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Connecting Graduate Students, Research and K-12 Students Through Online Outreach: Making the Most of Online Learning During Covid-19

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The Williamson Graduate Student Fellowship Program at the University of Utah seeks to build relationships with K-12 students, encourage diversity in geoscience, and increase public science literacy by connecting graduate students with K-12 teachers and schools. This year, restrictions on in-person learning due to Covid-19 made it difficult to do outreach in traditional ways so graduate fellows took on the challenge of developing inspiring and meaningful lessons that could be carried out entirely online. Each learning module begins with a video introduction to a graduate student fellow and their research, followed by a synchronous online question and answer session to build a rapport with the students and spark interest in the lessons that follow. These lessons are unique because, although they are based off the fellow's own research, they are also set in the context of the state science education standards on the carbon, rock and water cycles. This helps K-12 students see the applicability of what they are learning in their science classes to real world issues. The lessons also take advantage of technology, employing platforms such as Sketchfab, Google Maps, InsightMaker, and Nearpod.

Partnerships focused on two Title 1 schools with demographics of dominantly minority and low-income student populations. Three fellows worked with 6 teachers who each taught multiple classes of ~25-40 students, collectively interacting with about 800 students multiple times throughout the year. The fellows tested the modules in online and in-person classes and made modification based on teacher and student feedback, allowing them to fine-tune their teaching and communication skills. Personal connections and relationships with the fellows emboldened students to ask far-reaching questions that stretched their science literacy, including a myriad of topics from what it was like to be in college to what it would cost to solve global climate issues. Teachers were overwhelmingly positive and excited about the program and welcomed the opportunity to expose their students to actual scientists and their research. This program is advantageous for both graduate and K-12 students, with fellows given the resources to learn valuable science communication skills and K-12 students exposed to geoscientists that can spark their interest in STEM.