

# LESSON 2

Student

## *How do I measure the distance between objects in the sky?*

**All writing and sketches should be conducted within your inquiry notebooks.**

Engage:

- Pick an object on a far wall and estimate its length (from your seat).
- Figure out how many thumbs (using widths of thumbs) cover the object from your perspective.
- As a class we will plot the number of thumb widths versus distance from the object.

Explore:

In your group--Make a plot of number of thumb widths versus distance from the object (with your arm fully extended). Is the relationship linear? How do you know?

Explain:

- Construct and compare explanations of any patterns that emerged in your data.
- Now use a meter stick (resting horizontally on the chalk tray) as your object. Please sketch your line of sight to the ends and middle of your meter stick.

Elaborate:

- For further investigation, use fists (orient fists with thumb side up) instead of thumbs to measure the meter sticks' length. Determine a method of measuring the line of sight angle where your fist perfectly covers up a meter stick.
- Each student should measure his/her own fist width and arm length. We will plot students' arm lengths versus fist widths.
- Determine how many fists it takes to make a complete circle around your body?
- Determine how many fists it takes to go from horizon to horizon.

Extension:

- A pair of students will be selected to go outside to pick a cloud and determine a means of using angular measures to communicate to others which cloud they selected without showing other students the particular cloud. Classmates will figure out what cloud was selected based on these angular communications. This will need to be done in a relatively quick fashion since the cloud will move from their original location.

Evaluate:

- Write in your inquiry notebook what you have learned today and how you might use it as you conduct your Moon observations. Also describe how you think people might measure the distance between objects in the sky?