



# REIMAGINING CURRICULAR CONTENT TO REACH EQUITY-ORIENTED GOALS IN ASTRONOMY

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## PROFESSIONAL LEARNING COMMUNITY



We are a learning community of physics and astronomy educators attempting to globalize curriculum through culture-based practices

We are 8 secondary and post-secondary teachers and education researchers in the United States

We meet virtually once a month to develop curricula that reorients and expands the traditional student experience towards a model that centers students' historical, societal, and personal contexts.



## 3 CONTEXTS FOR EXPANDING CURRICULUM



**SOCIETAL**



**HISTORICAL**



**PERSONAL**

## HISTORICAL CONTEXT EXAMPLE: STORIES OF THE SKY



To broaden students' historical knowledge of science, you can include stories of astronomical development throughout the world.

I had students research constellation mythologies that span the globe. For instance: the story of Orion in the mythology of the Maasai people of East Africa, the story of Ursa Major in the mythology from Inuit culture, and the story of the constellation known as the "Emu in the Sky" from mythology of Aboriginal groups in Australia. Students worked together to create a children's book that included a story and its origins, astronomical objects of interest, and instructions to find the constellation in the sky.

## SOCIETAL CONTEXT EXAMPLE: OBSERVATORY IMPACTS



To help students understand the broader connections between astronomy and society, you can include discussions of all impacts of astronomical research, not just the favorable ones.

I had students participate in a discussion modeled after UNC's Ethics Bowl<sup>1</sup>. They discussed telescope construction in Hawaii, but this could be easily adapted for any ground or space-based research facility.



## PERSONAL CONTEXT EXAMPLE: SHARING WONDER



Students in urban areas likely won't have a strong connection from experiences of stargazing but can connect in other ways such as their own curiosities toward extra-terrestrial life and the beauty of astronomical images. Not only does it make your curricula more inclusive but also improves enduring understandings<sup>2</sup>.



I had students create a product to be shared with the community that demonstrated what aspect of astronomy they found the most impactful on their worldview. Students wrote poetry about the expansion of the universe, compiled their favorite images into posters, and created tributes to astronomers that they found connection with.



## TEACHER EDUCATION

Learning a more complete history of astronomy has been instrumental in this work



I recommend reading the books: *Horizons: The Global Origins of Modern Science* by James Poskett and *A People's History of Science: Miners, Midwives, and Low Mechanics* by Clifford D. Conner

I recommend forming or joining a Professional Learning Community to learn and grow with other educators

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1. University of North Carolina's National High School Ethics Bowl, Parr Center for Ethics. <https://parrcenter.unc.edu/nchseb>

2. Whitman, G., & Kelleher, I. (2016) *Neuroteach: Brain Science and The Future of Education*. Rowman & Littlefield

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