# Parent Resources for The Night Sky...

Goals of this lesson:

- Introduce fractions and investigate the fraction 1/4.
- Review clockwise movement, counter-clockwise movement, and the Cardinal Direction East.
- Locate the Big Dipper, an asterism* in the night sky.
- Locate Polaris, nick-named The North Star, in the northern sky.
- Locate the Little Dipper, a constellation* in the night sky.

** a constellation is a group of stars that make a pattern in the night sky; an asterism is a small part of one or more bigger constellations*

Recommendation:

This is a two-day lesson. It begins with an introduction to the fraction: one-quarter. Then a review of earlier concepts: East, clockwise, and counter-clockwise. There is a connect-the-dots activity (which also reviews the alphabet) that introduces patterns in the night sky. It concludes with a night-time outdoor activity to see the Big Dipper, the Little Dipper, and the North Star on a clear night. Spread this activity out over the course of two days, and enjoy the stars in the clear night sky.

For additional information, copy and paste these links into your browser:

Fractions: See how one-fourth is the same as a quarter:

https://clever.discoveryeducation.com/learn/player/4644a935-16ba-4436-9d6f-b5fc1b497cb8

Sid the Science Kid gazes at the stars in the sky:

https://clever.discoveryeducation.com/learn/player/4ccd2e8a-382e-4199-8d36-8648bdc9218c

The Big Dipper in folklore:

https://www.youtube.com/watch?v=JSQAyMQomC0

# The Night Sky

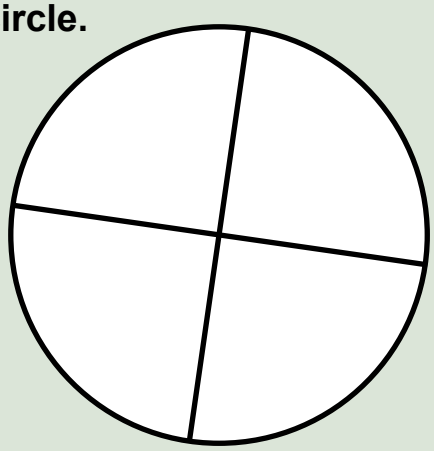
## FRACTIONS

Think about it: If you spin something around one full time, it will be facing the same direction as when you started. But, if you want to spin something around less than one full time, you can describe that by using fractions. We will be using the fractions called quarters.

Do you know the coin called a quarter? If you have four of them, you have a whole dollar!

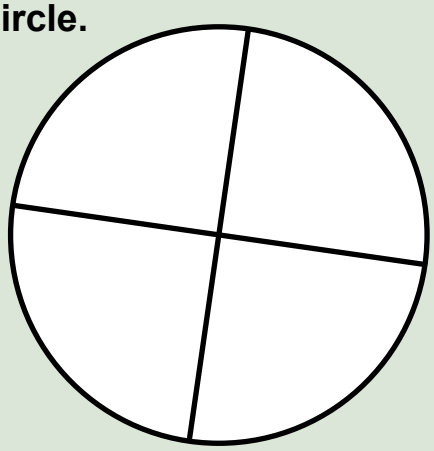

**Color in 1 of the 4 spaces in this circle.**

You have colored in one-quarter, which can be written $\frac{1}{4}$



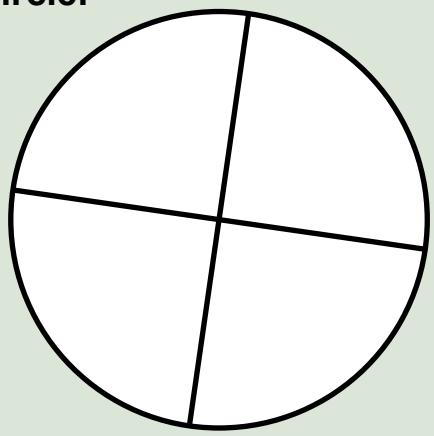
**Color in 2 of the 4 spaces in this circle.**

You have colored in two-quarters, which can be written $\frac{2}{4}$



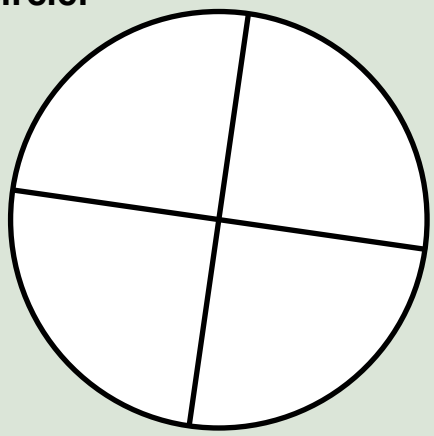
**Color in 3 of the 4 spaces in this circle.**

You have colored in three-quarters, which can be written $\frac{3}{4}$



**Color in all 4 of the spaces in this circle.**

You have colored in four-quarters, which is the whole thing!



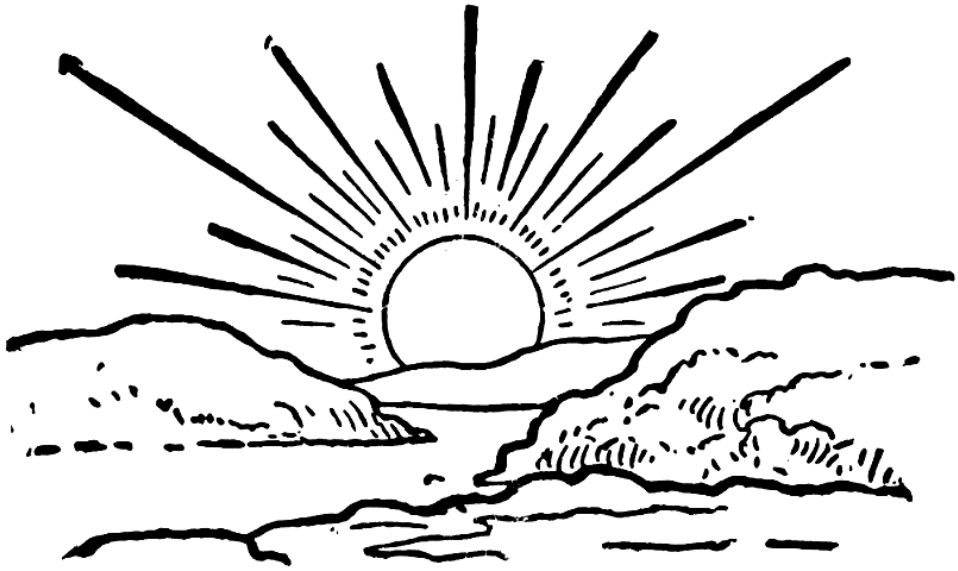
A quarter is a fraction. If you have four quarters, you have one whole thing.

# The Night Sky

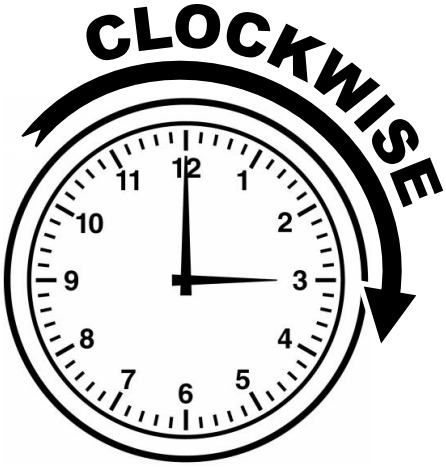
## REVIEW

Let's start with a review. Do you remember the direction East? When you face the East, you are facing the direction where the Sun rises, or comes up, every morning. When you go outside to look at the night sky you will start by facing East (but the Sun won't be in the sky, will it?).

Color this picture of a sunrise.



FACING EAST IN THE MORNING

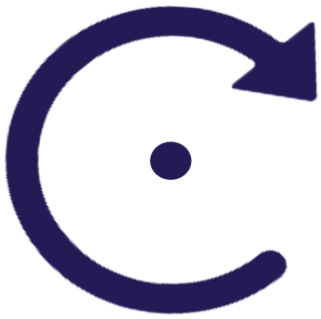



Now, let's think of an analog clock - the clock with the hands that point to the hour and minute.

Do you remember the way the hands spin around and around? That's clockwise.

If you spin the opposite way, it's counter-clockwise.

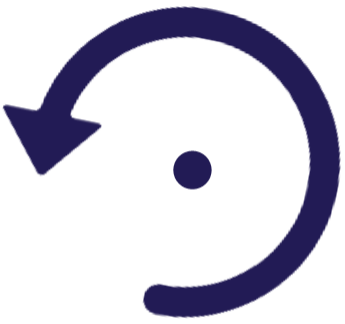
## PRACTICE - BUT DON'T GET DIZZY



CLOCKWISE

First, slowly spin around one full time in a clockwise direction.

Next, slowly spin around once in a counter-clockwise direction.



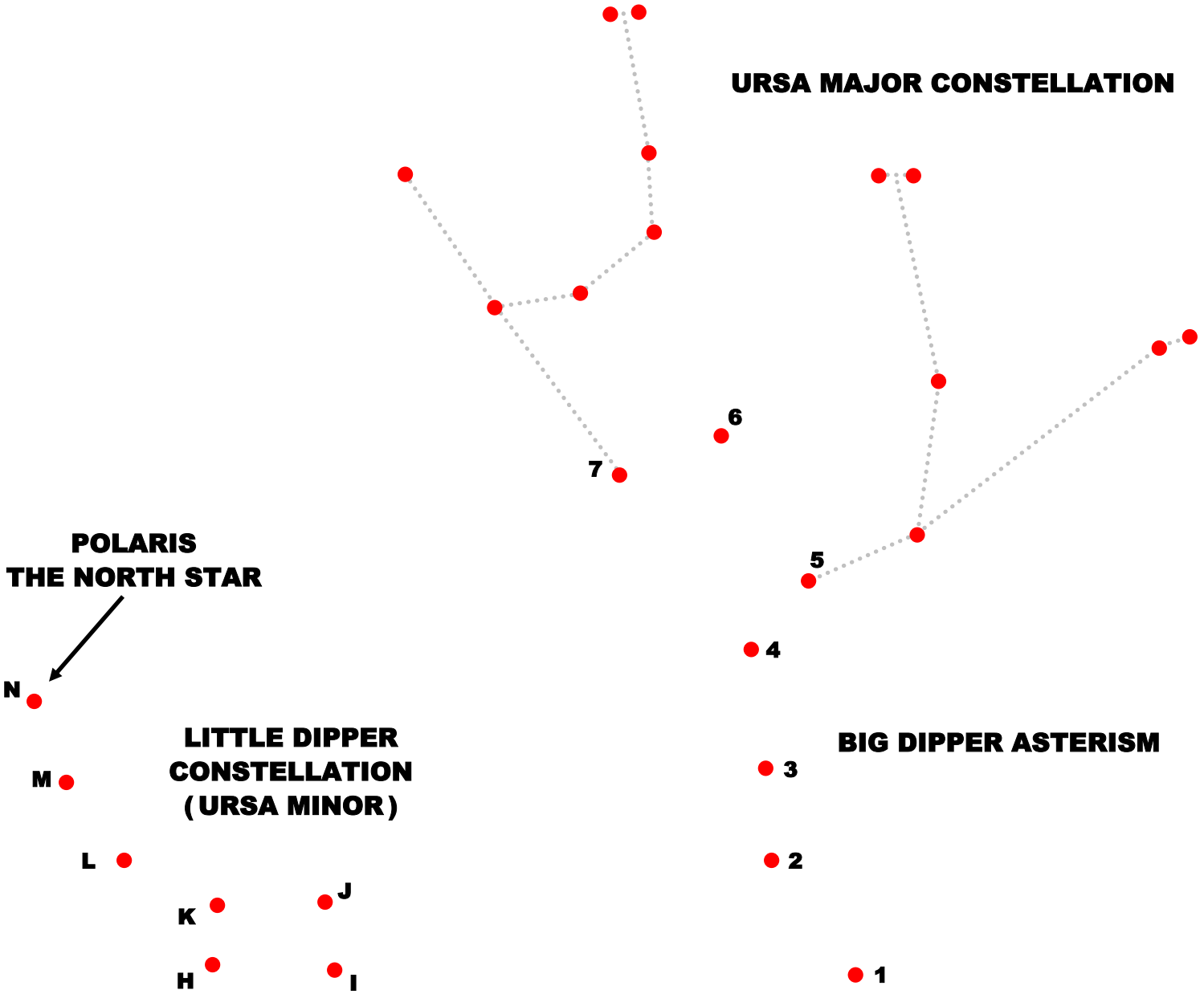
COUNTER-CLOCKWISE

When you stop, you should be facing the same direction that you started!

# Big and Little Dippers

## Connect the Dots

- Draw a line from numbers **1** through **7** and then connect back to **4**. That is the **Big Dipper Asterism**. It is part of the **Ursa Major Constellation.**
- In alphabetical order, draw a line from letters **H** through **N**. Then connect **H** and **K**. That is the **Little Dipper Constellation**, which is also called **Ursa Minor**.
- Use a straight edge and draw an arrow from **6**, through **7**, then end by pointing at **N**. Your arrow is pointing at the star named **Polaris**, which is also called **The North Star.**



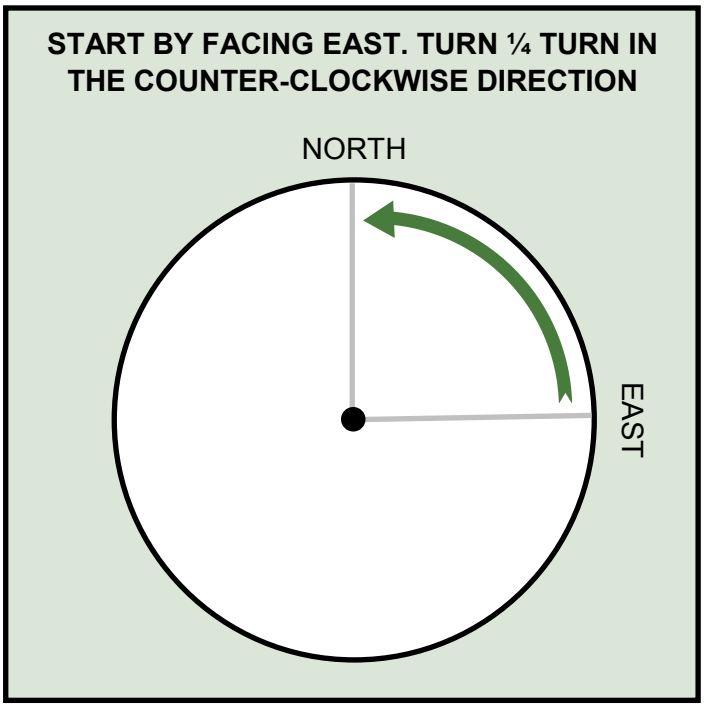
# Observe the Night Sky

## Definitions

- STAR - an object in space that is made of burning gas and that looks like a point of light in the night sky. Some stars have names, and some even have nick-names. Stars are huge, but they are so far away that they seem very, very tiny. The Sun is the closest star to Earth.
- CONSTELLATION - a group of stars that forms a shape in the sky. The shape can be a person, an animal, or an object (like a pot or a musical instrument).
- ASTERISM - a group of stars that make a small shape, usually inside of a bigger constellation.

## Go Outside After Sunset on a Clear Night

- Before you go out, review the connect-the-dots activity that you did earlier.
- Ask an adult, or an older brother or sister to go outside with you. They can help read these directions while you do the activity.
- Try to stand in a place where there are not many lights.
- Start by facing toward the East (the direction that the Sun comes up).
- Turn your body one-quarter (¼) turn in the counter-clockwise direction.
- You are now facing the direction North.
- Look up at the sky. Look for the 7 bright stars that make the Big Dipper asterism. In the springtime it is high in the sky when you are facing North.
- Look for the two stars at the end of the Big Dipper's pot. Start at the star at the bottom of the pot and draw an imaginary line from that star through the star at the top of the pot. Continue that line across the sky until you get to a bright star in the North sky. That star is named Polaris. It's nickname is The North Star.




- The North Star is the last star in the handle of The Little Dipper. Look carefully to find the 7 stars that make the Little Dipper constellation. They are not as bright as the 7 stars that make the Big Dipper. Another name for the Little Dipper is Ursa Minor.