

SUN EARTH
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Exhibition Expansion Ideas

9. Exhibition Expansion Ideas

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Expansion Ideas - Introduction

The NISE Network encourages you to adapt, modify, and add on to your exhibition to customize the exhibition for your own local audiences. Below are some suggestions of resources you may want to explore to add additional content.

ViewSpace

About ViewSpace

ViewSpace is a free, web-based, interactive exhibit of astronomy and Earth science, developed by the Space Telescope Science Institute, in collaboration with NASA's Universe of Learning, Earth Observing System, Hubble Space Telescope Project, and James Webb Space Telescope Project.



Photo from Louisville Science Center, Kentucky, care of ViewSpace

With little setup, ViewSpace provides your visitors a dynamic window into the latest discoveries in our quest to understand the universe. Topics range from the search for evidence of life beyond Earth to the fundamental understanding of how the universe works and its ultimate fate. Its beautiful imagery and captivating stories help ViewSpace engage visitors of varying backgrounds and experiences.

ViewSpace can be a wonderful addition to a reflective and quiet space at your museum. It also provides immediate context to visitors that may be queuing or waiting for Earth & space science related programming.

Basic Requirements

ViewSpace is a flexible product that consists of dozens of digital interactives and hundreds of videos used in many types of museum spaces. Some of our partners build dedicated mini-theaters, while others integrate ViewSpace directly into exhibits. Its low cost and quick setup make it a good multimedia companion piece for the Sun, Earth, Universe exhibition. Sites can install just video content, just interactive content, or both. The interactive content can alternatively be used as a facilitated experience.

- Cost: all content is supplied via the internet at no cost, but museums need to supply their own display equipment
- Software requirements: modern internet browser (e.g. Chrome, Firefox, Safari, Edge)
- Internet: persistent internet access that supports streaming video is required
- Video Content Specific Equipment:
 - Computer with a monitor or projector, or alternatively a Smart TV display
 - Audio: audio is optional, but low cost computer speakers or TV speaker would be adequate
- Interactives Content Specific Equipment:
 - Tablet or Computer with touchscreen or mouse

Technical Setup and Tech Support

- Current locations and content from ViewSpace
<https://www.universe-of-learning.org/viewspace/>
- To request a free account for your institution:
<https://viewspace.org/support/message/new>
- ViewSpace technical setup guide:
<https://viewspace.org/support/guide>
- ViewSpace Tech Support
please contact support@viewspace.org

Video Component

ViewSpace videos tell the stories of the planets, stars, galaxies, and universe, giving viewers the opportunity to experience space and Earth as seen with satellites and telescopes. A wide array of videos share accurate and up-to-date science and imagery from Earth and space, making astronomy, astrophysics, and Earth science engaging, accessible, and relevant.

- <https://viewspace.org/resources/videos>

Interactive Component: Unveiling the Invisible Universe

ViewSpace interactives let visitors manipulate sliders on images to explore objects and materials in space and on Earth from different perspectives. Visitors can shift their view from images of the visible universe to images captured in wavelengths that the human eye cannot detect. Visitors can choose a number of objects to explore and can interact with the images at their own pace. Using the interactive component requires an additional interface device such as a touchscreen or keyboard and mouse.

- https://viewspace.org/resources/invisible_universe

Exhibit Labels and Signage

ViewSpace.org now includes a set of downloadable exhibit labels and banners that can be downloaded and printed for use in orienting viewers to ViewSpace and helping them access the content. The materials are available in a number of different sizes and aspect ratios for both a standard home or business printer or a professional printing house. The images, text, and fonts used to make the signs are also available for sites that prefer to design their own labels.

- https://viewspace.org/resources/exhibit_labels

NASA's Eyes

About NASA's Eyes

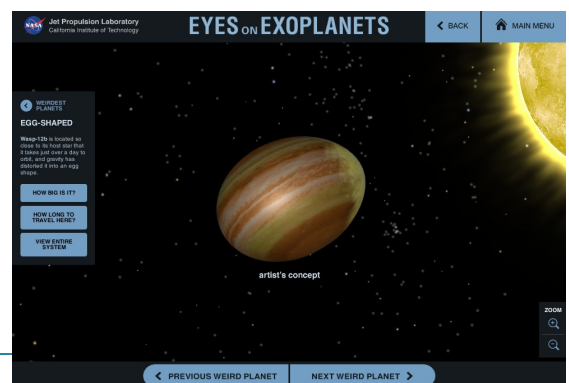
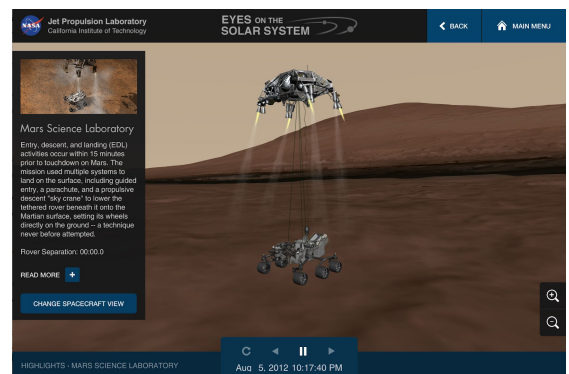
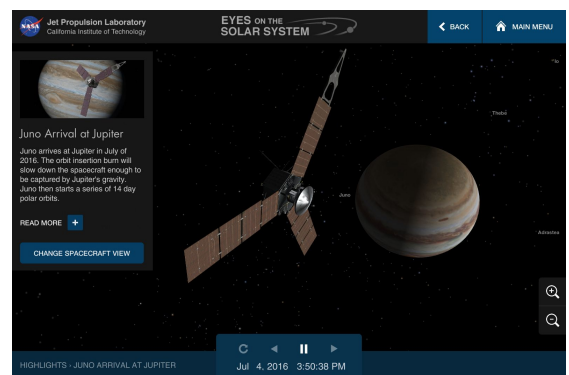
NASA's Eyes is a publicly available visualization system created by NASA's Jet Propulsion Laboratory (JPL). Eyes allows users to virtually ride along with NASA missions, view and zoom-in to realistic simulations of planets, moons, stars, and space objects studied by NASA scientists. The system is web-based with daily, self-updating content from NASA featuring three museum friendly versions:

- Eyes on Earth
- Eyes on the Solar System
- Eyes on Exoplanets

Basic Requirements

NASA's Eyes can be used on small screens as well as large screens.

- Cost: the software and all content is supplied via the internet at no cost, but museums need to supply their own display equipment
- Equipment needed: users provide their own computer and monitor, projector or touchscreen; as of 2018, "Eyes on the Earth" and "Eyes on the Solar System" programs only work on desktops and laptops, but versions are being developed for mobile devices and tablets. "Eyes on Exoplanet" now has both a web-browser based version that does work on mobile devices, Chromebooks and tablets. (See recommended Platforms for Eox)



- Software requirements as of 2018: Windows 7+, and Mac OSX 10.8+
- Audio: there is audio in the regular software versions but there is not audio for the museum kiosk versions
- Internet: a live internet connection is required (an offline version can also be downloaded for setups where no persistent internet connection is available)

Technical Setup and Tech Support

- Download
<https://eyes.nasa.gov> for all three programs.
- Visit:
<https://exoplanets.nasa.gov/eox/> for using the web-browser based version of NASA’s Eyes on Exoplanets.
- Museum Kiosk versions (designed specifically to operate in a museum environment)
<https://eyes.nasa.gov/tools.html>
Download and install “Configure NASA’s Eyes” (Send questions regarding the use of “Configure NASA’s Eyes” to kevin.j.hussey@jpl.nasa.gov)
- Using without internet connectivity: “NASA's Eyes Server” allows you to download all the of the content (almost 500GB) used in NASA’s Eyes so that you can run Eyes without being connected to the internet. The installation requires an Amazon Web Services (AWS) Key, which you can requested by emailing kevin.j.hussey@jpl.nasa.gov. Note: “NASA’s Eyes Server” only downloads the files required to run NASA's Eyes offline. The NASA's Eyes program is still required.
- Technical FAQs
<https://eyes.nasa.gov/faq.html>
- Recommended Platforms for Eyes on Exoplanets – Web Browser version:
 - Mac OS X 10.12.6+: Safari 11+, Chrome 66+, Firefox 59.0.2+
 - iPhone iOS 11.2.5+: 6S+, Safari 11+, Chrome 66+, Firefox 59.0.2+
 - iPad: iPad Air 2, iPad Pro
 - Windows 7+: Chrome 66+, Firefox 59.0.2+, Edge 41+
 - Android: Marshmallow 6.0.1+, Chrome 66+, Firefox 60.0.2+
 - CPU: PC Intel i7+, Mobile quad-core+
 - Memory: PC 8GB+, Mobile 2GB+
 - Graphics: PC mid-range +, Mobile Adreno 530+

- NASA JPL Museum Alliance workshop recordings (to view you must create a free Museum Alliance account and log in). These two workshops provide best practices, tips, and tricks when using the NASA's Eyes software.
 - Part 1 - recorded December 8th, 2016:
<https://informal.jpl.nasa.gov/museum/Conversations/nasa-eyes-simulator-workshop>
 - Part 2 - recorded June 22, 2017:
<https://informal.jpl.nasa.gov/museum/Conversations/nasa-eyes-simulator-workshop-2-2>

NASA Images, Videos, and Visualizations

NASA offers a wide variety of different types of media. The following resources may be helpful if you are considering adding imagery, videography, or multimedia experiences.

AstroPix

A one-stop shopping experience that makes finding the right astronomy image easier than ever. AstroPix offers access to the public image galleries of many of the leading astronomical observatories under a single unified interface. Images are organized by featured topics, image type, telescope, subject, and electromagnetic spectrum band. This site is supported by NASA under the NASA's Universe of Learning program. Content is curated and supplied solely by the partnering institutions.

- <https://astropix.ipac.caltech.edu>

NASA Image and Video Library

A simple search interface drives discovery across images, videos, and audio clips from decades of the agency's history. Browse famous historical and up-to-date mission photos along with beautiful Earth and space images. The recently revised website is a good place to start any media search associated with space exploration. The *Most Popular* tab is a great way to browse some of NASA's most iconic images.

- <https://images.nasa.gov/>

NASA's Scientific Visualization Studio (SVS)

Located at the NASA Goddard Space Flight Center, SVS works closely with scientists to create data visualization products that promote a greater understanding of NASA Earth and space science. Thousands of visualizations are available – with new ones added frequently – and include images, animations and short movies on topics as wide-ranging as NASA science. Browse the collection by theme, as well as search by keyword, mission, instrument, etc. Visualizations can be downloaded in a variety of formats and resolutions.

- <https://svs.gsfc.nasa.gov>

NASA Jet Propulsion Laboratory (JPL) Media Galleries and Interactives

A wide range of media from NASA missions, research, and educational efforts connected to JPL. This collection is heavily weighted towards planets, dwarf planets, and moons in the solar

system, including amazingly detailed surface imagery of rocky bodies and dynamic swirling clouds of gas giants.

The Solar System Treks are online, browser-based portals that allow you to visualize, explore, and analyze the surfaces of other worlds using real data returned from a growing fleet of spacecraft. You can view the worlds through the eyes of many different instruments, pilot real-time 3D flyovers above mountains and into craters, and conduct measurements of surface features. The portals provide exciting capabilities for mission planning, planetary science, and public outreach. The Solar System Treks include MoonTrek, MarsTrek, VestaTrek, and PhobosTrek.

Mars Trek is a unified viewing experience for all NASA data about the surface of Earth's closest planetary neighbor. Mars Trek provides easy-to-use tools for browsing, data layering and feature search, including detailed information on the source of each assembled data product. Using Mars Trek, many hundreds of martian data products can be visualized, stacked, blended, and downloaded including 3D maps.

- **Solar System Treks:** [https://trektiler.jpl.nasa.gov/trektiler/demo/home5/](https://trektiles.jpl.nasa.gov/trektiler/demo/home5/)
- **MoonTrek:** <https://moontrek.jpl.nasa.gov>
- **Mars Trek:** <https://marstrek.jpl.nasa.gov/>
- **Vesta Trek:** <https://trek.nasa.gov/vesta/>
- **Images:** <https://www.jpl.nasa.gov/spaceimages>
- **Videos:** <https://www.jpl.nasa.gov/videos>
- **Infographics:** <https://www.jpl.nasa.gov/infographics/>

Current events / Visitor Feedback Board Resources

The reading and seating area gives visitors the chance to learn more on their own as well as express their own thoughts. The magnetic graphic and series of magnets allows exhibition hosts the flexibility to post information about local events and astronomical happenings, direct visitors to a website for citizen science opportunities, or ask visitors to reflect on a space-themed question. Post-it notes and pencils can be provided to allow visitors to share their thoughts.

The magnets for posting celestial events, observing opportunities, and news:

- Night Sky News
- Earth and Space News

The citizen science magnet directs to:

- Visit SciStarter.org to learn how you can participate in astronomy and Earth science projects!

Visitor question magnets ask:

- What do you wonder when you look up at the stars?
- How would you feel if life was discovered on another planet? Why?
- What would you name a newly discovered planet?

The following resources are good sources of content for customizing your magnetic bulletin board with current celestial events, local astronomy club events and observing opportunities, and NASA news.

Astronomy group and observing opportunities

Post news about local star parties and night sky observing events hosted by local astronomy groups. Night Sky Network for astronomy groups in your area

- Search Night Sky Network to find astronomy clubs and events in your area
<https://nightsky.jpl.nasa.gov/clubs-and-events.cfm>

Celestial calendars - events in the night sky

Post calendars and news observable night sky events including, phases of the moon, meteor showers, lunar eclipses, planetary events, and more; the following resources each offer calendars in different formats by day, week, month, and year:

- <https://spaceplace.nasa.gov/search/calendar/>
- <http://www.skyandtelescope.com/observing/sky-at-a-glance/>
- <https://www.timeanddate.com/astronomy/>
- <https://stardate.org/nightsky>
- <https://nightsky.jpl.nasa.gov/planner.cfm>
- <https://in-the-sky.org/newscal.php>
- <http://earthsky.org/tonight>
- <https://www.nytimes.com/interactive/2017/science/astronomy-space-calendar.html#>

NASA News and Resources

Good resources for current NASA news:

- Science@NASA
<https://science.nasa.gov/science-news>
- NASA's latest news releases
<https://www.nasa.gov/news/releases/latest/index.html>
- NASA TV
<https://www.nasa.gov/multimedia/nasatv/index.html#public>

Please see Chapter 4 - Museum Educator Guide of the Host Resources for more NASA resources.

- NASA Space Place
 - Educators:
<https://spaceplace.nasa.gov/menu/parents-and-educators/>
 - Printable posters, postcards, bookmarks:
<https://spaceplace.nasa.gov/posters/en/>
 - Newsletter:
<https://spaceplace.nasa.gov/subscribe/en/>
- NASA Museum Alliance

<https://informal.jpl.nasa.gov/museum/>

Experts

Please see Chapter 4 - Museum Educator Guide of the Host Resources for ways you can connect with local experts including Solar System Ambassadors and Night Sky Network amateur astronomy groups and bring these experts into your museum to engage your visitors.

Books and reading materials

Please see Chapter 4 - Museum Educator Guide of the Host Resources for the list of books included in the exhibition. Feel free to add additional books and reading materials to the exhibition bookcase.

NASA Artifacts

Looking for NASA historic artifacts or objects to display? There are several paths, including loans and transfer of ownership.

- NASA Museum Alliance summary of loan and ownership options
(you must log in to view content):
<https://informal.jpl.nasa.gov/museum/content/nasa-artifact-request-procedure>
- US General Services Administration (GSA):
<https://gsaccess.gov/NASAWel.htm>
- US General Services Administration (GSA) GSAccess request procedures:
https://gsaccess.gov/htm/nasa/userguide/Artifact_Request_Procedure.pdf

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