

# March 2020 Stargazing



## MAIN IDEA

Behold the wonders of the nightsky from your own backyard! Use this guide to understand how the Earth's rotation and the position of the Sun determines when stars become visible while finding stars and constellations in the sky above you.

## SCIENCE BACKGROUND

At sunset the Earth begins its rotation away from the Sun and sunlight is fully or partially blocked by the Earth until sunrise. Twilight occurs when it is still light outside but the Sun is below the horizon. The darkest phase of twilight is termed astronomical twilight, when the Sun sinks between 12 degrees and 18 degrees below the horizon stars and is just before official nighttime. Astronomical twilight is when the stars first become visible to the naked eye.

The length of twilight depends on latitude, or the angular distance a location is north or south of the Equator, from  $0^{\circ}$  (Equator) to  $90^{\circ}$  (north or south pole). High latitudes experience a longer twilight compared to lower latitudes, such as the Equator. During the months of March through September, the North Pole does not experience an astronomical twilight at all as the sun never sets! This continuous period of light is called Polar Day or Midnight Sun.

**For March 2020, there are two key areas to look at in the nightsky at around 9:00 p.m.:** the northern sky and the western sky. The northern sky has Polaris, or the North Star, which is always in the same location for the Northern Hemisphere, no matter where you are located or the time of the year. This has made Polaris a standard for navigation. Polaris is located at the tail end of the Little Dipper (Ursa Minor), and then to the northeast you can find the Big Dipper (Ursa Major).

The western sky will have the planet Venus slightly above the horizon. As you continue observing upward into the sky you will find the constellation Taurus and to the southwest of Taurus is the constellation of Orion the hunter. Orion is most easily recognized by Orion's Belt, three bright stars towards the center of the constellation.

## CELESTIAL OBJECTS TO LOOK FOR

**Northern Sky:** Polaris (star), Little Dipper (constellation) and Big Dipper (constellation)

**Western Sky:** Venus (planet), Taurus (constellation) and Orion (constellation)

## MATERIALS

SkyPortal App (free) on a handheld device

*Check out these SkyPortal tools at the bottom of the screen:*

**Info** – select a celestial object, then click info for more information including its distance to Earth

**Compass** – select to move the sky manually or deselect to move your device to find a specific object

**Time** – see what is visible at a specific time

Telescope (optional)

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## EDUCATIONAL STANDARDS

### Kindergarten

Big Idea 5: Day and Night Characteristics

SC.K.E.5.3 – Recognize that the Sun can only be seen in the daytime.

### Grade 4

Big Idea 5: Movement of the Solar System

SC.4.E.5.4 – Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected.

## ADDITIONAL RESOURCES

### Astronomical Twilight

<https://www.weather.gov/fsd/twilight>

### Midnight Sun

[https://www.pmel.noaa.gov/arctic-zone/gallery\\_np\\_seasons.html](https://www.pmel.noaa.gov/arctic-zone/gallery_np_seasons.html)

### Stargazing in Space

<https://www.nasa.gov/image-feature/stargazing-from-the-international-space-station>

