

# Understanding the Night Sky workshop a big success in Pawnee

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Editor

Nearly 40 youth gathered at the Pawnee County fair grounds Saturday, June 16, to participate in a workshop funded by a NASA Ideas Program grant. "Understanding the Night Sky" introduced the young people to astronomy by giving information, showing resources for stargazers, and having them make simple instruments for studying the night sky.

Dr. Kevin Lee, astronomy instructor at the University of Nebraska - Lincoln, directs the Science & Education Partnerships and Public Outreach (SEPPo) which presented this hands-on workshop.

During the afternoon session, a wealth of information was given about planets, stars, moons, and the solar system. The children learned how to use a star chart and were introduced to a website that simulates the movement of stars and planets relative to date and time.

Circumpolar stars are visible all the time because they circle the North Celestial Pole (a spot directly above the equator where the North Star, Polaris, is located). Other stars rise in the east and set in the west. Planets are also visible at different times of the year; to the naked eye, they appear to be very bright stars.

The first tool the children made was a star clock. Stars have long been used to tell time. The star clock lines up the positions of the constellations with the appropriate time of

night.

After discussion of how the stars, planets, and moon move, the group made small telescopes which they would use to look at the stars that evening.

The children learned about resolution and magnification and how telescopes work. They also learned that the image in a telescope is upside down. Small telescopes are best for viewing large objects, like the moon, and large telescopes are best for viewing small, distant objects, like planets and stars.

The next subjects were azimuth and altitude. These are coordinates that describe the location of objects in the celestial sphere, relative to the location of the observer (observer-centric). These coordinates are useful when two or more stargazers want to look at the same object.

Azimuth is a location along the horizon at the point directly below the object. The measurements, in degrees, start with 0° at the north and move eastward the full 360°.

Altitude is a measurement of the height of the object. The measurements, also in degrees, go from 0° at the horizon to 90° at the zenith, the point straight above you.

The children made simple azimuth calculators and altitude markers to use during their stargazing session in the evening.

Three larger telescopes and one smaller telescope from the university were set up outside the clubhouse on the fairgrounds. While the

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**Do you see what I see?** – Nearly 40 children spent last Saturday afternoon and evening at the Pawnee County Fairgrounds in Pawnee City learning about the planets and stars and how astronomers study them. Each of the children made their own small telescope as part of the workshop.

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children and many of their parents waited for darkness to deepen, they practiced using the telescopes the children had made. The moon and several planets were out and could easily be seen before it was dark enough to see the distant stars.

Lee and his two assistants, Shawn Langan, manager of the physics lab at UNL and a graduate student in astronomy, and Chris Miles, an undergraduate student in the science field at UNL, set up the telescopes. The larger telescopes were trained on planets, Jupiter, Saturn, and Venus, and the smaller telescope showed a view of the moon.

Lee said that the SEPPo program is funded by a 2-year grant from the NASA IDEAS program, Initiative to Develop Education through Astronomy and Space Science. According to information from the NASA IDEAS website, two-year grants are funded from \$20,001 to \$50,000. NASA's goal is to provide education

and public outreach to enhance the public's understanding of space science.

UNL's SEPPo program was designed to pair up student scientists and student educators, Lee said, because typically scientists aren't strong in education methods and educators aren't strong in science.

"This pairing provides the best of both worlds," Lee said.

When classes are back in session, Lee estimated that he would have 12 students working for him in the SEPPo program in pairs.

Langan was a first-time volunteer with the SEPPo program, but he has been doing outreach programs helping with science education for five years.

Miles commented on the benefit of the SEPPo program, "The partnership between education and science majors helps out. Sometimes education people articulate better than we do [and we know the science] so we help each other out."



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**Where's it at?** – Children and adults at the Understanding the Night Sky stargazing session got to look through astronomers' telescopes to see the planets up close.