



STATEWIDE STAR PARTY

OBJECTIVE

To convey the relative sizes and distances of objects in our solar system

SUGGESTED AGE RANGE

All ages

ACTIVITY DURATION

Up to 1 - 1½ hours

MATERIALS



These materials are included in the Star Party host kit.

- Yellow ball, 8.5-inch diameter (the Sun)
- Plastic bag with these planets (approximate scaled diameter)
 - Venus (seed bead, 0.07 in. or 1.8 mm)
 - Earth (seed bead, 0.08 in. or 1.9 mm)
 - Mars (seed bead, 0.04 in. or 1 mm)
 - Jupiter (wood bead, 0.9 in. or 22 mm)
 - Saturn (wood bead, 0.7 in. or 18 mm)
 - Uranus (wood bead, 0.3 in. or 7 mm)
 - Neptune (wood bead, 0.3 in. or 7 mm)
 - (Mercury, Ceres, and Pluto are too small to be included.)

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SOLAR SYSTEM WALK ACTIVITY INSTRUCTIONS

SETTING AND PREPARATION

- The solar system walk is best done outdoors. Scout out your location in advance. Ideally, you'll find a safe straight path that will take you from the Sun all the way to Pluto and the Kuiper belt (about 1000 yards, or just over 1/2 mile one-way).
- Consider if your group can manage the whole distance (just over 1 mile roundtrip). Is it better to stop earlier and just discuss the remaining objects?
- Although a straight line is ideal, it's not necessary. Curving paths can work, and you can even have your walk fold back on itself.
- Check which planets are currently visible in the night sky (for example, using Stellarium or <http://heavens-above.com/>). When you reach those planets on your walk, you can say when and where to look for them that night.
- Check the Moon's current phase and whether and when it'll be visible that day or night (see <http://aa.usno.navy.mil/data/index.php>)
- You may also wish to check the dates of recent or upcoming lunar and solar eclipses (see <http://eclipse.gsfc.nasa.gov/eclipse.html>)
- If you plan to do an add-on activity in which your participants arrange themselves where the planets are currently located in their orbits, bring a printout of the current solar system configuration (for example, using <http://heavens-above.com/>, "solar system chart").

TIPS AND PROCEDURE

1. You'll be taking a group of people on a whirlwind vacation through the solar system, starting from the Sun, and stopping to visit eight planets and a couple of dwarf planets. The solar system walk ends at the Kuiper belt, where Pluto resides. It does not go all the way to the Oort cloud, a very distant shell of icy bodies orbiting the Sun.
2. Your Star Party kit materials are based on a "thousand-yard model," with the Sun-to-Pluto distance scaled down to about 1000 yards (or 1000 big steps). On this scale, 1 inch in the model equals about 100,000 miles in reality. Therefore, for every big step someone takes that covers 1 yard (36 inches), she or he travels through 3,600,000 (3.6 million) miles in space.
3. You may wish to assign people to be responsible for a particular object. They might count the steps there, plant the stake in the ground, or hold up the object for everyone to see.
4. Before you head to the outer solar system, consider having someone run back to pick up the Sun, to lessen the risk of the Sun being kicked or carried off by an inquisitive passerby.

MATERIALS (continued)

- Two-sided cards for each object, with information, images, and scaled sizes.
- Envelope with plane ticket on Proxima Centauri Airlines
- 11 stakes to mark locations of destinations on the walk

CREDITS

This activity is modified from “Earth as a Peppercorn”: <http://www.noao.edu/education/peppercorn/pcmain.html>

TIPS AND PROCEDURE (continued)

5. Are there children eager to have an active role? You might have them guess which stop is next, count the steps there, or look for a pebble or rock of the appropriate size for the next planet. Or ask if they can provide one fact about the planet you’ve stopped at.
6. Separate your two-sided cards, so that at each stop you can hold up each card individually. This allows you to refer to the information printed on the front of the card while simultaneously showing your audience the image and scaled size on the back.

FURTHER RESOURCES

Prefer another scale? Visit http://www.exploratorium.edu/ronh/solar_system/ and enter the diameter you want for the Sun. The website will calculate the other sizes and the distances. Remember that on your new scale the objects in the Star Party kit will no longer represent correct planet sizes.



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