



**DYER OBSERVATORY**  
VANDERBILT UNIVERSITY

# 5th Grade Field Trip Agenda

Vanderbilt Dyer Observatory has had the pleasure of working with Metro Nashville Public Schools (MNPS) for years, and the observatory has served as a destination for many schools that are part of the Science, Technology, Engineering, Art, and Math (STEAM) Expeditions program. The program is designed to ensure equitable access for MNPS students to have cultural enrichment opportunities that support their academic, social and emotional growth. In addition, students not only get access to resources not readily available in the classroom, but they directly interact with individuals who are professionally involved in a field of science they are studying.

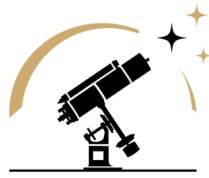
As Dyer continues to collaborate with MNPS, staff have worked with education leaders and STEAM coaches to devise a field trip agenda that would address multiple Tennessee 5th grade science standards. The agenda not only lists the field trip activities at Dyer, it also outlines activities and concepts teachers would address with their students prior to the trip and after they return, ensuring maximum retention and impact on students.

Below is the 5th grade field trip agenda along with standards that can be addressed during their time at Dyer Observatory. Though teachers are not required to follow this agenda when requesting their own field trips, it does provide a guide to illustrate what can be done if specific standards need to be met in order for a field trip to be authorized by their school. Additional field trip activities can be found on our [field trip webpage](#).

## **Standards-Related Topics to Include During Activities**

(Touching on as many as possible)

- **5.ESS1.1:** The apparent brightness of the Sun compared to other stars is due to their relative distances from Earth.
- **5.ESS1.2:** The position of Earth and the solar system within the Milky Way galaxy and comparisons of the size and shape of the Milky Way to other galaxies.
- **5.ESS1.4:** Explain the cause-and-effect relationship between the positions of the Sun, Earth, and Moon and the resulting eclipses, tides, and appearance of the Moon.
- **5.ESS1.5:** Relate the tilt of the Earth's axis, as it revolves around the Sun, to the varying intensities of sunlight at different latitudes, causing changes in day lengths and seasons.
- **5.ESS1.6:** The position of Earth and the solar system within the Milky Way galaxy and comparisons of the size and shape of the Milky Way to other galaxies. While students are using the planispheres, remind them they are using a tool to describe the position of constellations and how they appear to move from the Earth's perspective throughout the seasons.



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## Prework

- Planisphere Preparation
  - Teachers will print [planispheres](#) for their students to [construct](#) during class.
  - Students will bring planispheres to use during their visit to Dyer Observatory.
- Resources to Prepare for the Solar Telescope Activity:
  - [What Are Sunspots? \(YouTube\)](#)
  - [Solar Activity Overview \(NASA Space Place\)](#)
  - [The Sun's Magnetic Field and Activity \(YouTube\)](#)

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## Day of Visit: Dyer Observatory

### LOGISTICS

- Dyer staff will lead the group and keep students together, as long as group size is fewer than 40.
- If accessibility issues prevent a student from accessing the telescope, the entire class will remain downstairs.
- We will confirm any accessibility needs prior to the visit.
- Buses will drop off in front of the building and park in the gravel lot parallel to the road.

### EXPEDITION AGENDA

- Telescope Experience (15-20 mins):
  - Students will go upstairs to learn about and observe through the Seyfert Telescope. Time and activities depend on weather conditions.
  - Teachers will be encouraged to assist students with getting on/off the step ladder.
- Solar Telescope - Weather Permitting (15-20 mins):
  - Students will individually view the Sun through the solar telescope (approx. 15 seconds per student).
- Planetarium Experience (Remaining Time):
  - The length of this activity will depend on how long telescope viewing takes.
  - While utilizing their planispheres, students will either:
    - Experience a simulation of the night sky using Stellarium on the library projector, or
    - Explore the night sky via a portable planetarium (if available).

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## Post-Visit Activity

- Back at school, students can use Stellarium to investigate skies in meaningful locations (e.g., hometowns, places they've visited, or where family members live).
  - Students are also encouraged to simulate the sky in more extreme locations at different times of day and/or year (e.g., the North Pole at various times of day/night during summer and winter).
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