Globe Skills Lesson 10
Apollo 11 - Grade 6+

Skills used   Latitude & Longitude
Using scale to measure distance
Drawing conclusions
Using legends

Materials Needed   Globe in Horizon Ring Mounting, yardstick, and a softball

Lesson

For this activity you must first of all determine if you have a 16-inch diameter globe or a 12-inch diameter globe. To do this, find the Copyright information for your globe that is located in the area of 55°S/75°E. Just above the words "Copyrighted By The George F. Cram Co., Inc.", it will tell you if you have a 16" PHYSICAL-POLITICAL GLOBE or a 12" PHYSICAL POLITICAL GLOBE.

If you have a 16-inch diameter globe, use the procedures below for a 16-inch globe. If your globe is 12 inches in diameter, skip down to the procedures for a 12-inch globe.

(*For a 16" Globe*)

In addition to your globe, you will also need a yardstick and softball. If you do not have a softball or some other spherical object approximately the same size, make a ball of scrap paper that is about 4 inches in diameter. If your classroom is not large enough for this demonstration, use a hallway, the lunchroom, or conduct the demonstration outside.

Place your globe on the floor. With the yardstick measure off a distance that extends 40 feet from the globe. Place your softball or other 4-inch diameter sphere at this location. Now step back a few feet so that you can see the globe and the softball at the same time.

While viewing the globe and the softball, imagine that the earth is really the size of your 16" globe. What do you think the softball represents? (1.) _____ If the earth really were the size of the 16" globe, the moon would be a 4-inch sphere about 40 feet away. Using the 1" = 500 miles scale of the globe, a distance of 40 feet represents the 238,900 miles that separate the earth and the moon.

In July of 1969 the historic Apollo 11 mission led to the first landing of human beings on the moon. To better understand what a remarkable accomplishment this was, continue to look at your globe and softball while trying to imagine a tiny speck, invisible to the

human eye and even to most microscopes, traveling out from the globe to the softball. The tiny speck would be the Apollo spacecraft.

Once the speck arrives at the softball, it circles the ball a few times and then an even tinier speck breaks off from the main speck and drops down to the surface of the softball, landing on the ball to within eight one thousandths of an inch of its planned landing site.

Later, the entire process must be reversed for the return trip back to the globe. All of this takes place, of course, while the softball is revolving around the globe, which itself is spinning on its axis while revolving around a larger sphere (the sun) some 2.9 miles away.

Think about all the detailed planning and critical procedures that were required to complete this extraordinary trip. Would you have volunteered for such a mission?

(*For a 12" Globe*)

For this activity you will also need a yardstick and a baseball. If you do not have a baseball or some other spherical object approximately the same size, make a ball of scrap paper that is about 3 inches in diameter. If your classroom is not large enough for this demonstration, use a hallway, the lunchroom, or conduct the demonstration outside.

Place your globe on the floor. With the yardstick, measure off a distance that extends 30 feet from the globe. Place your baseball or other 3-inch diameter sphere at this location. Now step back a few feet so that you can see the globe and the baseball at the same time.

While viewing the globe and the baseball, imagine that the earth is really the size of your 12" globe. What do you think the baseball represents? (1.) _____ If the earth really were the size of the 12" globe, the moon would be a 3-inch sphere about 30 feet away. Using the 1" = 660 miles scale of the globe, a distance of 30 feet represents the 238,900 miles that separate the earth and the moon.

In July of 1969 the historic Apollo 11 mission led to the first landing of human beings on the moon. To better understand what a remarkable accomplishment this was, continue to look at your globe and softball while trying to imagine a tiny speck, invisible to the human eye and even to most microscopes, traveling out from the globe to the softball. The tiny speck would be the Apollo spacecraft.

Once the speck arrives at the baseball, it circles it a few times and then an even tinier speck breaks off from the main speck and drops down to the surface of the baseball,

landing on the ball to within six one thousandths of an inch of its planned landing site.

Later, the entire process must be reversed for the return trip back to the globe. All of this takes place, of course, while the baseball is revolving around the globe, which itself is spinning on its axis while revolving around a larger sphere (the sun) some 2.2 miles away.

Think about all the detailed planning and critical procedures that were required to complete this extraordinary trip. Would you have volunteered for such a mission?