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Astronomy for Students with Blindness/Visual Impairments: The Career Exploration Lab

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For students with blindness/visual impairments (B/VI), the possibility of a future in astronomy, or any science, technology, engineering, and mathematics (STEM) field, seems daunting. In order to bolster astronomy opportunities for high school students with B/VI (ages 14 -- 20), we developed a series of Career Exploration Labs (CELs) that employ a combination of tactile astronomy instruction via 3D printing technologies and 3D-printed models, professional scientists with B/VI acting as role models, and partnerships with local STEM industries that provide insights into possible career paths. In partnership with the South Carolina Commission for the Blind and the Michigan Bureau of Services for Blind Persons, to date, we have held three week-long CELs (June 2017; June and July 2018), serving a total of thirty high school students with B/VI. We gathered pre- and post-intervention data via student surveys, assessments of students' astronomy knowledge and spatial thinking skills, and video recordings of the CEL activities in order to study to what extent the CEL model can enhance students with B/VI's attitudes towards, interests in, and capacities to participate in astronomy. Once fully tested and refined, we will make our 3D models and associated activities freely available to the community for further use and study. This work serves as a testbed for an expanded international program aimed at helping increase the representation of persons with B/VI in astronomy and STEM fields.

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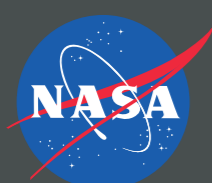
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