

# EXPLORING THE SOLAR SYSTEM

## Observe the Sun

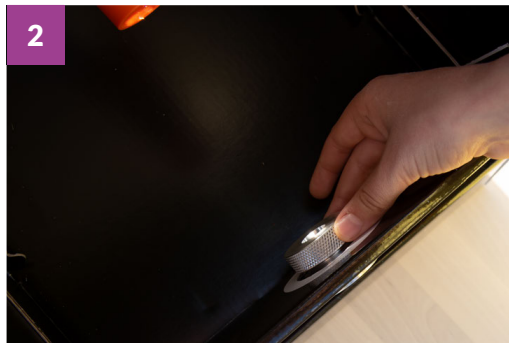
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### Try this!



Point the Solarscope at the Sun, and move or tilt the box until the small mirror reflects the Sun's image onto the white screen at the back of the box.

*Tip: Follow the directions printed on the box to get the best view!*



Focus the Solarscope by slowly rotating the mirror until the projected image of the Sun is clear and has crisp edges.



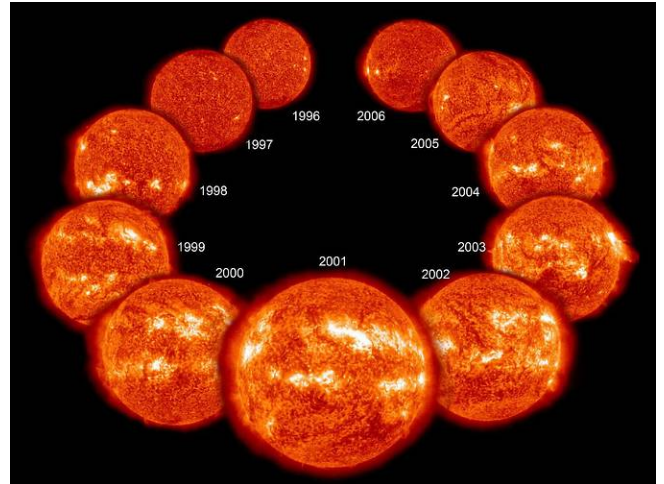
Observe the Sun! What do you notice?

*The Sun, a hot ball of glowing gas, is the star at the center of our solar system.*

**Special tools allow scientists to carefully and safely observe the Sun—just like you!**

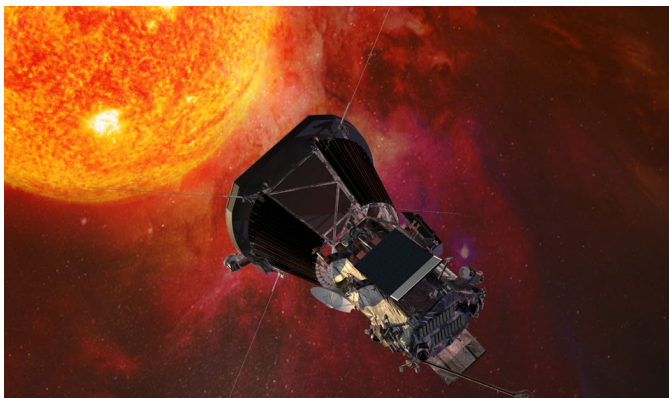
In this activity, you used an Earth-based solarscope, to create a projected image of the Sun. This tool can help us see specific features—like sunspots—during periods of solar activity.

The Sun is mostly made of *plasma*, a super-hot gas-like mix of charged particles. When these particles move around, they create a magnetic field. As the Sun rotates on its axis, its fluid nature causes some parts of it to rotate faster than others. The magnetic field gets wound up, creating a lot of stored solar energy. Scientists refer to the periods of time when this stored energy is released as episodes of high *solar activity*. The Sun has quiet periods, too. It takes the Sun about 11 years to complete one solar activity cycle.



**It takes the Sun about 11 years to complete one solar activity cycle.**

**Some NASA scientists study solar activity to better understand how Earth and the rest of the solar system respond to the Sun.** *Solar flares* and *coronal mass ejections* are events that release large amounts of matter into the solar system through shifting streams of charged particles. This “space weather” even affects



**The Parker Solar Probe is the first mission to fly into the Sun’s atmosphere.**

Earth, roughly 150 million kilometers away. For example, when that stream of particles reaches Earth, it can create auroras, disrupt satellite communication, and potentially damage the power grid. NASA scientists with the *Living with a Star* program study the Sun to better understand the solar cycle, predict periods of solar activity, and forecast space weather.