


MISSION TO KENNEDY SPACE CENTER

Field Investigation #4 – How Far to the Moon?

Crew Members Present for Investigation:

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Date of Investigation: _____

Problem: Can you estimate the distance from the Earth to the Moon using 2 balls as scale models?

Scientific Background: The Moon revolves around the Earth at an approximate distance of 384,000 km (240,000 miles).

Materials: large ball (like a beach ball), small ball (like a softball), 50 feet of rope, string or yarn. (**Note:** Any two balls of different circumference will do, however, to be accurate, the diameter of the larger ball should be 4 times greater than the diameter of the smaller ball).

Procedure:

1. Give one person the large ball. This is the Earth.
2. Give a second person the small ball. This is the Moon.
3. Predict how far the two people should stand from each other in order to represent how far apart the Earth and the Moon are from each other.
4. Wrap the rope around the larger ball nine and one half times.
5. Remove the coils of rope from the larger ball and straighten the rope until it is fully stretched. In this model, that is the actual distance between the Earth and the Moon.
6. Record your observations about your first (predicted) distance compared to your second (actual) distance in your Journal.

Journal:

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Learn more about the Moon at this web site:

http://nssdc.gsfc.nasa.gov/planetary/factsheet/moonfact.html