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O16 - Celestial Sphere Project - Affordable and mass produced model of the celestial sphere

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The concept of a Celestial Sphere is among the concepts in astronomy that many find least intuitive to understand. This is an area where a handheld model can help immensely in visualizing the concept. However, a bad model can hinder a person's ability to understand while a good model can be cost-prohibitive and the amount limitations prevents it from being hands-on. In this work we attempt to address these issues by developing a celestial sphere models that are affordable by using paper and beach ball as the media. A normal equirectangular map is transformed using cassini map projection via a script run on graphics software to preserve vector graphic editability. Different projections centered at varying meridians called "gore" is created and together forms interrupted map projection. A 6-gore interrupted map projection is printed on a transparent polyvinyl surface with two azimuthal equidistance projection as the cap to form a beach ball version. Additionally, a 12-gore version is printed on paper with interlocking mechanism that allows an even more affordable version to be printed anywhere. With additional base plate, altitude and azimuth dials, the paper version can be fully equipped to perform simple instructions. These two versions offer powerful alternatives to teaching about celestial sphere at the fraction of a cost.

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