map work. |
| Compare cultural perspectives of the natural world.  | Posting a reflection comparing the cultural perspectives from the two different locations. | Supporting students in understanding cultural perspectives.Providing feedback to reflections. |
| Guided reading of indigenous perspectives on environmental stewardship.  | Reading and responding to texts concerning indigenous perspectives. | Supporting reading and providing feedback to responses. |
| Overview of current global warming situation to provide context. Review multiple global warming predictions.  | Observing, listening, reading about the global warming situation and predictions. | Sharing information and supporting discussion around global warming. |
| Use the app’s A/R features to learn about the essential understandings above.  | Using the app to find and explore information. | Supporting student learning, answering questions, providing clarification. |
| Take a photo and consider how three features of the creek work to control temperature in the microenvironment, reduce nitrogen, and/or absorb carbon from the atmosphere. | Observing carefully to consider features of the creek and their relevance to thermodynamics.Taking photos to select one that best shows features of the creek. | Advising and responding to students. |
| Submit a written or voice-recorded reflection demonstrating their understanding of how features of the creek bed control temperature of the ground and water, using laws of thermodynamics.  | Writing or recording a summary of their learning. | Answering questions, providing guidance, responding to student reflections. |