William M. Staerkel PLANETARIUM

Teacher's Guide to

SANTA'S SECRET STAR

OBJECTIVES:

- To explore the significance of the North Star, Polaris.
- To be able to find the North Star using the Big Dipper
- To see how the North Star is in different heights in the sky depending on where you are at on the Earth.
- To learn some of the easily-recognizable constellations in the winter sky.

This show conforms to the following Illinois state science standards: 12.F.1b, 12.F.2a, 12.F.2b, 12.F.2c. Next Generation Science Standards: 1.ESS1.1, 1.ESS1.2, 5.ESS1.1

BRIEF SHOW DESCRIPTION:

What? Santa has lost his compass and can't find his way home? Sounds like a disaster in the making! Can the stars help? Learn about the day and night sky and how the stars seem to make pictures in the sky in our newest holiday show for young stargazers. Learn how YOU, too, can find Santa's secret star!

PRE-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Brainstorm why the North Star is so special. Common answers are that it's the brightest star or hottest/coolest or even the closest. None of which is true!
- Have students stand at their desks and slowly spin. What does it appear like the rest of the room is doing? Why? Turn on a light bulb in the front of the room and repeat with the room lights out. If you can see the light, you have day time on your face. What about when you can't see the light (meaning you're facing away from it)?

POST-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Model why the north star doesn't Moon by having a student stand up and slowly rotate. What does it appear the rest of the room is doing? Note how there is a spot on the ceiling directly above the student where, no matter how you spin, is always in the same spot. This is where the North Star is located for our Earth, high above the Earth's north pole.
- Use a globe of the Earth and the idea that the North Star is directly above the Earth's north pole and think about where the North Star would appear in the sky if you were standing on the North pole (directly above you) or living on the equator (always on your horizon) or even on the south pole of the Earth (North Star never comes up).

VOCABULARY LIST:

Angle	Horizon	Orion
Degrees	Latitude	Taurus

INTERNET RESOURCES:

- Jim Kaler's star page: http://stars.astro.illinois.edu/sow/bright.html (Polaris is #50!)
- North star misconceptions: http://www.badastronomy.com/bad/misc/badpole.html
- Astronomy for kids:

http://www.astronomy-for-kids-online.com/thenorthstarandastronomy.html

- Fun stuff about the North pole: http://www.northpole.com/
- What's it really like at the north pole: https://www.scienceabc.com/eyeopeners/what-is-at-the-north-pole.html or https://www.nationalgeographic.org/encyclopedia/north-pole/ and beautiful photos here: https://www.cntraveler.com/galleries/2015-12-23/what-the-north-pole-actually-looks-like-at-christmas