

Hands-On and Digital Activities



We have marked resources that require less bandwidth to download with the **LOW BAND** tag

JWST Mad Science: Seeing Starlight with the James Webb Space Telescope - In this activity for ages 8-12, learners make bracelets representing different parts of a star's lifecycle and learn how Webb will study the beginnings of a star's life.

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Analyze the makeup and composition of distant galaxies with Webb's Microshutters [interactive](#).

Explore the universe like never before in the fully immersive [WebbVR](#) experience.

[ViewSpace](#) is a free, web-based collection of digital interactives and videos highlighting the latest developments in astronomy and Earth science.

[Eyes on Exoplanets](#) is a fully rendered 3D universe that is scientifically accurate, allowing you to zoom in for a close look at more than 1,000 exotic planets known to orbit distant stars.

[Astropix](#) offers access to the public image galleries of many of the leading astronomical observatories under a single unified interface.

NASA's Universe of Learning: Informal Learning Network [Program Models](#), Informal learning institutions have developed and tested sustainable models of innovative STEM learning for their audiences utilizing NASA astrophysics and resources.

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Learn all about the exciting science of Spectroscopy and why it is so vital for astronomers when looking at objects in space with this [Spectroscopy 101](#) guide.

Get involved in the [AstroPhoto Challenge](#) this Summer! Allow participants to process images from NASA's Space Telescopes or to capture and process their own image.

[MicroObservatory](#) is a network of automated telescopes that can be controlled over the Internet.

In [NOVA Exoplanet Lab](#), students will play the role of Moon-based "NOVAnauts" who are on a series of missions as part of a "Galactic Resettlement Team" to rehome several displaced alien life-form and master the same techniques scientists use to find and characterize exoplanets.

[Exoplanet Watch:](#) NASA's Universe of Learning's Exoplanet Watch is a citizen science project, currently geared toward amateur astronomers and astronomy students at colleges and universities, to observe transiting exoplanets — planets outside our solar system — with small telescopes.

[DIY Planet Search:](#) New planets are being discovered on a regular basis, but that's not the end of the story. After new planets have been discovered the scientific community needs to follow up with further investigations. Help scientists better understand the movements of these planets around other stars by taking your own measurements of known exoplanets and contributing them to the DIY Planet Search Community.

[Citizen Science Project:](#) NASA's citizen science projects are collaborations between scientists and interested members of the public. Through these collaborations, volunteers (known as citizen scientists) have helped make thousands of important scientific discoveries.

[Citizen Science - Backyard Worlds: Planet 9](#)
NASA-funded citizen science project searching the realm beyond Neptune for brown dwarfs and Planet Nine.

NASA's [Universe of Learning](#) - multi-institution team working together to create and deliver a cohesive suite of astrophysics-themed products, programs, and professional learning experiences for informal and lifelong learning environments.

- The Expanded Universe: [Playing with Time](#). In this activity, participants use balloons to model the expansion of the universe and observe how expansion affects wavelengths of light and distance between galaxies.

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- Trappist-1 System [Scale Model](#), these materials may be used to create a scale model of the TRAPPIST-1 system in a small space.

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- Light and Color: [Exploring Visible Light](#). This activity introduces learners to the visible-light spectrum and color mixing.

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- [Paper Circuits](#): Light up Exploded Stars, Paper circuits help learners of all ages explore the basics of electricity and conductivity.

- [Exoplanet Trading Cards](#) - the deck contains a "How to Play" card, a "Types of Exoplanets" card that describes the four types of exoplanets featured, and an "Explore More" card with links to additional activities and resources.

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- Girls STEAM Ahead with NASA Program Cookbook - Facilitator guidebook that utilizes resources from NASA's Universe of Learning to create impactful programming.
 - Recipe 1: [The Electromagnetic Spectrum](#)
 - Recipe 2: [Data Imaging and Processing](#)
 - Recipe 3: [Celebrating Women in STEM](#)

Have you developed a Webb activity you'd like to share with other STEM educators? [Share it here!](#) Please make sure you also include a signed [copyright certification](#) with your activity.

Find [Webb activities shared by other Webb Community Events hosts!](#) NASA nor STScI has reviewed these materials for accuracy and is not responsible for any [copyright violations](#) therein.

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Resource Pages

[NISE Net resources for informal educators and activities](#). The National Informal STEM Education Network brings people together to engage in STEM, understand our world, and build a better future for everyone.

[James Webb Space Telescope STEM Toolkit](#) has resources, activities, videos and more for your students to learn about NASA's newest space observatory.

Attend ongoing professional learning experiences that cover a range of science topics and allow plenty of time for informal educators to ask questions with NASA's Universe of Learning [Science Briefings](#).

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