Noble Planetarium Classroom Companion

Science through Shadows: Humanity Touches the Sun

SHOW OVERVIEW

On December 24, 2024, Parker Solar Probe made its closest approach to the Sun. At a speed of 430,000 miles per hour, or more than 100 miles per second, this spacecraft is the fastest object ever created by humans! Learn how Parker is helping scientists unravel the mysteries of the Sun's corona in this episode of Science Through Shadows produced by the Fiske Planetarium.

Length: 10 minutes
Grade level: 3-8

PROGRAM TEKS

3.8(B) describe and illustrate the Sun as a star composed of gasses that provides light and thermal Energy

8.8(B) recognize that the Sun is a medium-sized star located in a spiral arm of the Milky Way galaxy and that the Sun is many thousands of times closer to Earth than any other star

EXTENSION IDEAS FOR TEACHERS:

Create a Sun Model – Students create a visual model of the Sun using art materials to show that it is made of hot gases that produce light and thermal energy.
Light and Heat Investigation – Students explore how light provides heat by placing materials in sunlight or under a lamp and observing temperature changes.
Solar Layers Diagram – Students label a diagram of the Sun including the core, surface, and corona to better understand the structure of our closest star.
Compare the Sun to Other Stars – Students use size and distance comparisons to understand that the Sun is a medium-sized star that appears larger because it is much closer to Earth.
Solar Probe Engineering Challenge – Students design a spacecraft that could travel close to the Sun and explain how their design would protect instruments from extreme heat.

Critical Thinking Questions:

Ask students, *"Based on what you learned in the show, why is the Sun considered a star?"*

Ask students, *"Based on what you learned in the show, what is the Sun made of and how does it produce light and heat energy?"*

Ask students, *"Based on what you learned in the show, why does the Sun appear larger and brighter than other stars in the sky?"*

Ask students, *"Based on what you learned in the show, how does energy from the Sun impact life on Earth?"*

Ask students, *"Based on what you learned in the show, what challenges might a spacecraft face when traveling close to the Sun?"*