

National Aeronautics and Space Administration



# NASA Helio Club

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## Session 1

### Activity 3: Sun-Earth Scale Model

NASA Heliophysics Education Activation Team

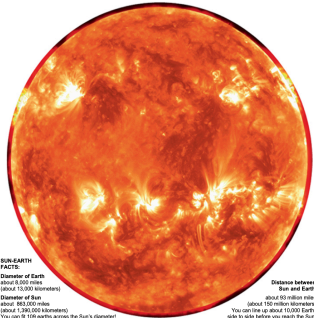


# Extend: Sun-Earth Scale Model

## Overview of Activity 3 (25 Minutes)

In this activity, learners will use a scale model to observe how big the Sun is compared to Earth and the distance between them.

Emphasize to learners that different types of models help scientists learn different kinds of information. The model of the heliosphere in the sink was not to scale, but helps scientists visualize how the boundary of the heliosphere behaves. The Sun-Earth system model is to scale, and helps scientists learn about the sizes and distances of objects relative to one another.



## Materials

- [Handout Sun-Earth Day Model PDF](#)
- Measuring tape
- Scissors

**A. Provide Context:** *To give you a better idea of how big the Sun is compared to the Earth, and the distance between them, we can create a scale model. [Slide 24]*

**B. Model:** **Direct learners to page 9** of their [NASA Helio Club Youth Guide](#), or use the [Handout Sun-Earth Day Model PDF](#).

Have learners cut out the Sun and the Earth. To demonstrate the distance between Sun and Earth at this scale, separate the images 65 feet (about 20 meters) apart. This distance represents approximately 93 million miles (150 million kilometers).

**C. Reflect:** Ask students the following questions. [Slide 25]

- *What is a scale model?*
- *Why do both size and distance matter when making a model to scale?*
- *Was the model of the heliosphere in the sink a scale model? Why or why not?*
- *Do both scale and not-to-scale models serve a purpose? Explain.*
- *Is there anything that surprised you about the sizes and distance between the Sun and Earth?*

**D. Communicate Results:** Allow time for learners to share their answers.

### **Activity 3 Major Concepts:**

- ★ The Earth is approximately 93 million miles from the Sun.
- ★ The Sun is approximately 109 times wider than Earth.
- ★ Models are a representation of a real phenomenon that is difficult to observe directly, because of its size, for example. Using models of the heliosphere can help us visualize something very big.
- ★ Both to-scale and not-to-scale models help scientists in different ways.