Take Your Patrons to Mars

The webinar will begin at 1:00 p.m. (Mountain Time) 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) Click audio “Join by Computer”
3) Find the chat box. **Change the default** from “Share with Panelists” to “Share with Panelists and Attendees”
4) Introduce yourself in the chat box!

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

Dial (for higher quality, dial a number based on your current location):

US: +1 253 215 8782 or +1 346 248 7799 or +1 408 638 0968 or +1 669 900 6833 or +1 646 876 9923 or +1 301 715 8592 or +1 312 626 6799
Webinar ID: 988 6568 9116
Expectations / Guidelines

• Try to use the Q&A feature for questions

• When using Chat, make sure your messages are being sent to “All Panelists and Attendees”

• Some of us are working from home: tech problems may happen!

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Resource List on STAR Net Blog


(or)

http://www.starnetlibraries.org/uncategorized/resources-for-take-your-patrons-to-mars-webinar-7-7-20/

For chats: please select Share with “All Panelists and Attendees” not “All Panelists”

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Families at Home
Below is a set of resources that can be provided directly to families without the need of facilitation by library staff.

Hands-on Activity: Daylight in a Bottle
Celebrate Earth Day at home by harnessing the power of natural resources! This **family guide** explains how you can host a secret message from a friend or light up a room with just two things: bees, clean energy from the Sun and a water bottle.
The activity has a how-to video (below) as well as a short, four-minute video, "A Light at Light at Night," showing how this technology has been used practically in other countries.

Refresh Your Skills
Keep your skills sharp by revisiting these professional development resources.

Webinar: Imagine Your Story... with a STEAM Twist!
Join the STEAM@home team and Luke Klose, Organizational Coordinator for CSLP, in this recorded webinar to learn all about this year’s theme and exciting, hands-on STEAM activities that will help you bring it to life at your library. We’ll discuss programming ideas, useful resources, and tips for engaging your community!

Virtual Programs
Use this featured resource to add easy, hands-on STEAM activities (using common household materials) to your online Story Time programs. Note: Book recommendations are included.

Virtual Program: Sky Heroes
Participants celebrate their heroes by creating connect-the-dot star patterns to represent them.

http://www.starnetlibraries.org/resources/steam-ahead-at-home/
Activities feature sortable information and a robust review section! Try an activity? Leave a review!

Check out the "Take and Make" collection!
Poll Question

• Would you go to Mars, if given the chance? (Explain in Chat)

  • Yes
  • No
  • Unsure
Guest Presenters from the Lunar and Planetary Institute

Christine Shupla
Education and Public Engagement Manager

Dr. Candice Bedford
LPI/JSC Postdoctoral Fellow

Sha’Rell Webb
Education Specialist
Poll Question

• What vehicles are a part of the Mars 2020 mission? (select all that apply)
  • Rover
  • Motorcycle
  • Kite
  • Canoe
  • ATV
  • Helicopter
  • Glider
Visit SciGames.org for more free games and apps for “direct to patron” use!

Silly Scripts

- Tornado Weather Report
- Snowstorm Weather Report
- Hurricane Weather Report
- Space Colony Report
- How's the Weather on Mars?

Write a silly story as if you are a reporter. Choose one of the Silly Scripts to the left and answer each question. At the end, read your finished script to your friends and family.
Why Mars this Summer?

Revised Launch Window: July 30 – Aug 15
Arrival at Mars: Feb, 2021

Mars 2020:
Perseverance Rover
Ingenuity Helicopter
Mars Exploration: What can the Red Planet tell us about our own?

Dr. Candice C. Bedford
A world of robot explorers
(56 missions, 26 successful)

Mariner 4, 1964
1st images of Mars’ surface.

Viking 1 lander, 1975
1st safely landed mission.

Pathfinder lander and Sojourner rover, 1996


Mars Reconnaissance Orbiter, 2005.

Mars Science Laboratory, 2011.

More to come!!!
Why Mars?

- Mars gained traction among the public when U.S. astronomer, Percival Lowell, widely published the idea that intelligent beings built canals on Mars.
- Lowell’s work fueled the public’s imagination and the search for life on Mars.
- Could Mars give insight on life in the solar system?
Why Mars?

• Early images from NASA Mariner 4 and results from the Viking missions showed no canals or signs of life on the surface.

• Mars appeared lifeless.
What can the red planet tell us about our own? – The origin of life!

- Support for Mars research dwindled until 1996, when a meteorite (ALH 84001) contained debated Martian microfossils.

- The Pathfinder mission in 1997 also returned evidence that water was stable on Mars’ surface in the past.

- A new era of Mars exploration began that would “Follow the Water” and search for ancient habitable environments.

Images from the Sojourner rover showing evidence of weathering on Mars.
The closer we looked at Mars, the more we saw evidence that water existed on the surface.

Figure 1 from Davis et al. (2016) of Arabia Terra inverted channels.
Follow the water!

Figure 13 from Dobrea et al. (2010)
Follow the water: NASA Mars Science Laboratory

Primary mission aim is to determine the habitability of Gale crater:
- Biological potential
- Geology and geochemistry
- Water, weather, and climate
- Radiation levels and hazards
150-km Gale Crater contains a 5-km high mound of stratified rock. Strata in the lower section of the mound vary in mineralogy and texture, suggesting that they may have recorded environmental changes over time.
Follow the water: NASA Mars Science Laboratory

Rounded pebbles and sand in the conglomerate “Link” indicate water flowed ankle to hip deep.
The Shaler outcrop contains trough-cross bedded sandstone indicating that a river once flowed here.
Mineralogy suggests sustained interaction with liquid water that was not too acidic or alkaline, and low salinity.

Key chemical ingredients of life were present; C, H, N, O, P, S.

Gale crater was habitable in the past!

Curiosity determined that ancient Mars was capable of supporting life.

Habitability:
✓ Water
✓ Key Chemical Ingredients
✓ Source of Energy

NASA/JPL-Caltech/MSSS
Follow the Water: Mars 2020
Mineral signatures and features on the surface of Jezero crater suggest it had rivers and lakes in the past. A good hunting ground for signs of ancient life!
What else can Mars tell us?
Planetary evolution!

An annotated, topographic, shaded relief map of Mars from the Mars Orbiter Laser Altimeter (MOLA) instrument on-board Mars Global Surveyor (MGS).

- Most of Mars’ crust is ancient (> 4 Ga) and has not been effected by tectonics and extensive weathering.
- Mars provides a window into planetary evolution that we don’t have here on the Earth.
What else can Mars tell us? Volcanoes!

There are places on the Earth and on other planetary bodies across the solar system with primitive volcanism, similar to Mars. Mars research can expand our knowledge on volcanism across the solar system!
What else can Mars tell us? Sediments!

Mars research has boosted our incentive to better understand processes that effect parts of secondary crust here on Earth.

The pathway of processes involved in the formation of a succession of clastic sedimentary rocks

- Uplift and exposure of bedrock
- In situ weathering processes
- Erosion
- Transport
- Deposition
- Diagenesis and lithification
- Burial
Mars Exploration: What can the Red Planet tell us about our own?

• A window into planetary evolution and the origin of life.
• A look at volcanism across the solar system.
• Provides incentive to better understand processes that effect parts of secondary crust here on Earth.
• The next step in human exploration!
Searching for Life

What are examples of living things? Non-living things?
What tells us that something is alive?
Searching for Life

Some (not all) characteristics of life

1. Needs water (or liquid solvent)
2. Needs energy (fuel)
3. Grows or changes
4. Releases waste products (aka ALL LIFE POOPS)
5. Evolves and adapts to its environment

Life does something and keeps doing it
Searching for Life

*What do you see in the samples?*

*Which observations suggest the possibility of life?*

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Video at
https://www.youtube.com/watch?list=PLvQkYyArNCy1U2R2fn1ugXaJ0EnqX4FaN&v=19MsbYQgPT8&feature=emb_logo
Poll Question

Are you planning Mars programs or activities (including virtual, take & make, sharing recordings) for your patrons? (Single Choice)

Answer 1: Yes, absolutely!
Answer 2: Probably
Answer 3: Not really sure
Answer 4: Probably Not
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Print the Facilitation Guide

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