

## Distance to the Moon Activity

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In my 9th grade Earth Science class I used the NASA activity “Distance to the Moon” and I loved it. I think they did, too. The resource can be found at the link provided in the references. I teach in a basketball centered town (our version of Friday Night Lights) and I had several basketballs out as the students entered the room which immediately created buzz. Once the students were settled and divided into small groups I handed each group a basketball.

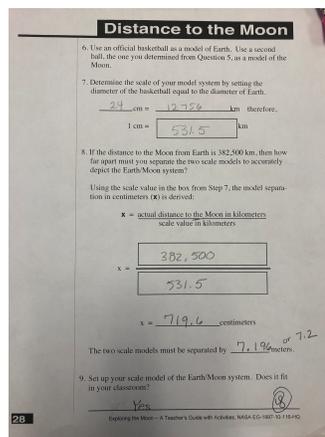
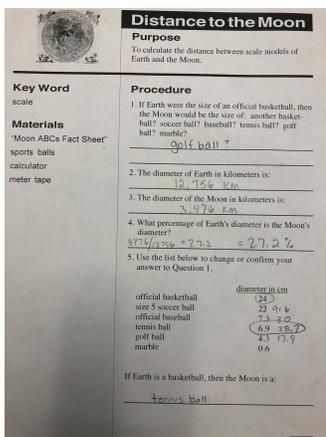
We discussed that the basketball is the Earth for today and that in most scale models they have seen, it is hard to accurately depict both size and distance. We then brainstormed what type of ball would represent the Moon if the Earth is a basketball. I kept a tally on the board and then had them answer question one on the provided worksheet, making it clear that they would not lose points for getting this wrong. Sometimes the grade conscious students focus too much on the grade and not enough on the learning and have a fear of being wrong. I try to model that making mistakes in science is part of the scientific method.

We then completed the first page together. There is a variety of math ability in my room- some kids are in Pre-Algebra and some in Honors Algebra 2, so some had more questions than others, but most helped each other out without just giving the answer. It did take a minute for them to realize they needed to calculate the percentage for each ball and that the right one was the closest answer and not the exact answer.

I then pulled out my hidden bin of tennis balls (met with cheers and jeers as they realized if they were right) and had them complete the second page with less help from me. The end product was to try to set it up in my room and get my initials that they did (once they knew they could).

The way the second page is set up almost gives too much information for some kids on how to set up each problem. The more math savvy were confused by all the boxes provided and would have been better off without as many directions. The less math confident found it helpful. When I do this again I will edit the second page to meet the needs of the diverse learners in my classroom.

To wrap up the class I showed a short video I found on National Geographic of a scale model of the solar system created in the Nevada desert that I have watched several times (see link in references). The activity paired with the video really made for a fun class in which the students were engaged and left the room still talking about the content. It doesn't get better than that!



Student work with calculations.



The basketball “Earth” with the tennis ball “Moon” 7.2 meters away. Note: my room is rarely this clean.

## References

Distance to the Moon. (n.d.). *Exploring the Moon -- A Teacher's Guide with Activities*. Retrieved from [https://www.nasa.gov/pdf/180561main\\_ETM.Distance.Moon.pdf](https://www.nasa.gov/pdf/180561main_ETM.Distance.Moon.pdf)

Watch This Guy Build a Massive Solar System in the Desert. (n.d.). Retrieved from <https://video.nationalgeographic.com/video/short-film-showcase/0000015a-6230-d7df-a9df-eeb4261c0000>.