



# Journey to the Stars

## A Pre-Visit Information Guide for Teachers

Meets Next Generation Science Standards: 5-PS1-3, 5-PS2-1, 5-PS3-1, 5-ESS1-1,2. MS-PS2-4,5

This may be the first visit to the Planetarium for many of your students. We have found that both cognitive and affective learning can be increased when teachers use structured activities before and/or after the visit to create a context for the experience and link with the classroom instruction. In this guide we have provided some interesting facts about the Cormack Planetarium and include background information about the astronomy content that will be presented in " *Journey to the Stars.*" We encourage teachers to conduct pre-visit and post-visit classroom discussion and activities with their classes to make the most of their field trip experience.

### ABOUT THE CORMACK PLANETARIUM:

- In a planetarium, objects in the universe are projected, as they exist at any time in space.
- These celestial objects are projected onto a dome-shaped ceiling so it appears that one is looking up into the night sky.
- Our Star Projector is capable of displaying images of over 7,000 stars...many more than anyone can see without the aid of a telescope. Planets, comets, satellites and the Milky Way and Andromeda Galaxy can also be projected.

### JOURNEY TO THE STARS

Look into the sky on a clear, dark night and you may see hundreds, or perhaps thousands of stars. What may look like tiny pinpricks of light to us Earth-bound observers are actually massive cosmic powerhouses. These stars are not just harbingers of light and heat, but also create the elements necessary for all life to exist, including us.

Take another look at the stars you see, another thing you notice is the amazing variety of stars that exist not just in our corner of our Milky Way Galaxy, but across the Universe. Each of these stars has an amazing life cycle, each very different from beginning to end.

Join us on a thrilling journey to the stars, as we uncover the amazing complexity and variety of these glowing nuclear furnaces. Whether large or small, bright or dim, stars and their processes are at the core of all that occurs throughout the Universe.

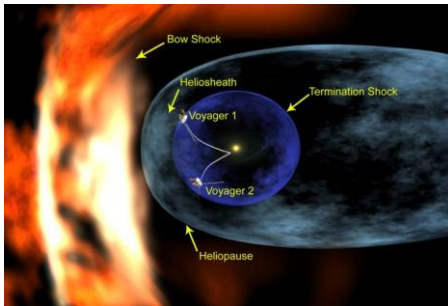
### SUGGESTED CONCEPTS TO REVIEW INCLUDE:

AURORA	FUSION	PLANETS
CONSTELLATIONS	GALAXY	STAR CLUSTER
DARK MATTER	HELIOSHEATH	SUNSPOTS
ELEMENTS	NEBULA	TELESCOPE

## HELPFUL INFORMATION: THE VOYAGER SPACECRAFTS

The twin Voyager 1 and 2 spacecraft continue exploring where nothing from Earth has flown before. Since the time of their 1977 launches, they each are much farther away from Earth and the Sun than Pluto. Voyager 1 and 2 are now in the "Heliosheath" - the outermost layer of the heliosphere where the solar wind is slowed by the pressure of interstellar gas. Both spacecraft are still sending scientific information about their surroundings through the Deep Space Network.

The primary mission was the exploration of Jupiter and Saturn. After making a string of discoveries there -- such as active volcanoes on Jupiter's moon Io and intricacies of Saturn's rings -- the mission was extended. Voyager 2 went on to explore Uranus and Neptune, and is still the only spacecraft to have visited those outer planets. The adventurers' current mission will explore the outermost edge of the Sun's domain and beyond.



***This image shows the heliosphere and heliosheath, as well as the heliopause, where the heliosheath meets the pressure of interstellar gas. Also pictured are Voyager 1 and 2.***

## ACTIVITIES:

Teachers are encouraged to conduct pre-visit and post-visit classroom discussions and activities with their classes to make the most of their experience. Have the students observe the sky over the course of several nights to notice what is visible to them. Do they see any stars of different colors or sizes? How about binary stars, or star clusters? Have the students create a Star Journal. Students will observe the stars they see at night, and describe the star and its neighboring stars. Are the stars close to each other, or far apart? What colors do you see? Students may also create their own, new constellations, based on the stars they see.

## WEBSITES

Voyager Mission Page:

<http://voyager.jpl.nasa.gov/>

Print out a Sky Wheel:

<https://sites.google.com/a/berkeley.edu/uncleal-urls/uncle-als-starwheels>

For more links visit our website at:

[www.providenceri.com/museum](http://www.providenceri.com/museum)