TIPS FOR HOSTING A SUCCESSFUL SKYWATCHING SESSION

Celebrating the Night Sky

ncscifest.org/starparty

SETTING UP YOUR SITE

+ Choose a viewing area away from unshielded lights. Turn off outdoor lights where possible.
+ Shield the viewing area from headlights. Traffic cones can help you block off areas from parking.
+ Consider marking telescopes and tripods with glow-in-the dark tape, red lights, or red glow sticks.
+ Mark the path to the viewing area with red light, glow sticks, or solar lights. Or escort visitors with a red flashlight.
+ Have an "orientation" table marked with red light that has star charts, trimmed red balloons, and activity materials.
+ Offer a sky tour and other activities away from the telescopes to help spread out crowds.

GETTING THE MOST FROM THE VIEWING EXPERIENCE

+ If possible, gather groups as they arrive for a briefing so they will feel comfortable and safe, know what to expect, and help protect equipment.
+ Ask for no white light in the telescope viewing area from flashlights, cellphones, or flash photos. Pass out trimmed red balloons to cover white flashlights and cellphone lights.
+ Explain other rules, e.g., no smoking, alcohol, running, or pets.
+ Let people know where to find the telescopes, how many there are, and what kinds of objects they'll see. You may want to introduce the telescope operators.
+ Ask visitors to touch the telescope only with permission. If telescope operators have a chair or stepstool, they can use a red light to direct visitors to "put your hands on the stool to steady yourself" and then (aiming the light at the eyepiece) "look here."
+ Parents with young children should look through the telescope before their children do. Then they'll be in a better position to help their child.
+ Visitors who wear glasses should try looking first with glasses on.
+ Encourage visitors to ask questions and to speak up if they don't see anything. Telescope operators should give visitors meaningful information (say "This is the Orion Nebula, a place where stars are forming" rather than just "This is M42").

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SUGGESTED MATERIALS

+ Telescopes
+ Binoculars
+ Table
+ Star charts
+ Trimmed red balloons (to cover flashlights)
+ Activity materials
+ Red lights
+ Orange traffic cones
+ Stepstool (as an aid while viewing)
+ Green laser

ACTIVITY IDEAS

+ Preview what you expect to see in the sky and teach how to use star charts.
+ Viewing through telescopes and binoculars
+ Star party kit activities
+ Storytelling
+ Sky tour

USING A GREEN LASER?

Green lasers can damage eyesight and cause problems for aircraft. Be mindful of safety:

- Use only lasers <5 milliwatts.
- Choose a laser that requires you to continuously depress the button to operate it. Use the laser sparingly.
- Keep the laser on a lanyard around your neck or otherwise attached to yourself. Don't let anyone else touch the laser.
- Never point a green laser near a person, vehicle, wildlife, reflective material (such as a road sign) or aircraft — even if it seems to be at a great distance.
- Avoid aiming the laser close to the horizon.
- Circle any object in the sky that you are not absolutely positive is a star, rather than holding the laser on it — in case the "star" is actually an airplane.

SKY TOUR: DISCOVER THE NIGHT

In 2023, the NC Statewide Star Party falls during International Dark Sky Week (April 15-22; https://idsw.darksky.org), which promotes the protection of night skies to benefit all living things, including humans. Below is a suggested sky tour that invites your Star Party visitors to discover the night where they live.

1. Orient everyone.
Find north by locating Polaris, also known as the North Star because it lies almost exactly over Earth's North Pole.

To do this, first find the Big Dipper. In April evenings, its 7 bright stars lie high in the north. Three stars form the handle; four stars form the bowl. The stars making up the far side of the bowl point to Polaris: Start from the bottom star of the bowl, go through the top star, and keep going. The first reasonably bright star you'll run into is Polaris, the North Star. Notice it's *not* the brightest star in the sky. The North Star is not famous for being bright—it's famous for being in the north!

The North Star is the tip of the handle of the Little Dipper. In light polluted skies, the only Little Dipper stars you'll see easily may be the North Star and just two of the stars in the bowl.

2. Identify the Moon and planets.
Even with light pollution, you'll generally be able to see any planets and the Moon, if they are in the sky. At nightfall on the 2023 Star Party dates (April 21-22), the thin waxing crescent Moon appears low in the west below very bright Venus, with reddish Mars higher.

3. How many stars can you see?
Star brightness is measured in terms of "apparent magnitude." Most stars fall in a range of 1 to 6, with 1 being a very bright star, and 6 being a hundred times dimmer. Your sky's "limiting magnitude" is determined by the magnitude of the dimmest stars you can see. Can you see thousands of stars, or only hundreds, or maybe even fewer?

At nightfall in April, the brightest visible stars include Sirius in the southwest, orange-ish Arcturus in the east, and Regulus high in the sky. Use a star map or planisphere to identify these stars and more.

4. Can you see the Milky Way?
The stars you see at night (as well as the Sun in the daytime) are part of the Milky Way Galaxy, the city of stars we live in. When people refer to seeing the Milky Way, they're usually referring specifically to the geometric plane of our galaxy, which appears as a hazy path of starlight across the sky. At nightfall in April, look toward the west to see if you can spot the Milky Way stretching fairly low across the sky, passing through constellations like Cassiopeia and Perseus and between Orion and Gemini.

According to a 2016 study based on satellite data, about 80% of North Americans can no longer see the Milky Way from their homes. More than 99% of us in the continental United States live in areas that are light polluted, meaning that virtually none of us gets to see a truly dark starry sky.

5. How dark is your sky? Contribute to a citizen-science campaign.
Any 2023 Star Party events on April 21st coincide with a monthly data collection period for Globe at Night (https://globeatnight.org/), a worldwide citizen-science campaign to measure the darkness of the sky. For the April campaign, participants report on the stars they can see in the constellation Leo the Lion, which lies high in the sky at nightfall in April.

Extensions: Tie your sky tour to other 2023 Star Party activities. For example, lead the *Good Light, Good Night* shielding demo, and identify well-designed and poorly designed outdoor lighting at your site. Or teach participants to use a Star Wheel to identify stars and constellations—can they see more, or fewer, stars than are represented on their star wheel? Or participants may be inspired by what they see during your sky tour to *Draw a Star Picture* or to create *Pipe Cleaner Constellations*.

NORTH CAROLINA SPACE GRANT

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