Pre-Visit Information: Observatory Night Sky Viewing Experience – All Grades

Standards to Build On:

South Carolina College- and Career-Ready Science Standards 2021: 1-ESS1-1, 5-ESS1-1, 8-ESS1-1, 8-ESS1-2, 8-ESS1-3, E-ESS1-1, E-ESS1-2, E-ESS1-3

Next Generation Science Standards: 1-ESS1-1, 5-ESS1-1, MS-ESS1-1, MS-ESS1-2, MS-ESS1-3, HS-ESS1-1, HS-ESS1-2, HS-ESS1-3

What's this all about?

Join our astronomy educators for a special virtual night sky viewing experience! We'll show your group live images of stars, planets, the Moon, and deep sky objects using a camera on our 1926 Alvan Clark refractor. The exact objects chosen will depend on the date of your program and what's available in the sky that evening. In the event of cloudy weather, we'll show amazing pictures from our observatory's image archive. This program works especially well as a family night/STEM night experience.

What's going to happen?

Students will interact with our astronomy educators over a virtual platform such as Zoom or Google Meet. We'll begin by introducing our telescope, and then start our exploration of night sky objects visible on the date of your program. Weather permitting, we'll screenshare images taken with a special camera on our Clark telescope in real time. Throughout the program, we'll interact with the students through back-and-forth conversation.

Because this is an interactive experience, we encourage classes to stay unmuted if possible. There will be opportunities throughout the program for student Q&A. If students remain seated during Q&A, teachers may need to repeat students' questions so that our educators can hear them over Zoom/Google Meet. If students are comfortable, they are also welcome to come up to the classroom computer and ask their questions directly.

Key terms/concepts we may cover include:

Telescope
Moon
Planet
Nebula
Star cluster
Galaxy
Light-year

Things you can do before the program:

Activity 1: Ask students to share their thoughts on what telescopes are used for (the main purpose of a telescope is to see objects that are far away). Depending on your group, you may consider introducing the concept of a light-year. A light-year is the unit that astronomers use to measure the huge distances in the universe. It's defined as the distance that light travels in one year, or about 6 trillion miles. One common misconception about light-years is that they're a unit of time, when they're actually a unit of distance.

Activity 2: Ask students to draw their impressions of one or more of the following:
- Moon
- Planet
- Nebula
- Galaxy

Activity 3: Ask students to go outside with their caregivers on the next clear night and simply look up at the night sky. What's the same about each of the stars you see? What's different?

Note: It's completely understandable that some students may have trouble observing the night sky from where they live. Light pollution, trees/buildings in the way, and safety concerns with being out at night can make night sky observing challenging. There could also be a string of cloudy nights around the time of your program. To support students in doing this activity, our astronomy educators can help you obtain and use a free program called Stellarium.

Helpful links:

SCSM observatory virtual program FAQs:
https://scmuseum.org/astronomy/observatory/observatory-educators#virtual-programs

SCSM observatory image gallery (this will give you an idea of the types of views you can expect):
https://scmuseum.org/astronomy/observatory

Stellarium: This night sky simulation program is available as a free download: https://stellarium.org/