William M. Staerkel PLANETARIUM

Teacher's Guide for:

Sun, Moon, and Stars

OBJECTIVES:

- To introduce the planetarium and the night sky to the young learner.
- To determine what things we receive from the Sun.
- To see that the other stars are like our Sun, but farther away.
- To observe why the Moon appears to change shape and "visit" the Moon to see how it is different from the Earth.
- To observe the Earth from space and see that it really moves, despite the fact it looks like the Sun and stars are moving.

This show conforms to the following Illinois state science standards: 12.F.1a, 12.F.1b, 12.F.2a, 12.F.2b, 12.F.2c, 12.F.3a, 12.F.3b. Next Generation Science Standards: 1.ESS1.1, 5PS2.1

BRIEF SHOW DESCRIPTION:

"Sun, Moon, & Stars" is a live show for the youngest stargazers. We do a lot of pretending in the show, first by seeing what the Sun might look like both up close and from far away, and then taking an imaginary adventure to the Moon. We see the changing Moon in the sky and see how the stars in the sky make strange shapes when you connect them together. The planets can be inserted at the request of the instructor.

PRE-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- For the young ones, just being in the planetarium is a different experience they should "prepare" for. Discuss what it's like in a movie theater with the lights low. That's how we introduce the place. The screen goes all the way around though!
- Discuss the importance of the Sun. What does the Sun provide? Should we look at the Sun?
- What are the stars? Discuss how things that are farther away seem smaller. A demonstration of that can be done by looking out your classroom window.
- What does the Sun seem to do in the sky? Is it really moving? How could we find out? If you are on a merry-go-round, does it look like the rest of the park is moving. Is it really moving?
- As odd as it sounds, maybe read "Goldilocks and the Three Bears" or at least remind them of it. We talk in the show about how the planets close to the Sun are "too hot" and those far from the Sun are "too cold" and the Earth is "just right!"
- Discuss the concept of "near" and "far" and the fact that distant things can look smaller. You could do the same thing with "less" and "more."

POST-VISIT ACTIVITIES/TOPICS FOR DISCUSSION:

- Take turns playing on a merry-go-round. While on the merry-go-round, what does it look like your surroundings are doing as you spin around?
- Some see the Earth as a spherical globe but have problems relating to the seemingly "flat" environment. Have students pick up larger and larger spheres, from a BB, to a marble, baseball, softball to beach ball. What are their palms doing as they progress to larger spheres? The Earth is so large that it looks flat to us.
- Construct a travel brochure for a holiday trip the Moon. What would we find there?
- Use a ping pong ball mounted on a golf tee and a light source to show Moon phases. The student's head is the Earth. As you move the ball around your head, you can see the ball change phase. Have the students watch the Moon each night at about the same time. What's changing about the Moon?
- Punch holes out of black construction paper and use an overhead machine to project the constellations. Have students make up their own constellations and even a story that they devise on their own.

VOCABULARY LIST:

Constellation	Moon	Rotate
Horizon	Orbit	Star
Meteor	Phase	Sun
Milky Way	Planet	Sunspot

INTERNET RESOURCES:

- Have a question about space? Send email to: planetarium@parkland.edu
- For beginning astronomers: https://www.skyandtelescope.com/astronomy-equipment/how-to-start-right-in-astronomy/
- Walk Staerkel's model solar system: https://www.parkland.edu/Audience/Community-Business/Parkland-Presents/Planetarium/Educational-Resources/Campus-Solar-System.
- NASA's "SpacePlace:" https://spaceplace.nasa.gov/
- The Planet Earth (Free school) video: https://www.youtube.com/watch?v=IDhapt7nw4A
- Astronomy for kids: https://www.education.com/worksheet/article/sort-solar-system/?referral_url=kidsastronomy.com
- Starchild, a Learning Center for Young Astronomers: https://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html