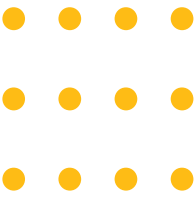




Make a Star Wheel

ACTIVITY INSTRUCTIONS

ncscifest.org/starparty



OBJECTIVE

Make a star wheel that allows you to navigate the night sky

SUGGESTED AGE RANGE

Ages 8 and up

ACTIVITY DURATION

10 minutes to make (+ more to use)

MATERIALS

- Star Wheel outer sleeves and sky maps copied onto cardstock or regular paper
- scissors
- stapler
- Optional: red flashlights or trimmed red balloons to cover white flashlights

BACKGROUND

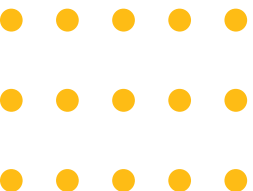
Which stars are in your sky depends on: the *date* of the year (Earth's annual orbit around the Sun brings different stars into view), the *time* (Earth's 24-hour rotation makes the sky turn east to west over the night), and your *latitude* (where you are on Earth in a north-south sense). This Star Wheel (aka "planisphere") is designed for mid-northern latitudes and can be set to show a map of the sky for any date and time.

PREPARATION

Plan to make the Star Wheel indoors, then use it outdoors on a clear night. Consider using a sharp blade to cut a large X into the middle of the outer sleeve's oval, or making a small fold within the oval, to make it easier for participants to cut out the oval—this is especially helpful if the sleeve is copied onto cardstock. Arrange materials on a table, leaving space for participants to make their Star Wheels. You may wish to display a completed Star Wheel.

MAKING THE STAR WHEEL

1. Invite your participants to make a Star Wheel that will allow them to see what stars will be visible at a given time so they can learn the night sky.
2. Give your participants the two parts of the Star Wheel: a sky map and an outer sleeve.
3. Participants should cut away the excess parts:
 - a. Sky map: Trim off gray parts. What remains is an 8-inch-diameter circle.
 - b. Outer sleeve: Trim the excess, being sure to keep the white rectangle at the bottom. Carefully cut away the white oval in the middle (young children may need help doing this safely).
4. Fold the outer sleeve's white rectangle back. This will be the holder for the sky map.
5. Staple the outer sleeve's rectangle to the front, at the short white lines on either side of the oval.
6. Insert the circular sky map into the holder.



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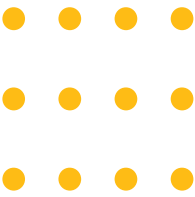


STATEWIDE
STAR PARTY

Make a Star Wheel

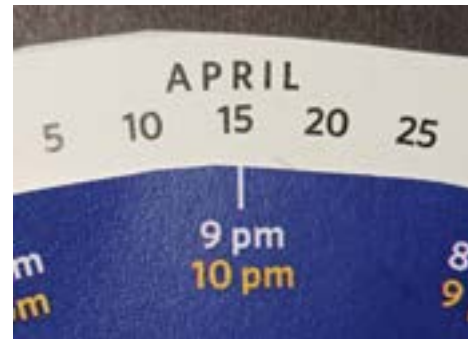
ACTIVITY INSTRUCTIONS, CONT'D.

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USING THE STAR WHEEL

1. Optional: Provide red lights or offer trimmed red balloons to cover white lights so participants can use their Star Wheels without hurting their night vision.
2. What time and date are you viewing the sky? Turn the sky map within the holder until you've aligned the desired time and date with each other. Use the white times if Standard Time is in effect, and the orange times if it's Daylight Time. The example below is set for 10 p.m. Daylight Time on April 15.

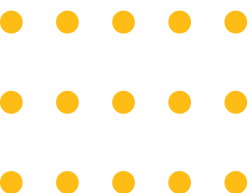


3. What direction are you facing? If you know where sunset was, that tells you roughly west. If you can find the North Star (try identifying the Big Dipper or Cassiopeia first), that tells you north. While keeping your date and time aligned how you want it, turn the entire Star Wheel so that the "Facing" label corresponds to the direction you're facing. For example, hold it right-side up if you're facing south, and upside down if you're facing north.
4. Give your eyes time to adjust to the dark. What stars can you see? Stars near the edges of the oval will lie near the horizon. Stars in the center of the oval are high overhead. Brighter stars are marked with bigger dots. Depending on the amount of light pollution in your sky, you may see more or fewer stars than on the map. Star patterns will look bigger in the real sky.
5. Where are the Moon and planets? Since they appear to move against the background of the stars, they aren't represented on the map. You'll find them on or near the *ecliptic*, which is marked as a curved line passing through the zodiac constellations. If you see a bright "star" near the ecliptic that's shining steadily (rather than twinkling), and it doesn't appear on the Star Wheel, it's a planet.

CREDIT

Star Wheel template and instructions adapted from *Sky & Telescope* -

<https://skyandtelescope.org/astronomy-resources/make-a-star-wheel/>



The Statewide Star Party is made possible by the generous grant support of the North Carolina Space Grant.