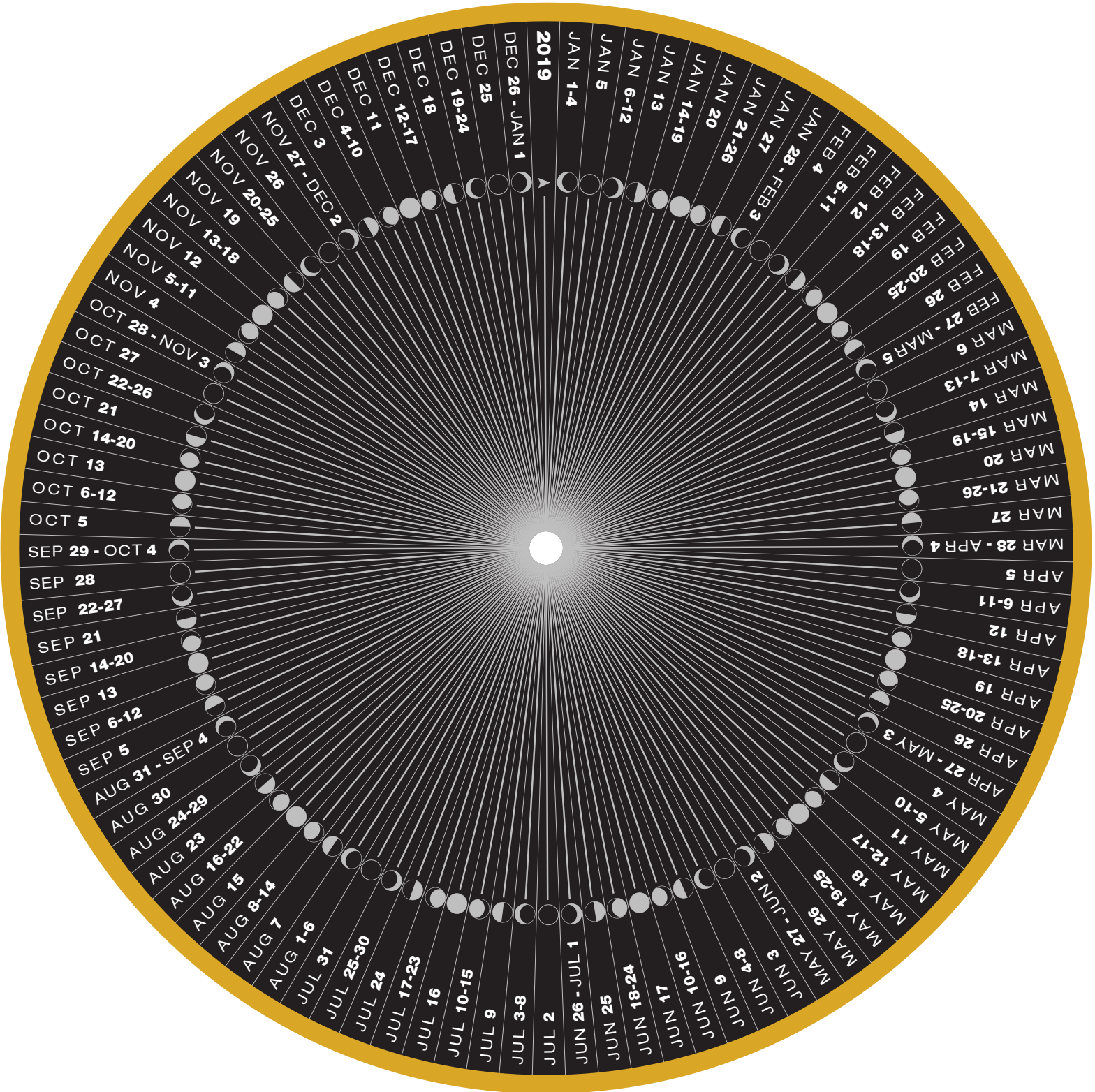
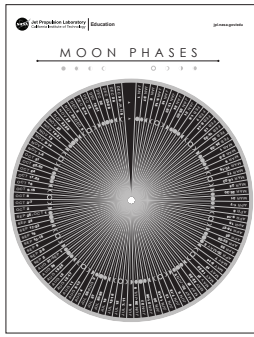




MOON PHASES

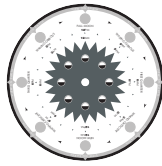
2019





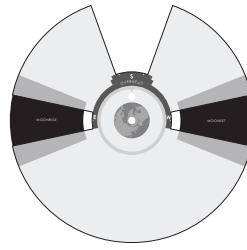
CALENDAR WHEEL

1. Print out (and optionally cut out).



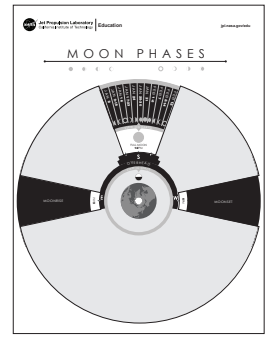
MOON PHASES WHEEL

2. Print and cut out. Follow the instructions on the back to fill in the moon phases.



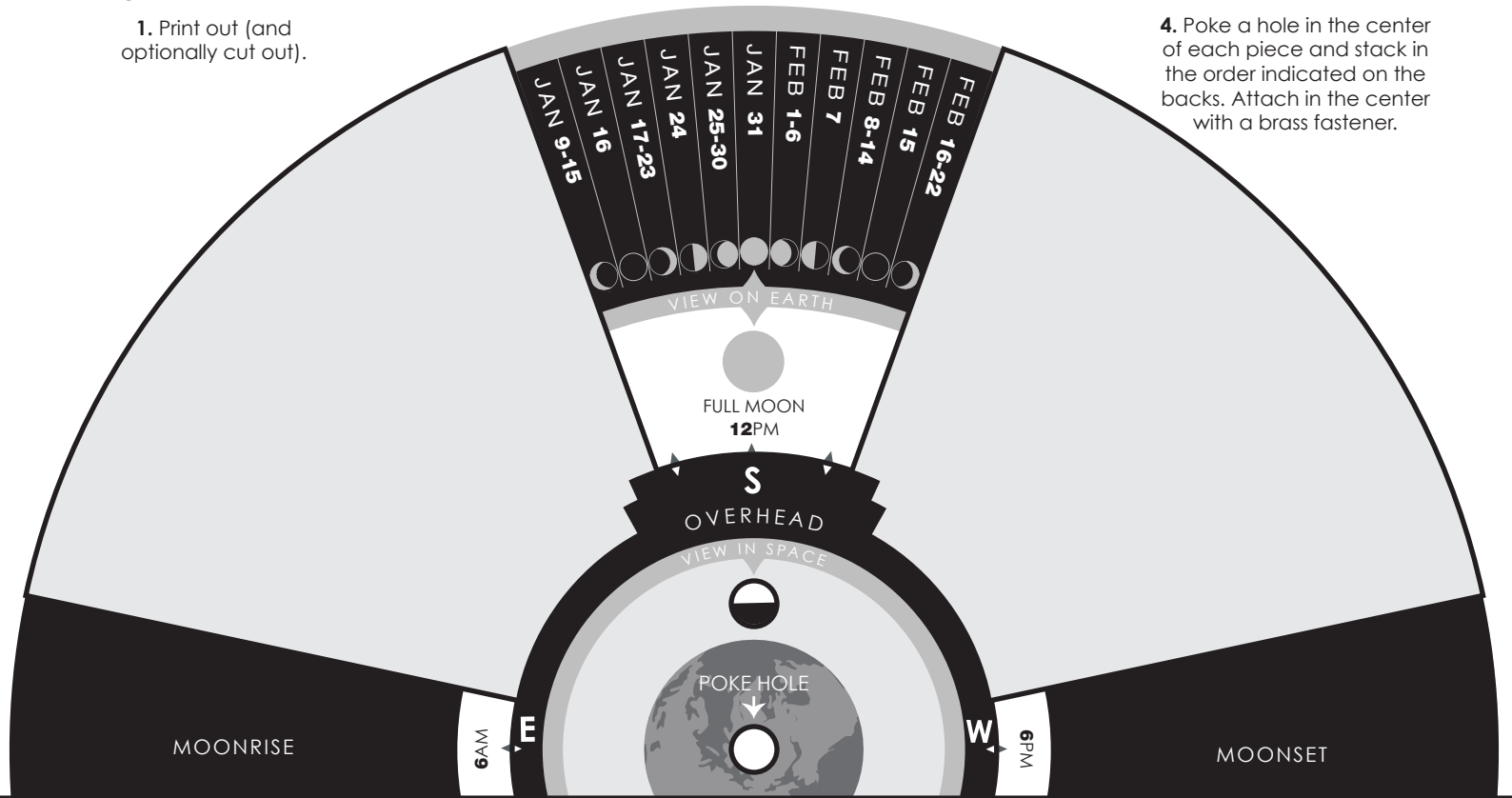
VIEWING WHEEL & PANELS

3. Print. Where indicated on the back, cut out, punch hole and line up moonset/rise panels, attaching with tape.



ASSEMBLED CALENDAR

4. Poke a hole in the center of each piece and stack in the order indicated on the backs. Attach in the center with a brass fastener.



MOON PHASES CALENDAR AND CALCULATOR (N. HEMISPHERE)

HOW TO USE:

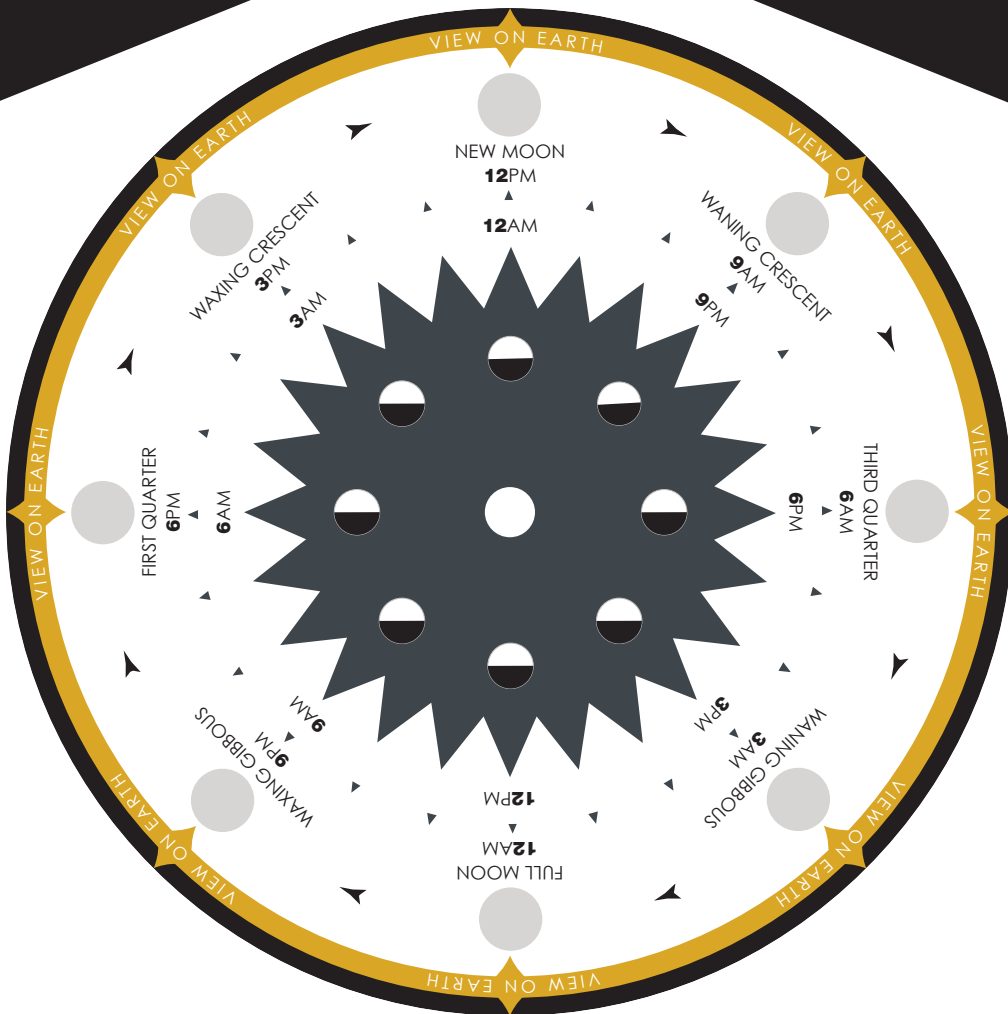
Use this moon phases calendar and calculator to find out when moon phases are visible throughout the year and where to spot the Moon in the sky. First, turn the top **Viewing Wheel** to a date or date range for which you would like to know the moon phase and/or viewing location. Then turn the **Moon Phases Wheel** so that the phase on the wheel matches what's pictured on the date you have selected. Be sure the gold arrow on the **Moon Phases Wheel** is pointing to the correct date on the **Calendar Wheel**. (Note: The **Calendar Wheel** shows the dates when moon phases occur in the Pacific Time Zone.) Once the wheels are aligned, you will see approximately when (in local standard time) the moon will rise in the east, be overhead while facing south and set in the west for that particular date. In the center of the **Viewing Wheel**, you will also see a view of Earth and the Moon as seen from space, above Earth's Northern Hemisphere.

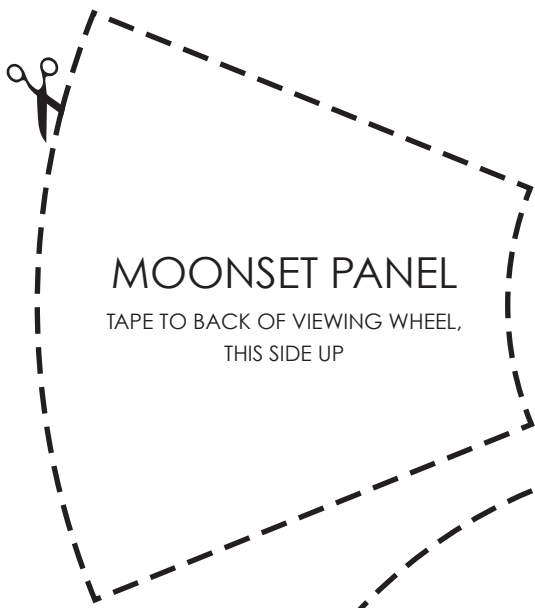
For more about the Moon, explore these online resources from NASA:

Activities for Students: go.nasa.gov/MoonActivities

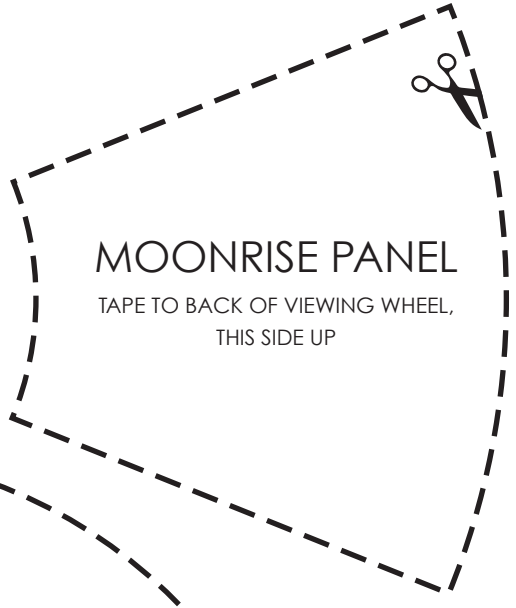
Lessons for Educators: go.nasa.gov/MoonLessons

NASA's Moon Website: moon.nasa.gov

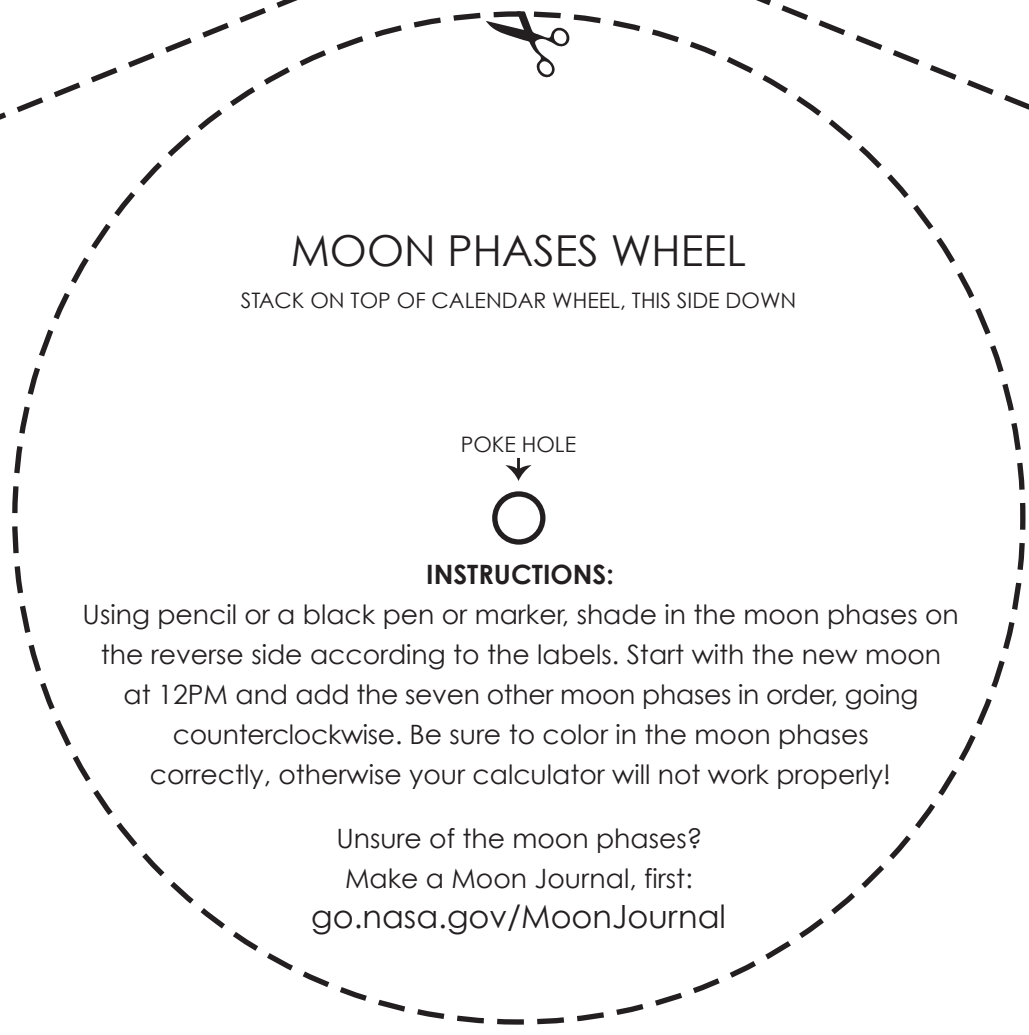




MOONSET PANEL
TAPE TO BACK OF VIEWING WHEEL,
THIS SIDE UP



MOONRISE PANEL
TAPE TO BACK OF VIEWING WHEEL,
THIS SIDE UP



MOON PHASES WHEEL
STACK ON TOP OF CALENDAR WHEEL, THIS SIDE DOWN

POKE HOLE



INSTRUCTIONS:

Using pencil or a black pen or marker, shade in the moon phases on the reverse side according to the labels. Start with the new moon at 12PM and add the seven other moon phases in order, going counterclockwise. Be sure to color in the moon phases correctly, otherwise your calculator will not work properly!

Unsure of the moon phases?
Make a Moon Journal, first:
go.nasa.gov/MoonJournal

1. Match the **Moon Phases Wheel** with the moon phase on the calendar

2. See when and where to spot the moon

2019 MOON EVENTS

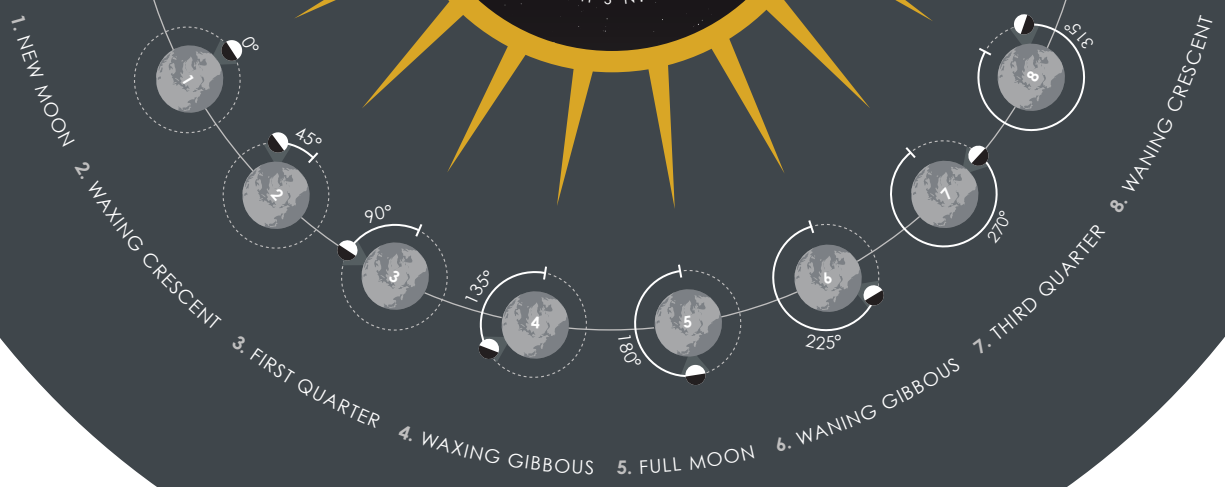
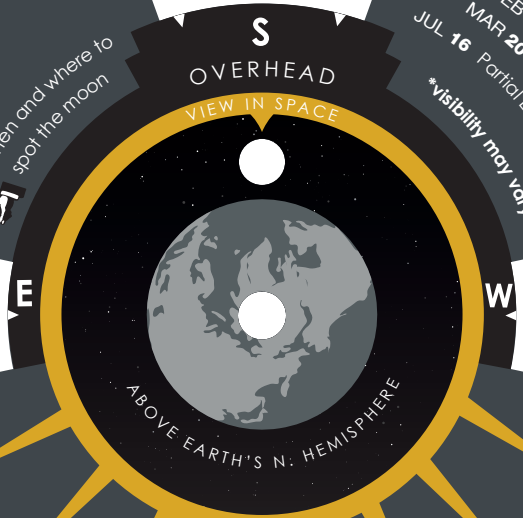
JAN 20 Supermoon & Total Lunar Eclipse*

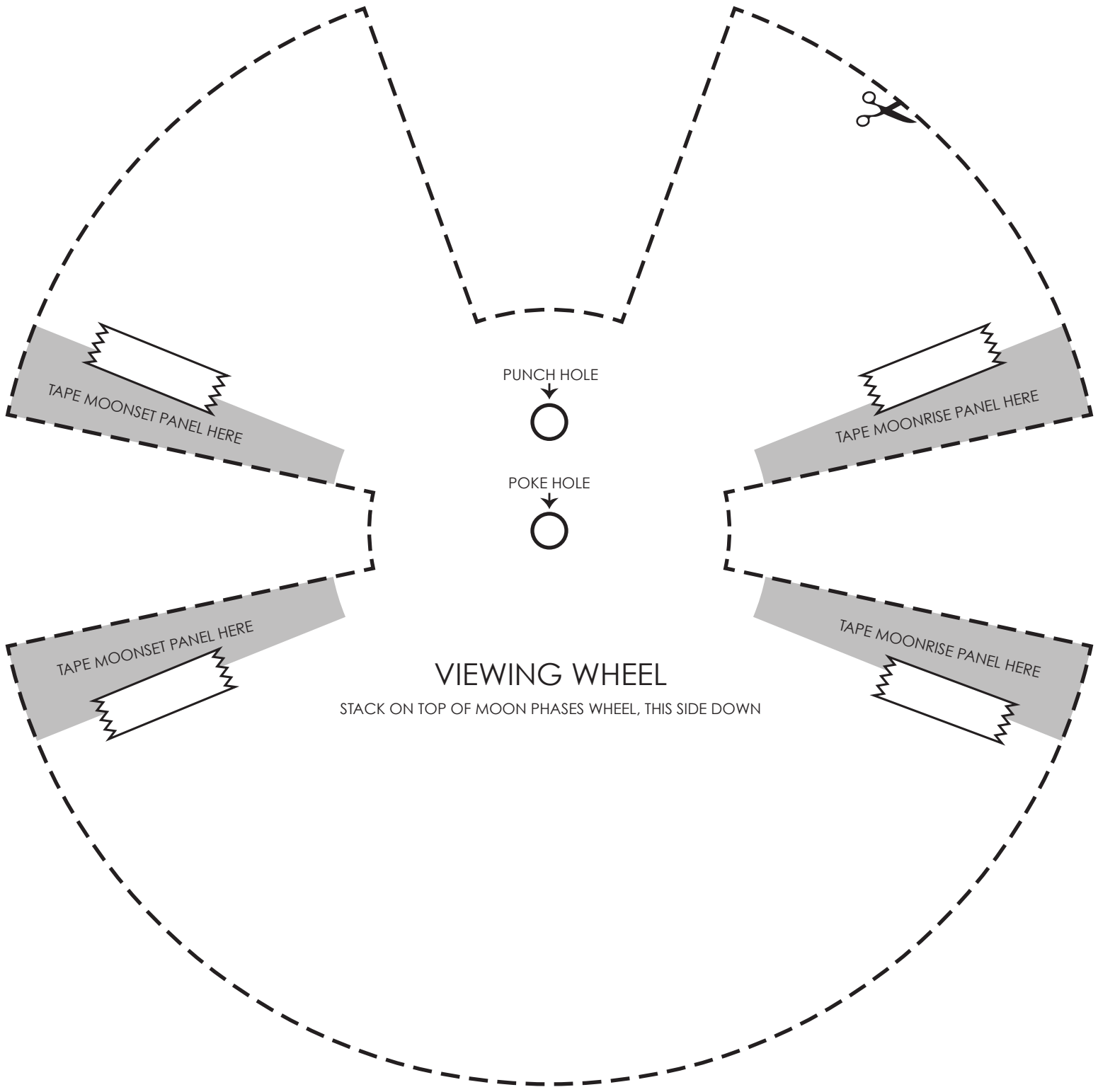
FEB 19 Supermoon

MAR 20 Supermoon

JUL 16 Partial Lunar Eclipse*

*visibility may vary





PUNCH HOLE



POKE HOLE



VIEWING WHEEL

STACK ON TOP OF MOON PHASES WHEEL, THIS SIDE DOWN

TAPE MOONSET PANEL HERE

TAPE MOONRISE PANEL HERE

TAPE MOONSET PANEL HERE

TAPE MOONRISE PANEL HERE