Authentic Data Integration

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Endeavor: Methods of Teaching

For my data integration, I chose “Solar System Sizes and Distances” from the NASA Jet Propulsion Laboratory. It is a sheet with two tables. The first shows the distance between planets and the sun in astronomical units. The second shows the diameter of the sun and planets and their distance from the sun in kilometers. It is located at the following link: https://www.jpl.nasa.gov/edu/pdfs/scaless_reference.pdf.

I’m a special education teacher and I collaborate with the Math and English/Language Arts teachers. As part of the 7th grade curriculum, students are required to “solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale” (KY.7.G.1). I felt like using the data provided, students could determine a scale factor and create a scale model of the planets within the solar system in relation to the sun. The focus could be on the size of the planets and sun, or it could be on the distances between the sun and planets. Additionally, I thought it would be neat if students could create a scale drawing or model of the solar system. This also helps students see actual data, instead of fabricated data created simply for the sake of creating a mathematics problem. Some students may have an interest in space that we do not realize, and this is a way to connect to that student when we may not have been able to before.

This would be a great way to bring science into the mathematics classroom by discussing the planets, their orbits and relationship to the sun. You could discuss gravity and how objects with a greater mass have a greater gravitational pull. We could connect this to the English/Language Arts classroom by having students to write about their findings. They could research the size of the moon or its distance from the sun and then

discuss how it compares to the work they have already completed. It is important in both Math and Language Arts for students to defend their answers, so we could make the connection and students could explain how they know their answers are sensible. There are also several other connections that could be probably be made that I am not thinking about.