

NIGHT SKY CURRICULUM

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Introduction

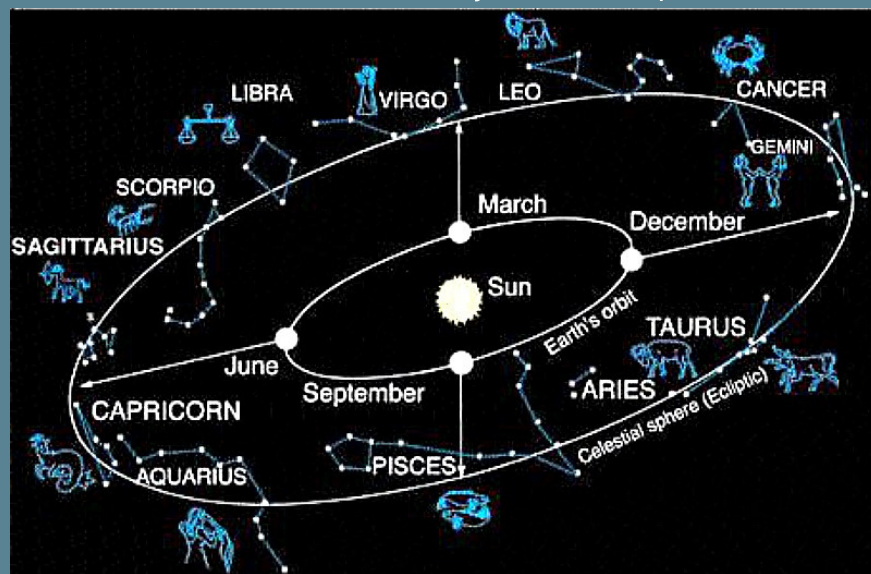
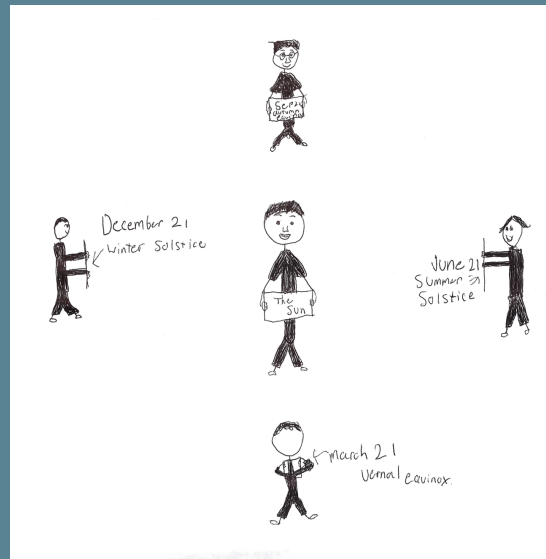
Welcome to the the Astronomy Curriculum, made for tour guides, park rangers, camp groups, and teachers. This curriculum will help you, and the hikers you're guiding, to better understand the night sky.

Step 2: Orbit Activity

- This activity is preferred to be done before it gets dark in order to point out things in the night sky.
- Begin by forming a circle around one person which will be the Sun. Explain that the circle represents the orbit of the Earth around the sun
- Have 4 people in every quarter of the circle holding the dates of the solstices and equinoxes.
- Instruct everyone to find where their birthday is in the Earth's orbit
- Begin by asking the group what a full day is. Instruct them to imagine they are planet Earth and to rotate one day on Earth. Next ask the group to try and find "midday" and then "Midnight" by spinning to face the sun for midday and spinning and face away from the sun for midnight.
- Continue the task by talking about the Earth's orbit. The path that the earth takes around the sun is called its orbit and one orbit is one year or 365.25 days.
- Instruct one person "orbit" the sun once.
- The Earth's orbit allows us to see different constellations at different times of the year and the path that the Earth takes is called the ecliptic.
- For example, in December at night the Earth is in position to see the constellation Gemini, but not in position to see Sagittarius. However, in June, the Earth will be in position to see Sagittarius at night, but not Gemini.

Step 1: Ask students

- What interests you about the night sky?
- What do you know so far?
- What do you want to learn?

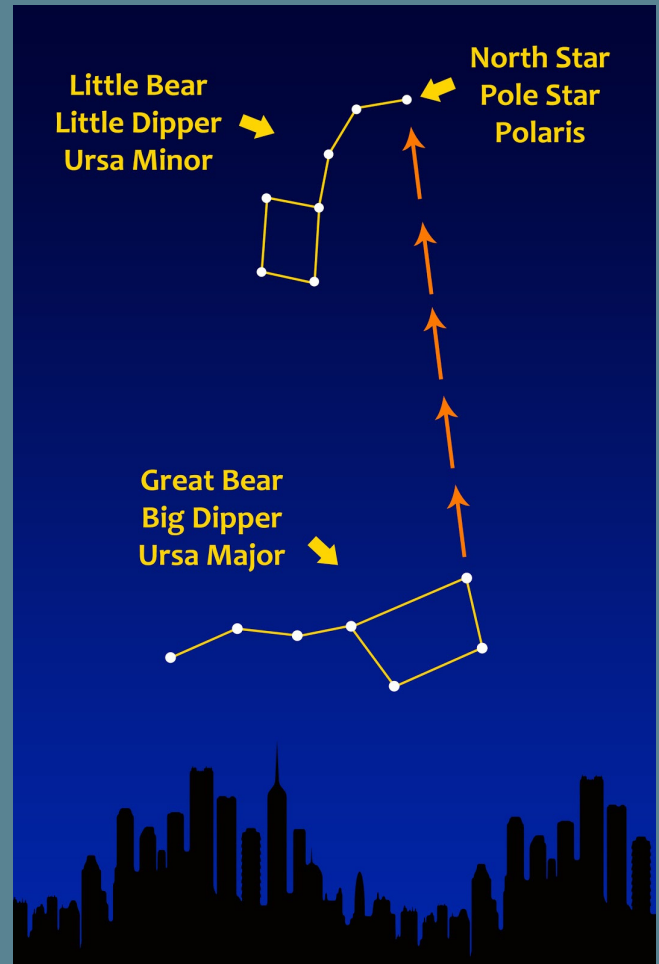


Step 3: Polaris?

- Look into the night's sky to find The Big Dipper, which will be in the north or to the right of where the sun sets in the west (Photo for reference)
- Locate the tip of the bucket (Photo for Reference)
- Follow the tip of the Little Dipper, towards the last star on the handle of The Little Dipper
- Now that you've located the star, you'll come to find out that, that is Polaris, The North Star
- Earth is tilted 23.5 degrees towards Polaris which allows us to see it all year long.
- As we now know, Earth is at a tilt which keeps it angled year long on an ecliptic. We learned that this tilt/ecliptic combo affects the seasons, but the tilt not only them, but also how we perceive Polaris. Since we are angled north, towards Polaris, we are able to see it year long. Right now Polaris is our north star, but in about 13,000 years, the earth would have moved far enough to create the same effect on another star named Vega. Making it our new "north star".
- During the summer in the North Pole, the sun faces the north pole during the entire summer and is at the highest point in the sky. All of this creates longer/hotter days.
- During the winter in the North Pole, the sun is out for the shortest amount of time which causes far more shorter and colder days

What constellations are out right now (March)?

1. Bootes 2. Cancer. 3. Crater. 4. Hydra. 5. Leo
6. Virgo



Constellation History

- Deriving from the Latin base "Co" meaning "together with" and "Stella" meaning star. The word constellation meaning a grouping of stars.
- Each constellation being a pattern in the sky based off of Greek mythology. Different constellations feature animals like "Pegasus" that can be seen mostly in the northern parts of the world. Another type of constellation is called "Hercules", a notorious Greek god. Although the constellation just looks like a bunch of random stars, you'll come to find out that the Greeks were able to depict Hercules kneeling on the ground with one hand holding a club and the other, holding the head of Medusa.
- Where you live on the Earth determines what constellations you can see but most people on the Earth can view all the constellations on the ecliptic, these are the Zodiac constellations. That's why so many ancient communities wrote about these specific constellations since most are able to see them all year long.