

Exploring Lunar Phases: How Your Library Can Support Science Learning

Presenters: Keliann LaConte, Christine Shupla, and Claire Ratcliffe

The webinar will begin at 4:00 p.m. (CT) and will be recorded.

While you're waiting:

- 1) Find the toolbar – it will either be on the bottom or top of your Zoom window
- 2) Introduce yourself in the chat box (please select “Share with All” *not* “Share with Panelists”)
- 3) Click audio “Join by Computer” – you won’t have microphone access

Tip for viewing: You can resize and move the location of the video and slide screens by clicking and dragging them

Facilitator Introduction

- Keliann LaConte (Space Science Institute)
- Christine Shupla (Lunar and Planetary Institute)
- Claire Ratcliffe (Space Science Institute)

Today's Agenda

STAR Net Overview

Poll Questions

Teacher Experiences

Hands-on Activity: *Scale Model of Earth-Moon System*

Hands-on Activity: *Looney Lunar Phases*

Hands-on Activity: *Golf Ball Phases*

Discussion

Universe of Stories

STEM ACTIVITY Clearinghouse

The screenshot shows the 'UNIVERSE OF STORIES' collection page on the STEM Activity Clearinghouse website. The page includes a search bar, a 'SORT' dropdown menu, and a list of activities. Two activity cards are visible:

- Sorting Games: How Big? How Far? How Hot?**: This NASA@ My Library Activity Guide will help library staff facilitate these sorting activities in large or small groups, with patrons from Pre-K to adult. It has a 5-star rating and a 'Check It Out' button.
- Jump to Jupiter**: Participants jump through a course from the grapefruit-sized "Sun," past poppy-seed-sized "Earth," and on to marble-sized "Jupiter" — and beyond!



Like an activity and think other library staff should know how great it is? Didn't like an activity or have modifications to make it better? **Make sure to leave a review!**

Poll Question

How long does it take the Moon to orbit the Earth?

- a. Once a day
- b. Once a week
- c. Once a month
- d. Once a year
- e. It depends on the season

Poll Question

What do most children think causes the different phases of the Moon?

- a. The phases change according to the seasons
- b. Clouds
- c. Earth's shadow
- d. Earth's rotation
- e. The Moon grows a little bit bigger each day until it is full, then it gets smaller again

So what's actually going on?

Parts of the Moon reflect light depending on the position of the Earth in relation to the Sun and Moon.

Guest Speakers

Ana Fontenot



Science Instructional Coach at La Porte
ISD
20 years of experience teaching science

Meredith Harris



Science and Math Teacher at Stiles Middle
School, Leander ISD; Former SMART STEM
Teacher Facilitator for Spring ISD
13 years teaching middle school science

Teacher Experiences

How can Lunar Phases programs in libraries help students and teachers?

“Students learn differently, so the more ways the phases can be shown the more chance of them learning and forming a deeper knowledge base of the moon phases”

Teacher Experiences

How can Lunar Phases programs in libraries help
students and teachers?

“It can be an entry point for students to
learn and understand the phases...”

Teacher Experiences

How can Lunar Phases programs in libraries help
students and teachers?

“(There are) time limits in class...this will
build on what we try to do”

Hands-On Activity: How Far is the Moon?

If the Earth was a basketball, what ball should represent the Moon?



Photo Credit: NASA

Hands-On Activity: How Far is the Moon?

At this scale, how far apart should they be?



Photo Credit: Moscow Tutors

Hands-On Activity: How Far is the Moon?

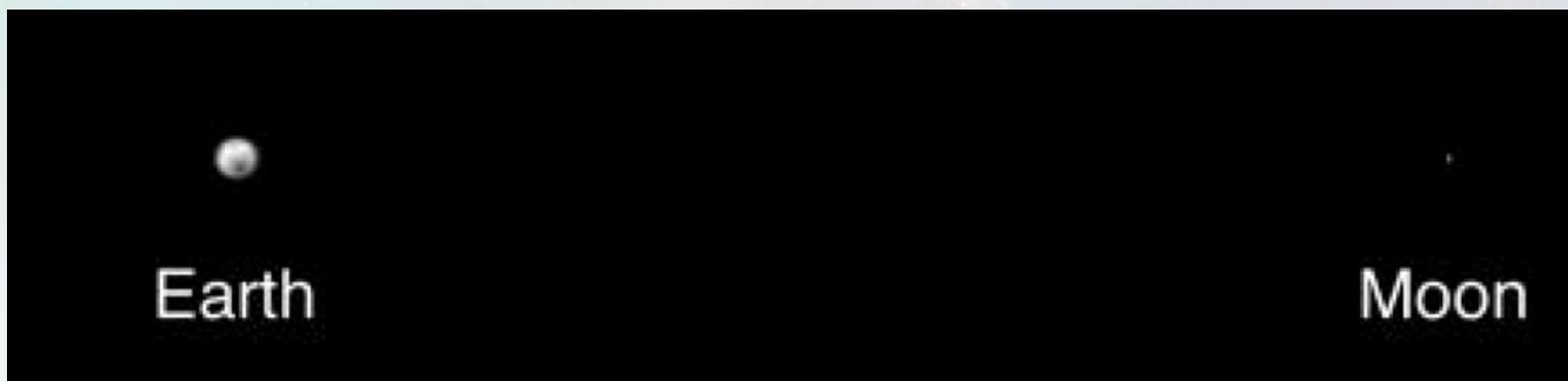


Photo Credit: NASA/JPL/Arizona State University

Answer: 23.6 feet/7.29 meters away!

Hands-On Activity: Loony Lunar Phases

Supplies (for each child)

- 6 Oreo cookies (alternatives: round cream cheese sandwich crackers, or even drawing the phases)
- Paper towels or plates
- A plastic spoon and/or a plastic knife
- Cookie Moon Phases print-out or Calendar print-out
- Optional:
 - Phrases for Phases
 - Moon in My Own Words comic book
 - 1 pencil or pen

Cookie Moon Phases

Materials:
6 Oreo® cookies (round cream cheese sandwich crackers can also be used instead)
Paper towel
A plastic spoon and/or a plastic knife

Instructions:
Carefully twist the Oreo® cookies open and scrape off the frosting to create each lunar phase. Place each cookie half in the correct order below to reveal the repeating pattern. Then, eat your cookies and celebrate the Moon!

<p>1</p>  <p>New Moon Completely (or almost completely) dark.</p>	<p>2</p>  <p>Waxing Crescent A small sliver of light on the right.</p>	<p>3</p>  <p>First Quarter (or Half) Moon The right half of the Moon is light.</p>
<p>4</p>  <p>Waxing Gibbous Over half of the right side of the Moon is light.</p>	<p>5</p>  <p>Full Moon The entire Moon is bright.</p>	<p>6</p>  <p>Waning Gibbous Over half of the left side of the Moon is light.</p>
<p>7</p>  <p>Third Quarter (also Half) Moon The left half of the Moon is now light.</p>	<p>8</p>  <p>Waning Crescent A small sliver of light now appears on the left side.</p>	<p>Activity modified from Chuck Bueter, Paper Plate Education</p>

Explore: Marvel Moon
<http://www.tpi.usra.edu/explore>

<http://clearinghouse.starnetlibraries.org/astronomy-and-space/83-loony-lunar-phases.html>

Hands-On Activity: Golf Ball Phases



Photo Credit: LPI

Use blacklights and golf balls to model lunar phases and eclipses.



Poll Question

In what way will you incorporate Moon phases activities into your programs?

- a. I already do Moon phases activities
- b. I am going to start introducing basic concepts
- c. I am excited to try Moon phases activities
- d. I am going to work with teachers and colleagues to understand Moon phases better before I facilitate a program
- e. I don't feel like I am equipped to facilitate Moon phases programs



Discussion

What modifications would you make to the activities?



Discussion

How can you partner with a teacher for help?

Partnering with a Teacher

Consider contacting a science teacher in your area who teaches lunar phases

Invite him/her to

- Answer your questions about Moon phases
- Provide insight into their students' challenges in understanding
- Assist with your Moon activities this summer

A photograph of an astronaut in a white spacesuit standing on the lunar surface. The astronaut is wearing a large white backpack and is looking towards the left. To the left of the astronaut, an American flag is planted in the ground. The lunar surface is dark and rocky, with a bright horizon line in the background. The sky is black. A large, semi-transparent white circle is overlaid on the left side of the image, containing text.

Universe of Stories Summer 2019

NASA@ My Library and *STAR Net* are partnering with the Collaborative Summer Library Program to support 16,000 libraries.

Please join us!!

Learn more about how to register:

www.starnetlibraries.org/summer-of-space

Join STAR Net!

www.starnetlibraries.org

The screenshot shows the STAR Net website interface. At the top, there is a navigation bar with links for HOME, ABOUT, EVENTS, PROJECTS, RESOURCES, and STEM IN LIBRARIES, along with a search button for STEM ACTIVITIES. Below the navigation is a large banner for 'Resources' with a sub-header ': Conferences, Webinars and More'. The main content area is titled 'Curated Resources For Professional Development' and includes a paragraph about building the capacity of public libraries and library staff. To the right, there are sections for 'Recent Blogs' and 'Upcoming Events'. At the bottom, there is a grid of circular icons representing different resource categories: Conferences, Webinars, Newsletters, Online Forums, STAR_Net Blog, 2017 Solar Eclipse, Exhibition Posters, Books, Videos & More!, and Guides, Facts & Tips.

Professional development resources, including webinars, newsletters, blogs, forums, videos, and much more!