

# Welcome!

## NGCP National Webinar: *Girls STEAM Ahead with NASA Free Resources*

Please respond to the poll on your screen.



National Girls  
Collaborative Project





# Girls STEAM Ahead with NASA Free Resources

May 3, 2022



# NGCP Vision

The vision of the National Girls Collaborative Project is to **support and create STEM experiences** that are as **diverse as the world we live in.**





# Our Goals

Connect + Create + Collaborate

1

## Maximize access

to shared resources within projects, and with public and private sector organizations and institutions.

2

## Strengthen capacity

of existing and evolving projects by sharing exemplary practice, research, and program models, outcomes, and products.

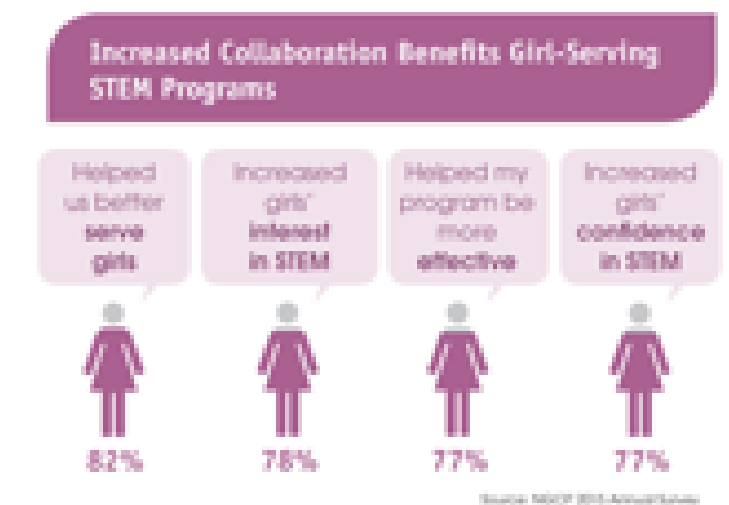
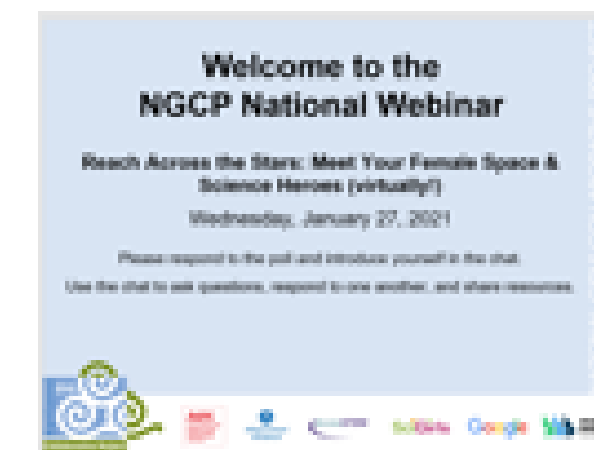
3

## Create the tipping point

for gender equity in STEM by using the leverage of a network and the collaboration of individual girl-serving STEM programs.

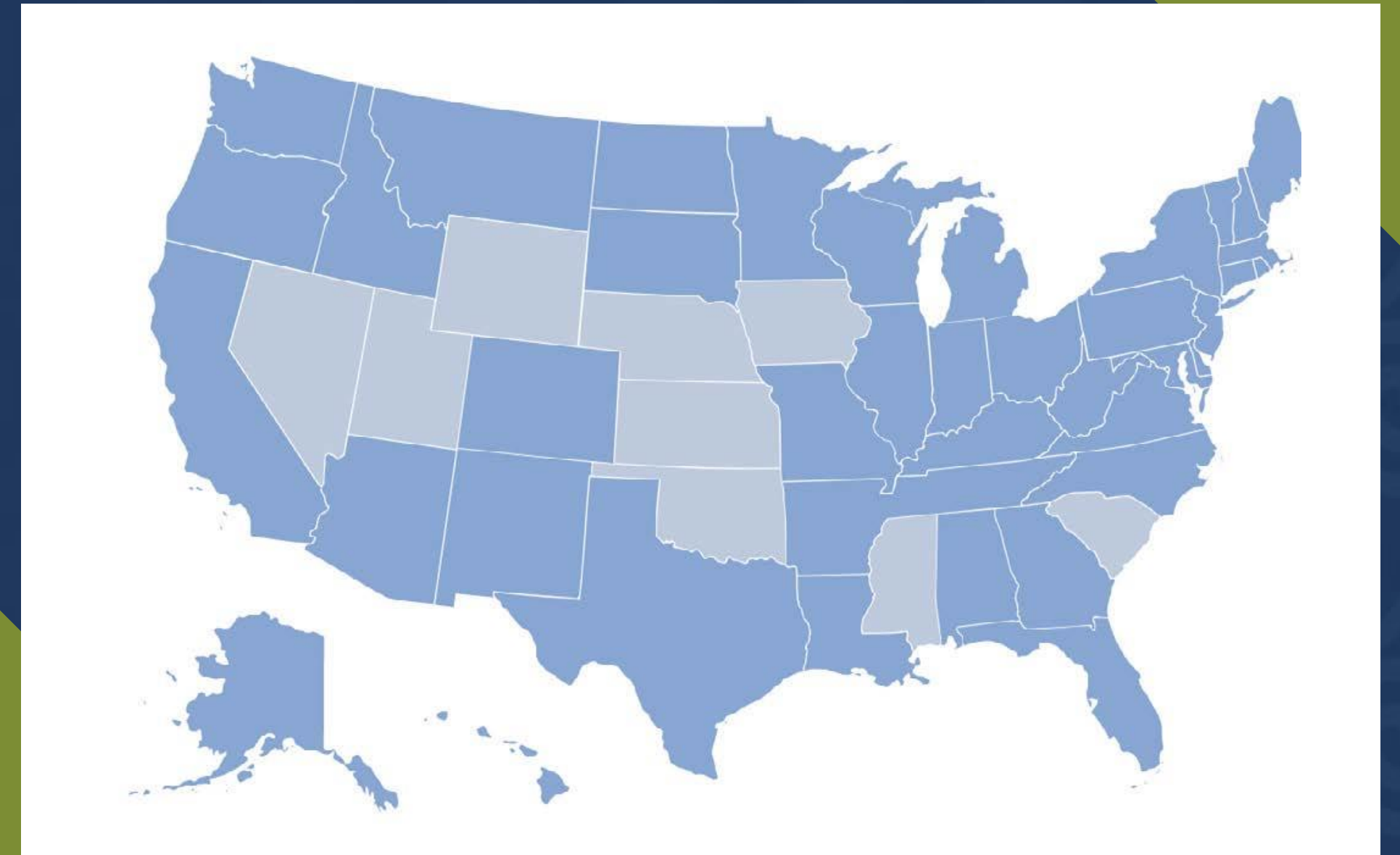
# NGCP Activities

- Network Partnerships
- IF/THEN Collection
- The Connector
- FabFems
- National Webinars



# A National Network Of Collaborative Teams

- NGCP programs and partners are in every state
- With 33 Collaboratives that support 41 states
- Together, we facilitate collaboration across 42,500 organizations
- Serving 20.2 million girls and 10 million boys





# Speaker:

Dr. Quyen Hart

Senior Education & Outreach Scientist,  
Space Telescope Science Institute





# Girls STEAM Ahead with NASA

**Dr. Quyen Hart (STScI)**  
**NGCP National Webinar**  
**May 3, 2022**





NASA's Universe of Learning is an integrated astrophysics STEM learning and literacy program funded by NASA

Learners of all ages and backgrounds are engaged and immersed in exploring the universe for themselves.





# Girls STEAM Ahead with NASA

Empower public libraries and community-based organizations to **engage girls and their families** in STEM



- Increase awareness of how we know what we know about our universe and foster STEM identity.

- Provide accessible **exhibits, community programs, hands-on resources** that feature NASA Astrophysics science and technology,

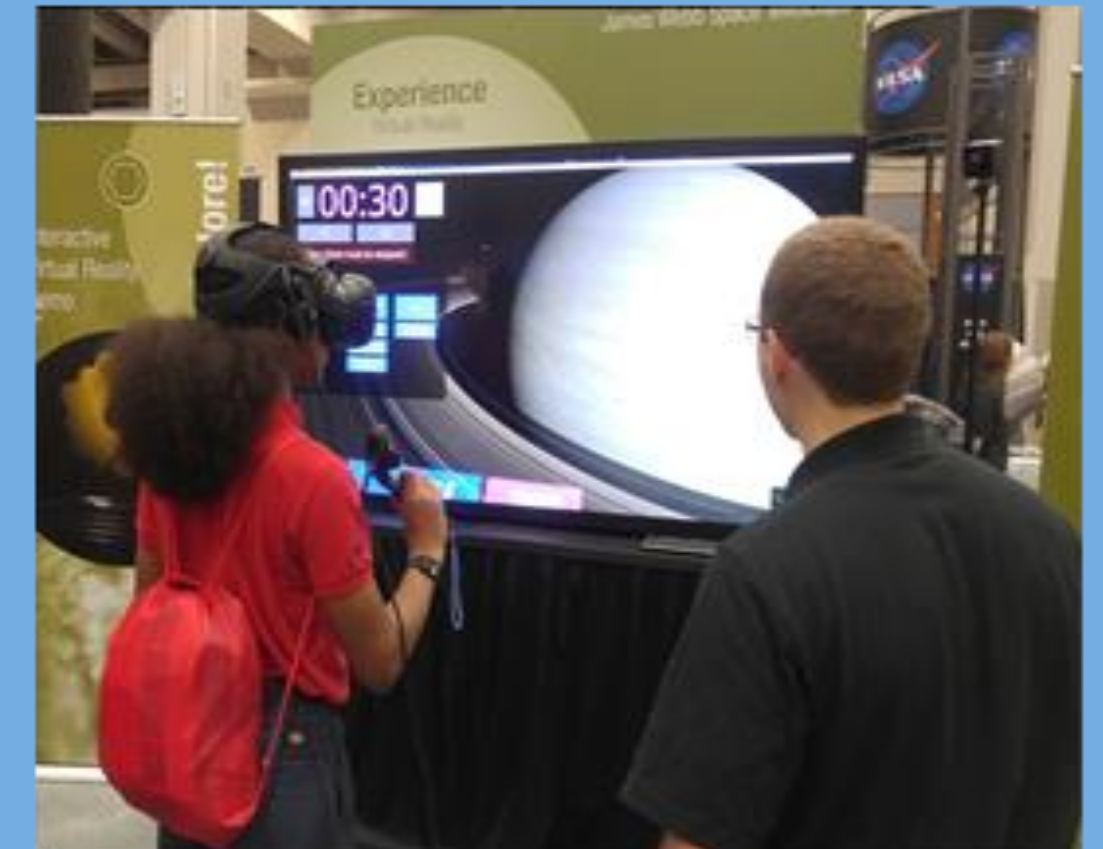


NASA'S UNIVERSE OF LEARNING



# Our Priorities

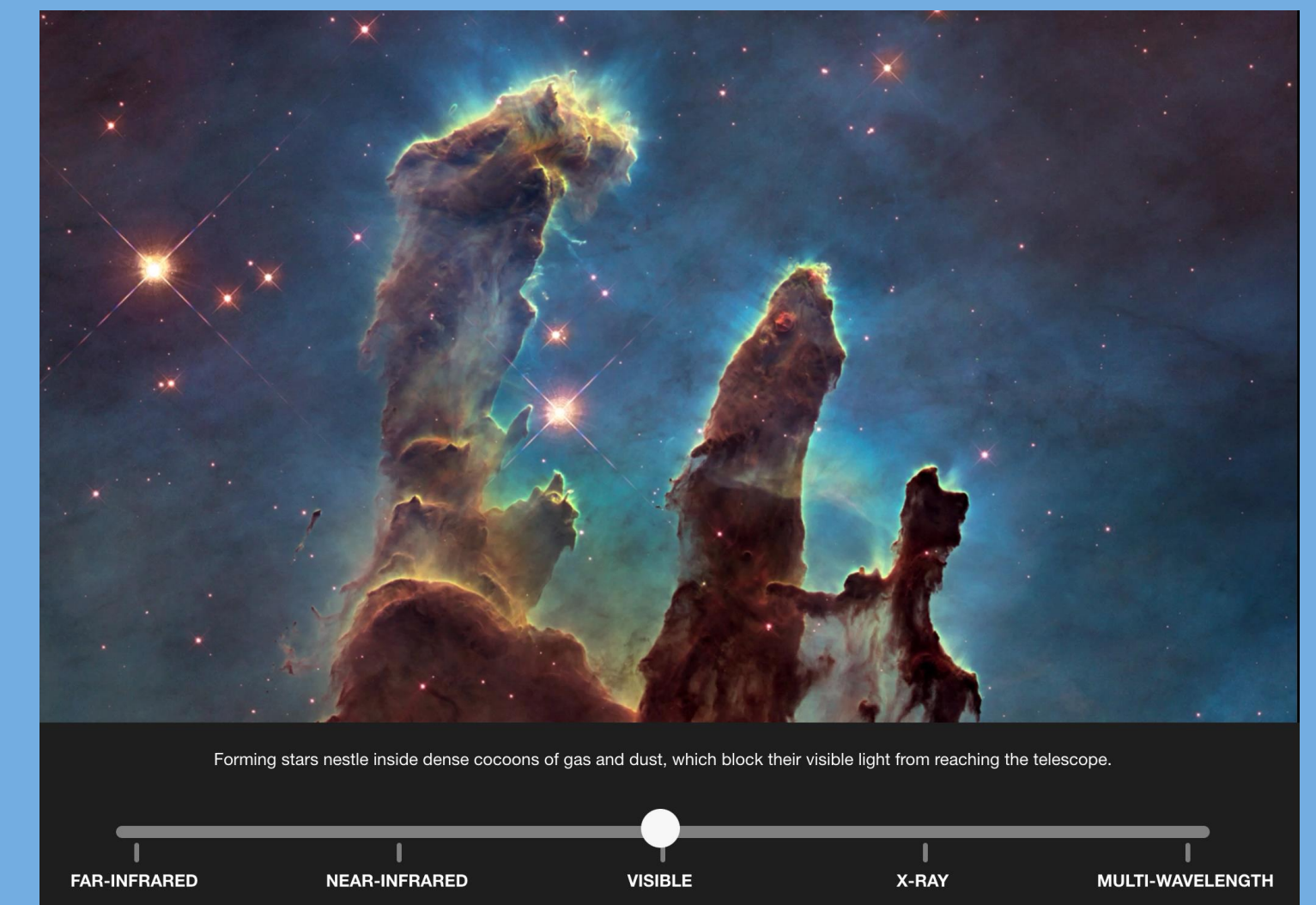
- Increase scientific literacy
- Reach underserved/underrepresented communities
- Reinforce scientific practices
- Support the development of a scientific identity
- Employ emerging technologies





# • Subject matter experts are embedded in everything we do.

- They work hand-in-hand with education and communications experts to design and implement activities.
- They present the latest scientific results behind our resources.





[Resources](#)[Informal Educators](#)[Scientists & Engineers](#)[Learners & Families](#)[About Us](#)

SEARCH



# NASA'S UNIVERSE OF LEARNING


An Integrated Astrophysics STEM Learning and Literacy Program




Welcome to NASA's Universe of Learning

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RESOURCES BY TYPE




3D OBJECTS




ACTIVITIES




ARTICLES



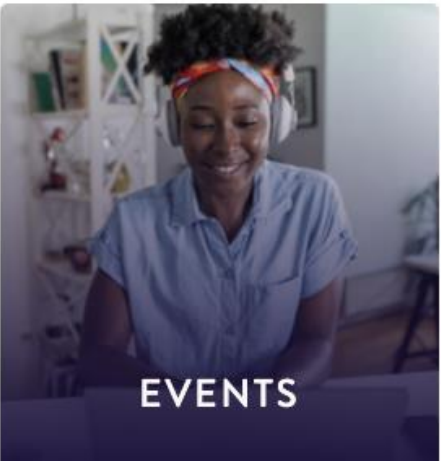
AUDIO




COMPETITION MATERIALS




DIGITAL APPS




EVENTS




EXHIBITS




GUIDES




INTERACTIVES




POSTERS



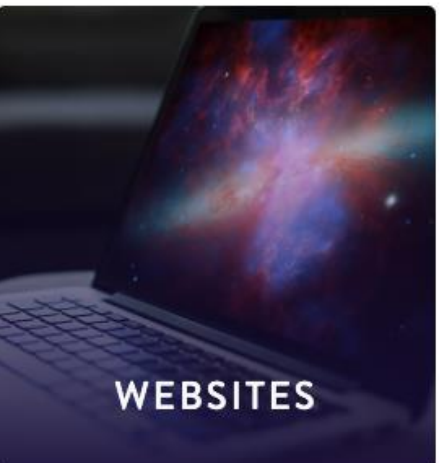
PROGRAM MODELS



SONIFICATION



VIDEOS



WEBSITES



# Resources: Exhibits

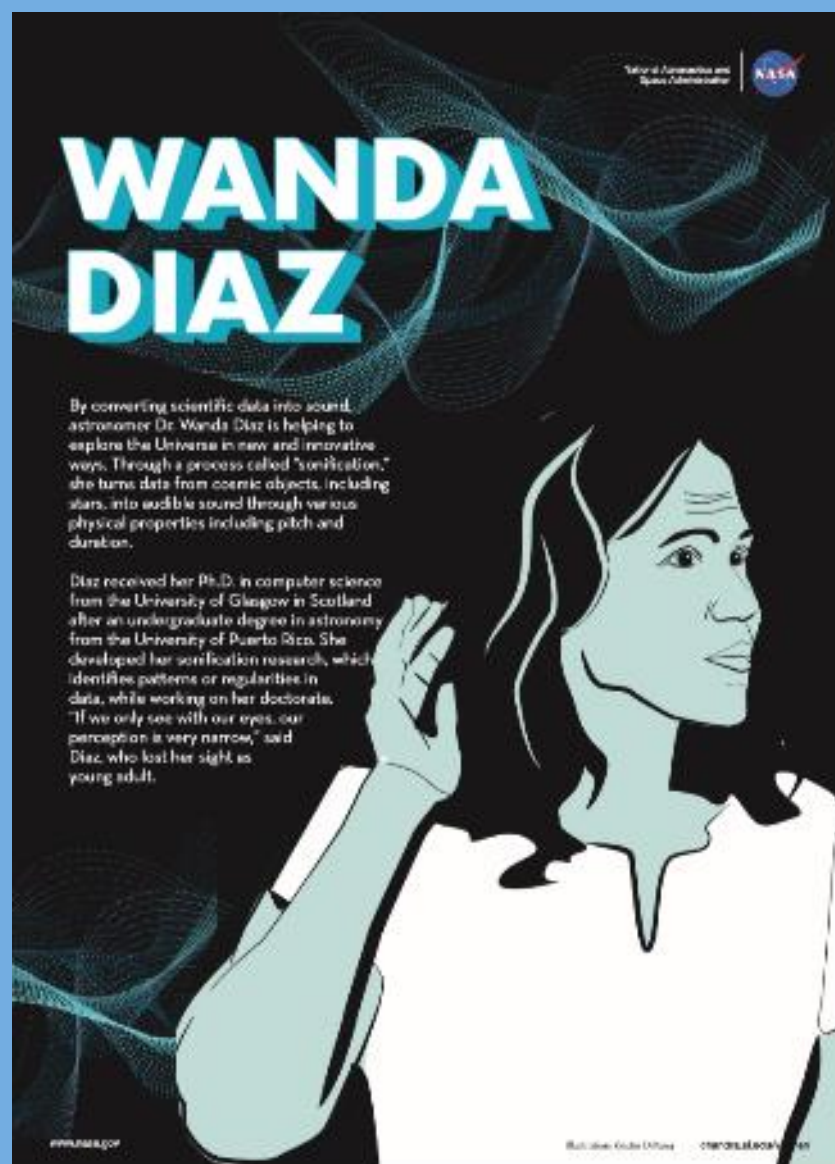
- Light: Beyond the Bulb
- Here, There, Everywhere
- AstrOlympics (Winter and Summer)
- Visions of the Universe
- From Earth to the Universe

Supplemental information available

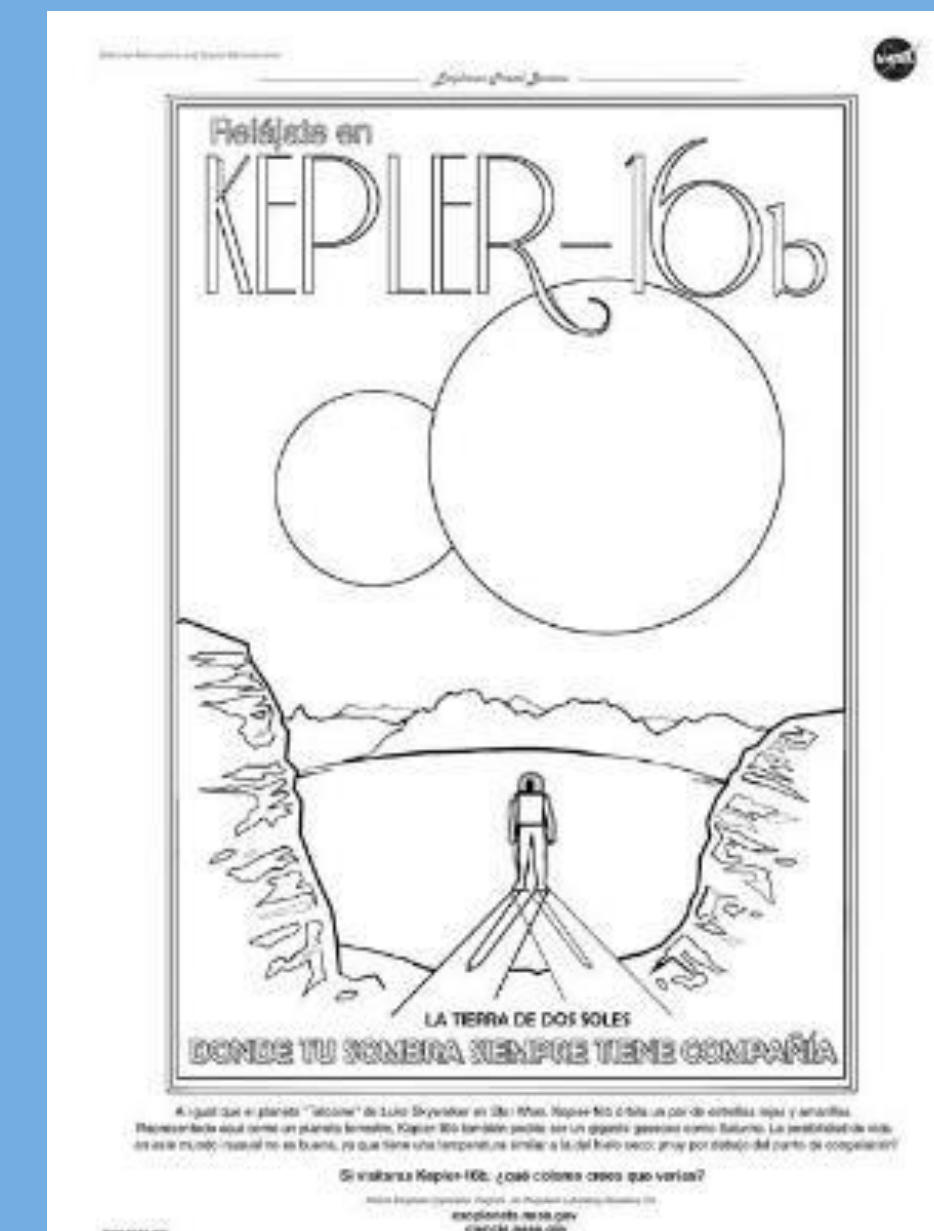
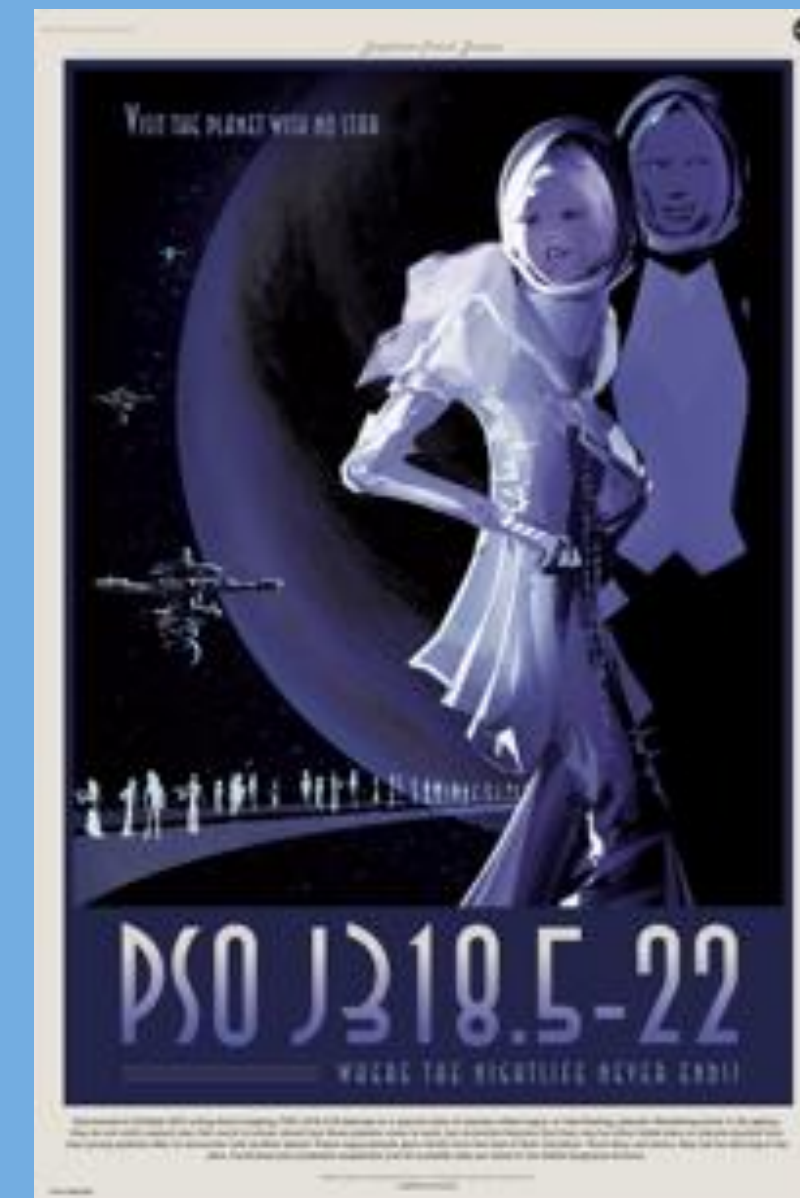
Some available in Spanish, Portuguese, German





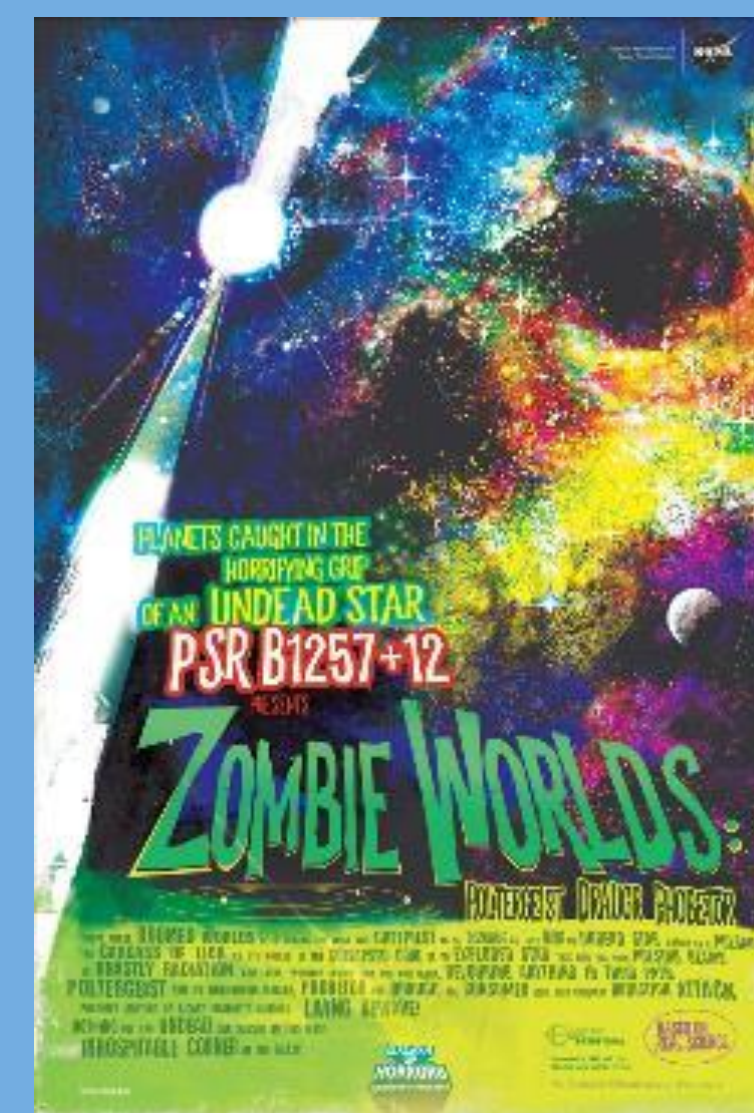
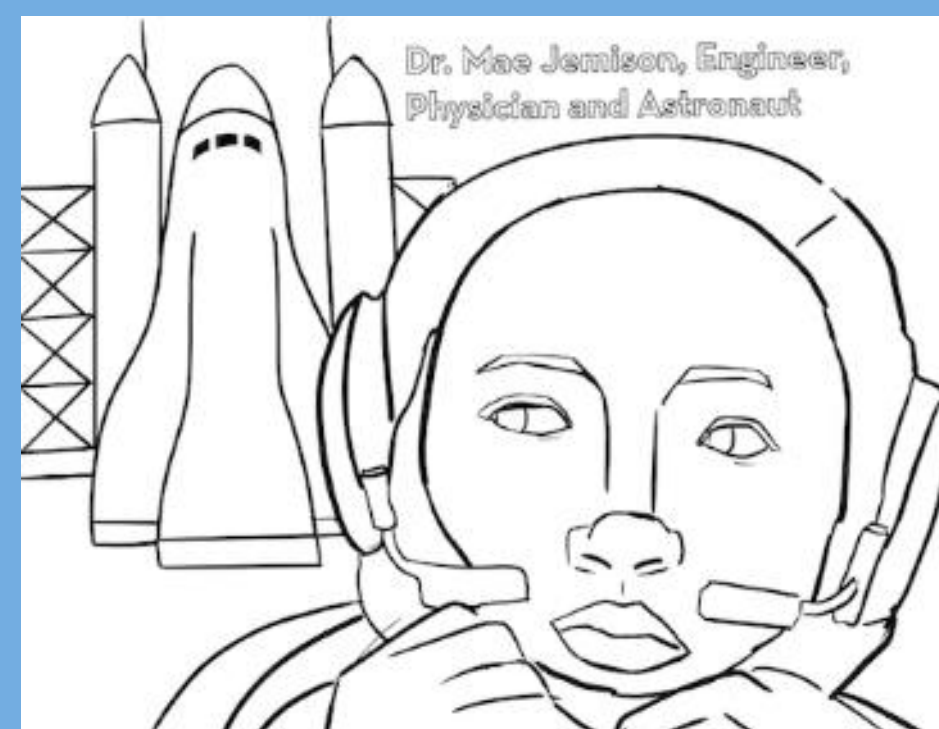


## Women of Color: Pioneers and Innovators



## Women in Science Poster series

Many are available in Spanish



## Exoplanet Posters



# Resources: STEM Activities

## Paper/Pen activities

- Recoloring the Universe
- Scale Models (TRAPPIST-1 and Solar System)
- Binary activities
- Tactile and more



## Computer-based activities

- Recoloring the Universe
- MicroObservatory
  - Observing with NASA
  - DIY Planet Search
- Exoplanet Travel Bureau



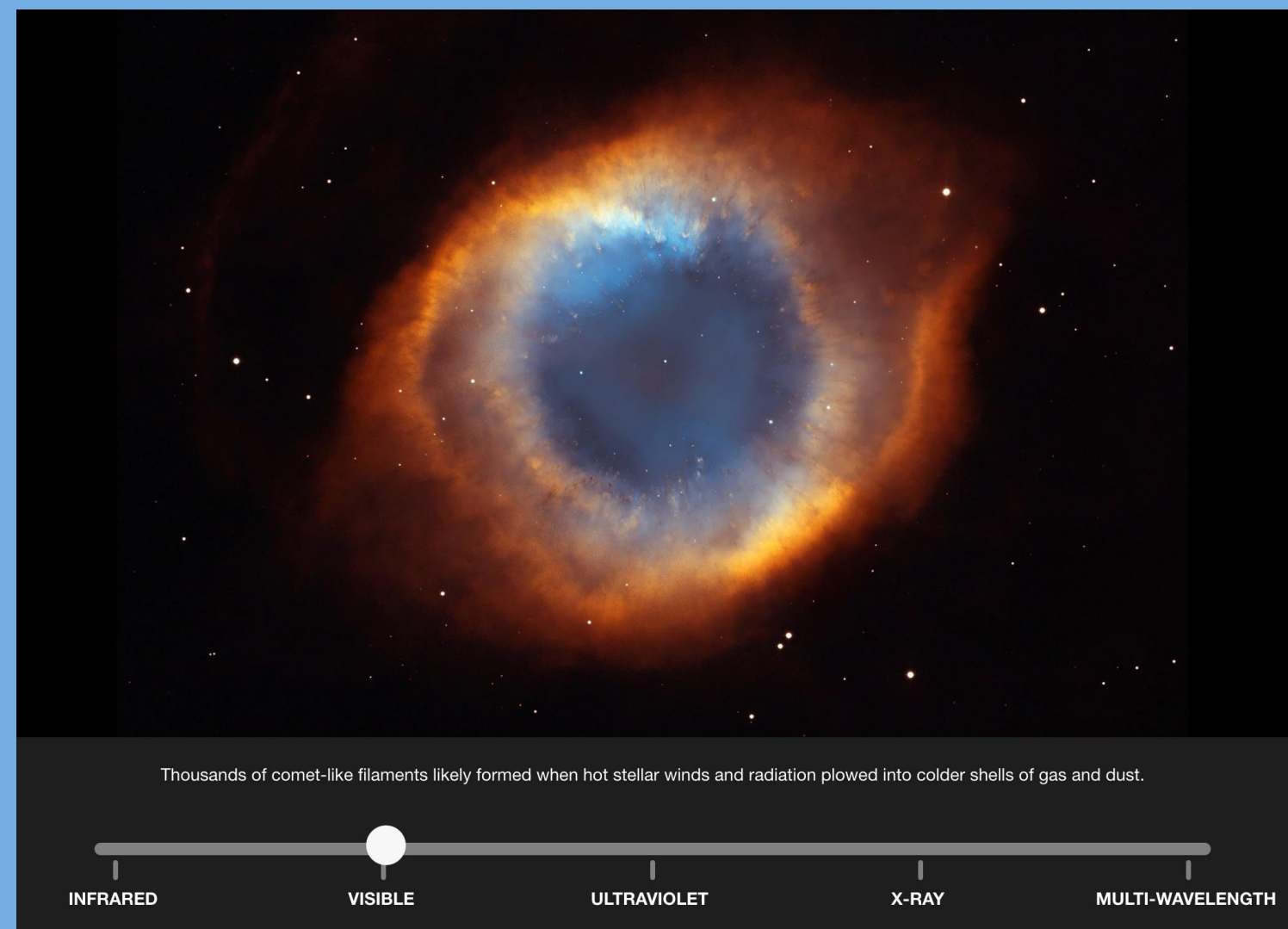
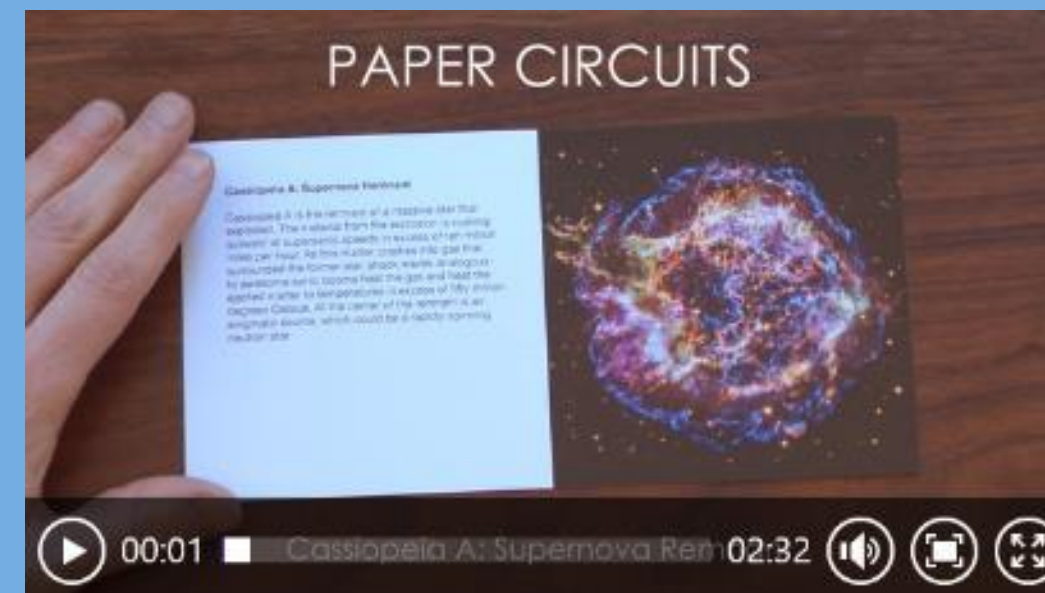


# Resources, STEM Activities

## ViewSpace – Videos and interactives

## Paper Circuits

## The Expanded Universe Activity Guide



NASA'S UNIVERSE OF LEARNING

### Activity Guide

#### The Expanded Universe: Playing with Time

##### Overview

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.

##### Type of Activity

- ☐ Independent activity
- ☒ Facilitated Activity

##### Audience

- Families or other mixed-age groups
- Youth ages 12+

##### Main Takeaways

- The universe is expanding and has done so since the big bang.
- As the universe expands, the distance between the galaxies increases.
- Light from galaxies stretches-the wavelength of light increases-as the universe expands and the galaxies move apart.

##### Prep. Time

~ 5 - 20 min.

##### Activity Time

~ 10 - 45 min.

##### Supply Cost

~ \$20 - \$30 (includes supply cost)

The Hubble Constant: Playing with Time1universe-of-learning.org

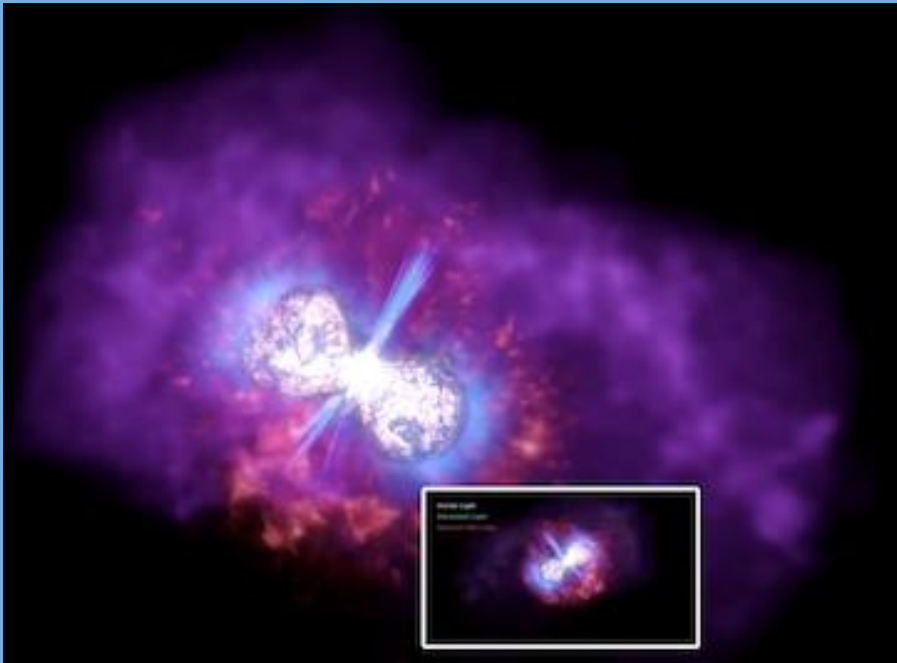
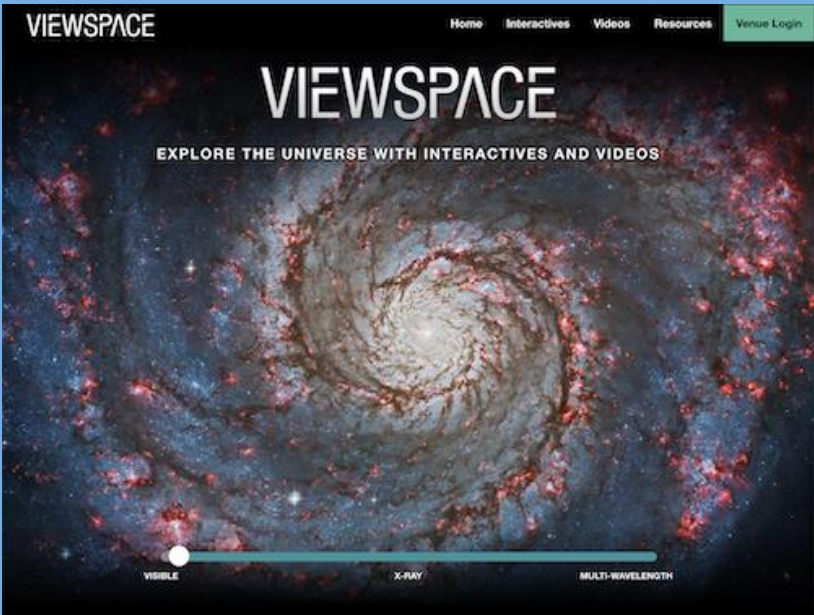


Engagement/Excitement

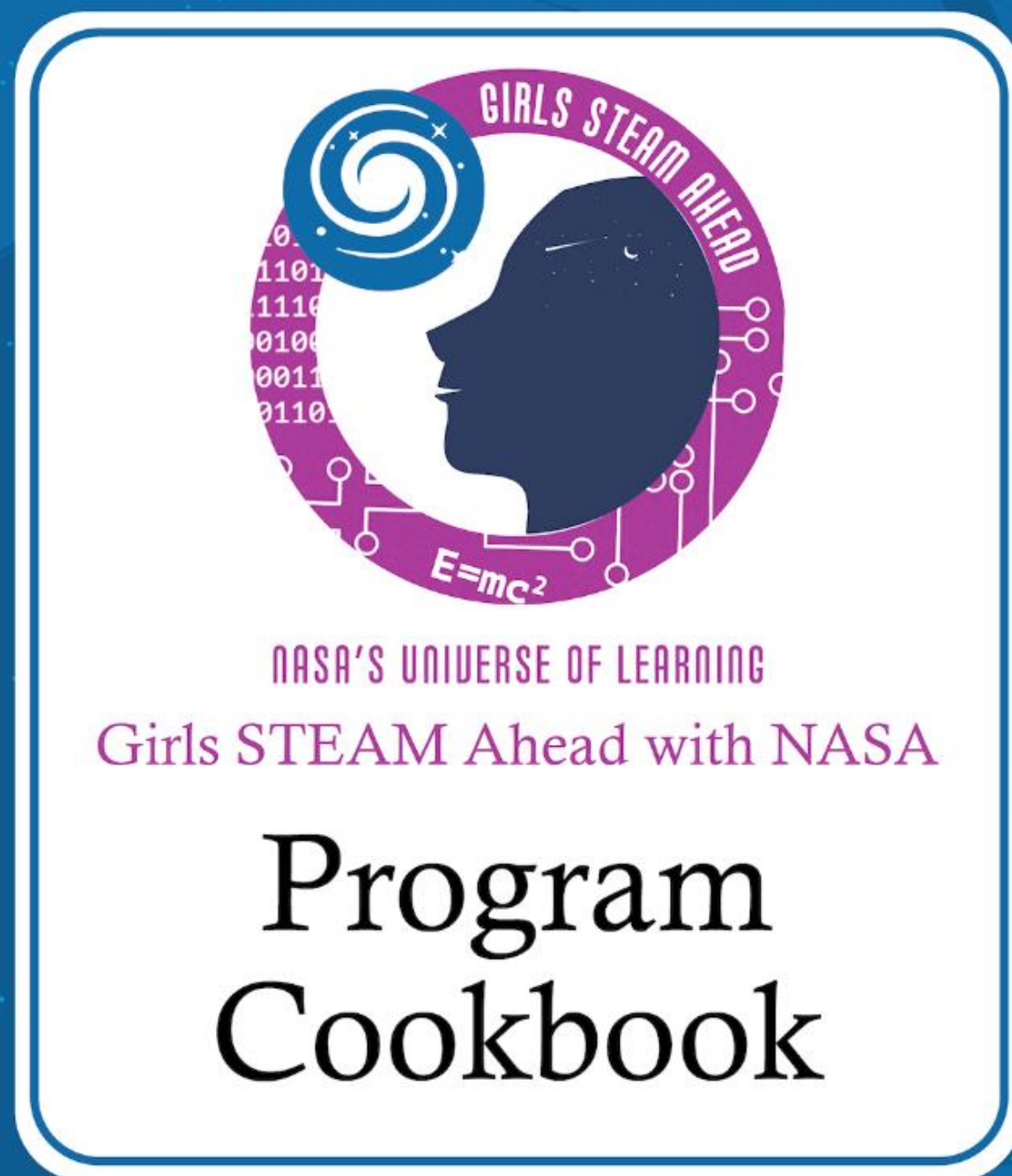
Exploration

Scientific Identity

# Connecting Resources: Sample







## RECIPE 1: ELECTROMAGNETIC SPECTRUM



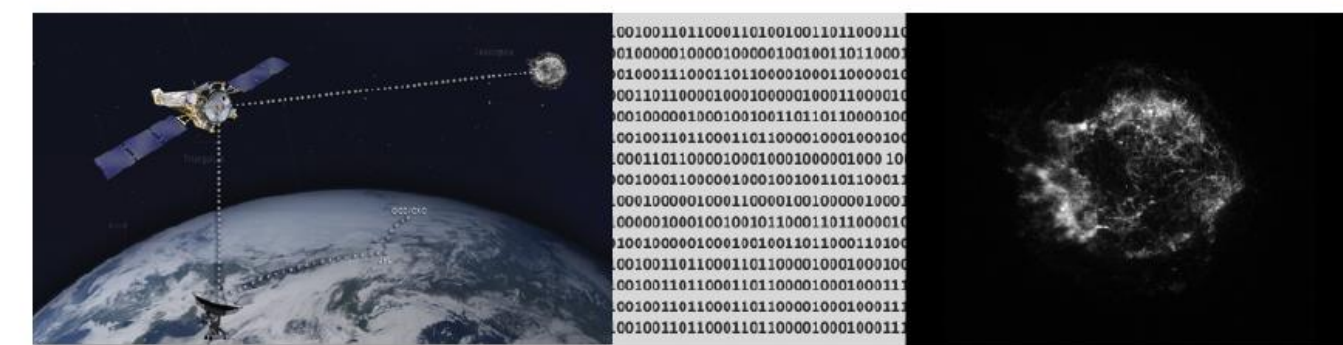
(From left to right) The Helix Nebula in infrared, visible, and ultra-violet light. The last image on the right is a multiwavelength image. Explore more with the [Helix Nebula Interactive on ViewSpace](#). Image Credits: NASA

## RECIPE 3: CELEBRATING WOMEN IN STEM



Illustration Credits: Chandra X-ray Center

## RECIPE 2: DATA AND IMAGE PROCESSING



The data path from the cosmic source, to the satellite, to Earth. The data transmitted in binary code before being translated into a visual representation of the object. Credit: NASA/CXC/SAO

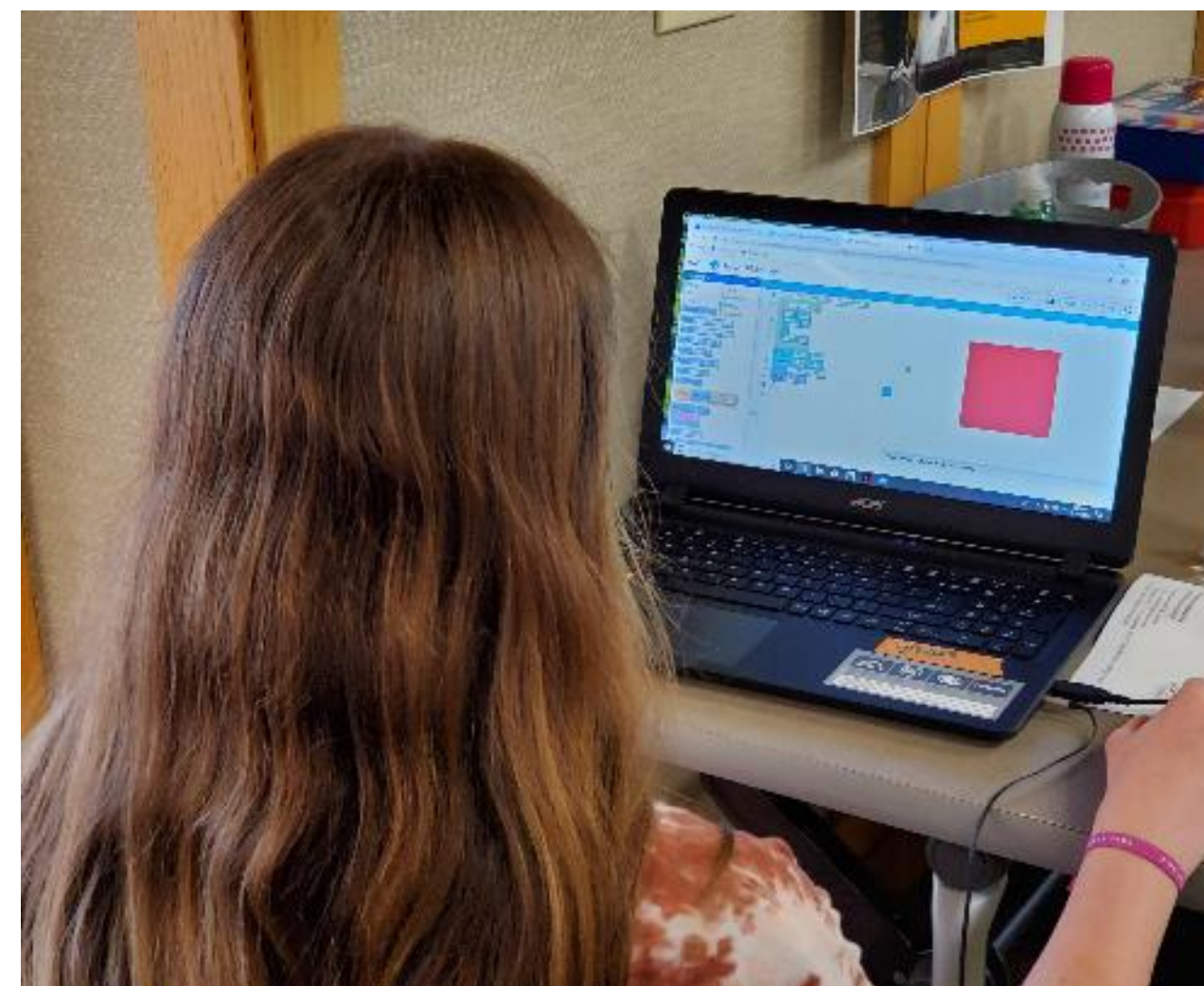
In development and coming soon

Recipe 4: Lifecycle of Stars!

This Program Cookbook is designed to guide FACILITATORS as they create their event using NASA's Universe of Learning resources. Use the "Menu of Activities and Resources" and planning worksheet to tailor your event for your audience's needs. Program Cookbook includes background material, sample event scenario, facilitator scripts, vocabulary lists, and event tips.



# Putting it into Action

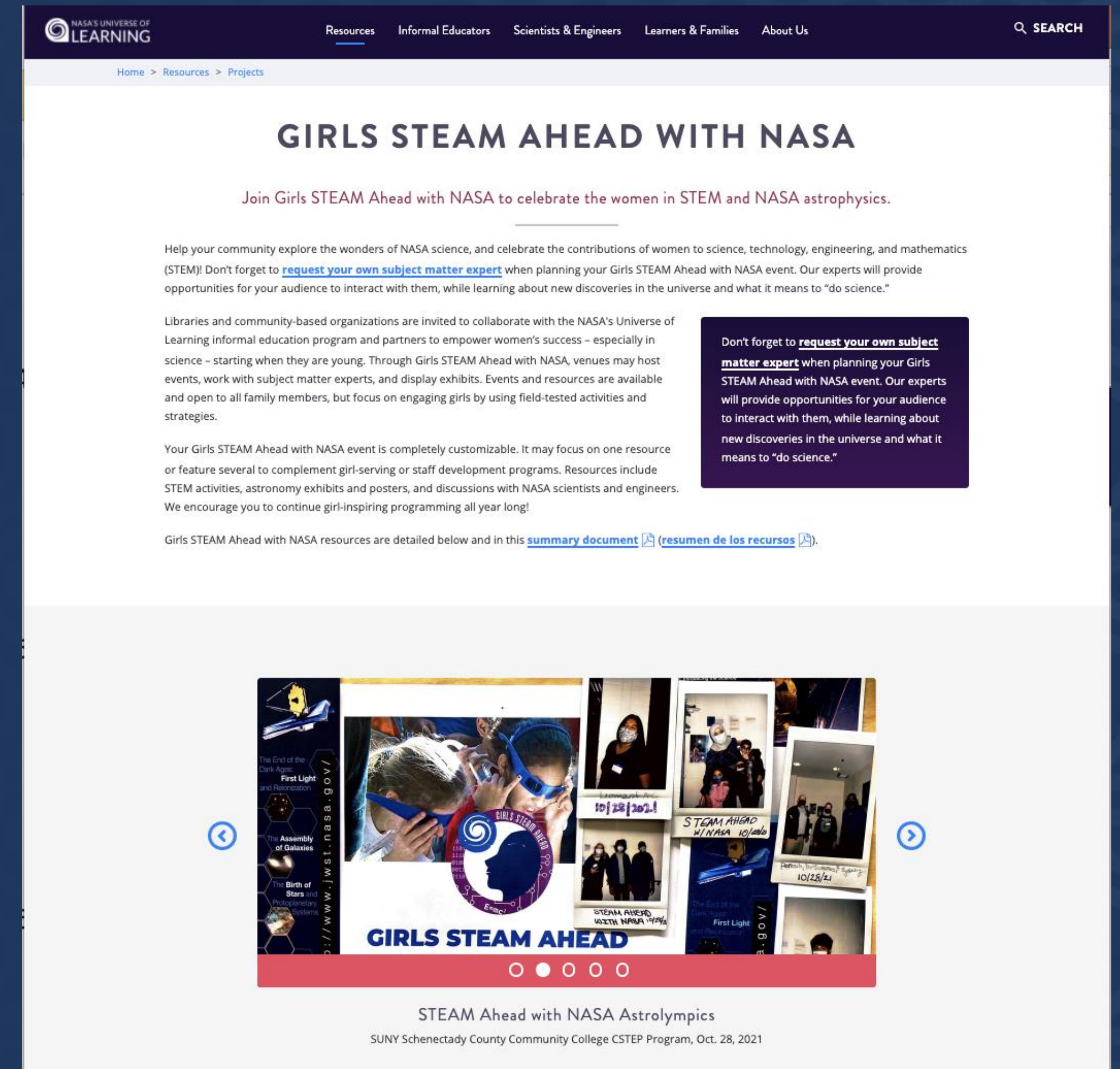




# Learn More!



<https://www.universe-of-learning.org>



<https://www.universe-of-learning.org/gsawn>



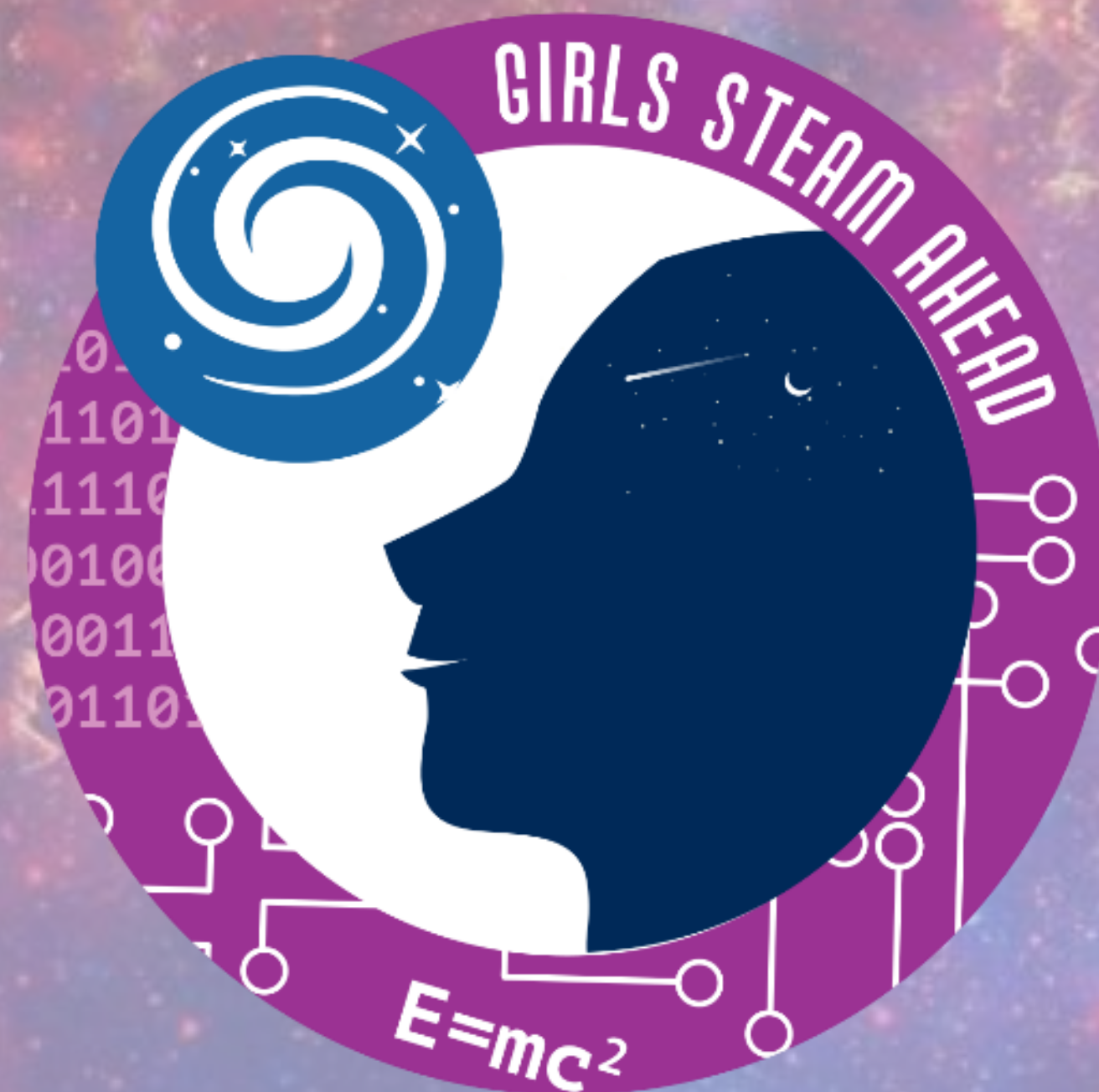
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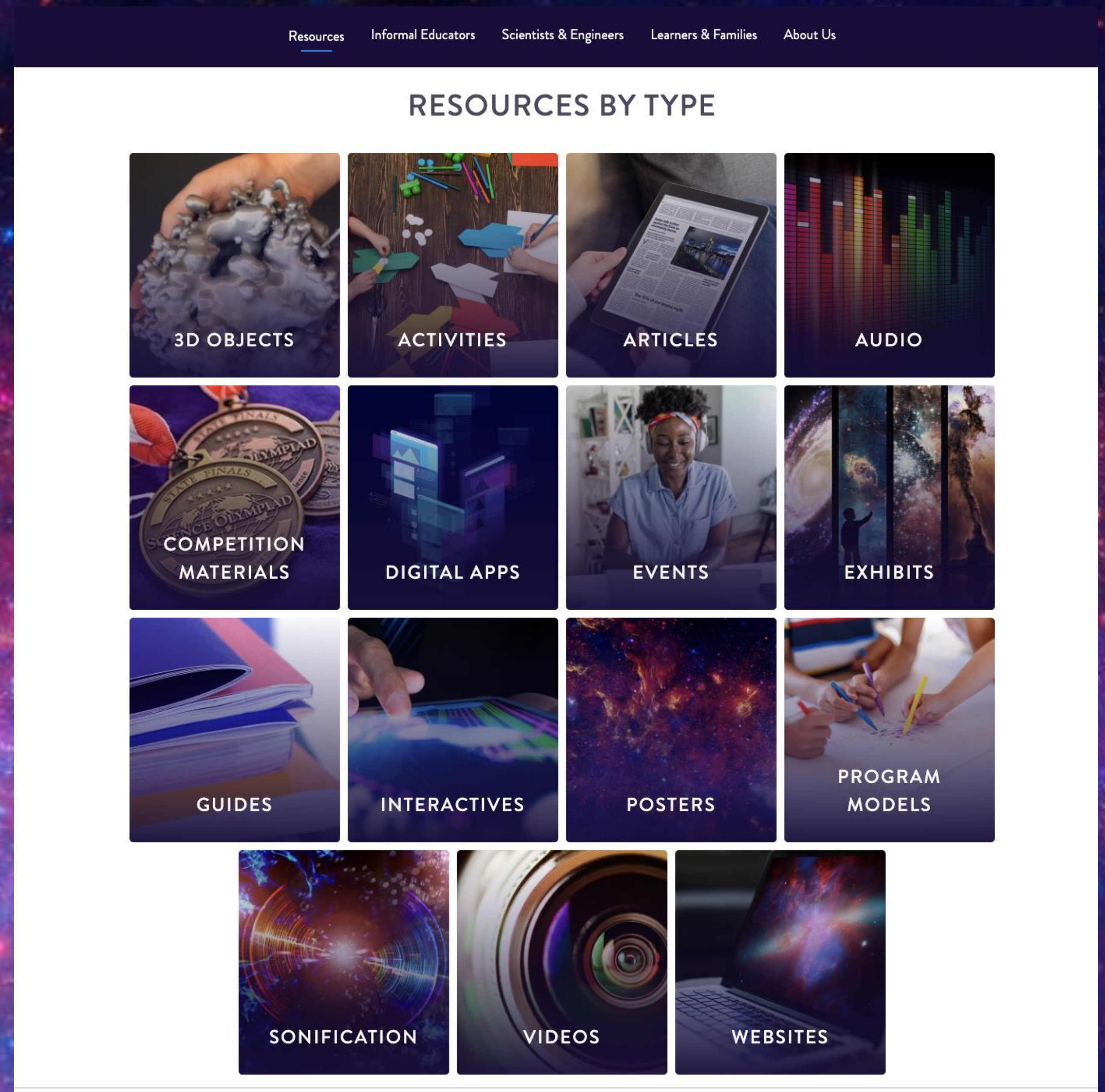
NASA'S UNIVERSE OF LEARNING



# QUESTIONS?



NASA'S UNIVERSE OF LEARNING



<https://www.universe-of-learning.org/resources>





# Contact us...

<https://www.universe-of-learning.org/gsawn>

Email: [girlsSTEAMahead@universe-of-learning.org](mailto:girlsSTEAMahead@universe-of-learning.org)

**Request a NASA Subject Matter Expert for your GSAWN event**

<https://www.universe-of-learning.org/informal-educators/request-an-expert>

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**20 YEARS** OF TRANSFORMING STEM

Learn more at [ngcproject.org](https://ngcproject.org)

