Tools and Training for Starting a Successful Space and Earth Science Virtual Public Program

Darrell Porcello
Matt Jorge
Alexandra Jackson
Yesenia Perez
Amelia Chapman
Rosamond Kinzler

ASTC 2020 Preconference Intensive October 16, 2020

All session resources & links

bit.ly/astc2020space

Workshop Agenda

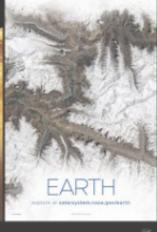
- 1. Introduction (15 to 20 min)
 Darrell Porcello, CCM & NISE Net
 Matt Jorge, CCM & NISE Net
- 2. Resource discovery presentations (40 min)
 Alexandra Jackson, Sciencenter & NISE Net
 Yesenia Perez, NASA Universe of Learning/STScI
 Amelia Chapman, NASA Museum Alliance/JPL
 Rosamond Kinzler, OpenSpace/AMNH
- 3. Q&A on presentations (10 min)
- 4. Breakout Groups (20 to 30 min)
 Each speaker discusses one virtual learning scenario with breakout group
- 5. Report and wrap-up (10 to 20 min)



DO YOU **WANT TO** PLAY A GAME?

















Great Minds Think Alike

GANYMEDE

CALLISTO

10

SATURN

ENCELADUS

TITAN



















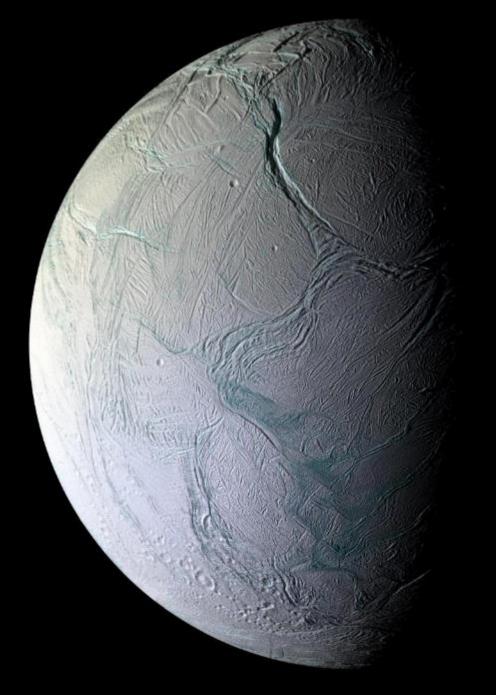
ASTEROIDS



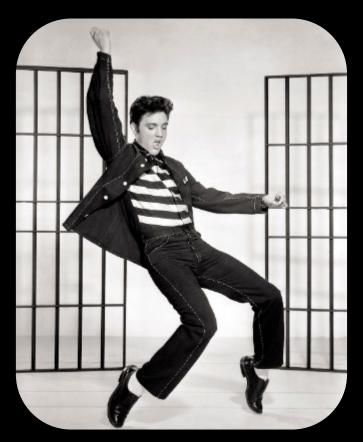


Great Minds Think Alike Rules

- One player is the **guesser** (moved to breakout room). Their job is to correctly identify the space object the rest of the players will describe.
- The rest of the players are **describers**. They will think of **one word** to describe the space object and write it on a piece of paper.
- If two or more **describer's** words are identical, they cancel out and put their word down—so try to make unique picks!
- The **guesser** will use the remaining available hints to guess the object.



General Online Engagement Tips



The best way to engage learners online is to be...engaging

- Learners are looking to you to set the tone—be enthusiastic, exciting, and entertaining.
- Have fun with your workshop.
- Use dynamic slides & interactives.
- Encourage camera use.

Create a supportive learning environment

- Humanize yourself & make time for personal introductions.
- Briefly create group norms together.
- Make it social, leave time for conversation.



General Online Engagement Tips



Expect the unexpected and remain flexible

- Technology will fail. Have a backup plan for when this happens.
- If possible, have an extra staff member as chat and tech moderator.

Set clear expectations

- Provide a roadmap of the workshopwhen will learners be expected to participate? When will they be expected to listen?
- Create the expectation of rich conversation & collaboration during breakout room times.
- Encourage & facilitate opportunities for sharing & commenting often.



NATIONALINFORMAL STEM EDUCATION NETWORK



Explore Science: Earth & Space 2020 Toolkit



Part A – shipped January 2020

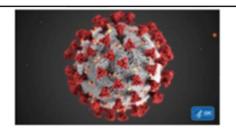


Part B – shipping later in 2020 includes immersive Moon adventure game

COVID-19 NISE Network Resources

Coronavirus Museum Resources

We wanted to make sure you are aware of these resources in this rapidly changing situation:



- Association of Children's Museum (ACM)
- https://www.childrensmuseums.org/about/acm-in-the-news/307-museum-response-covid-19astc
- Association of Science and Technology Centers (ASTC), including educational resources, policy and advocacy updates and tools, and business and operations resources
- https://www.astc.org/coronavirus/
- Association of Science and Technology Centers (ASTC) Educational Resources
- https://www.astc.org/coronavirus/educationalresources/



- Museum reopening resources (ACM, ASTC, AZA, IMLS, Dome Dialogues and more)
- Coronavirus resources (CDC, NIH, Johns Hopkins and more)
- NISE Network Online Workshops
- Viruses and Coronavirus videos and activities for the public
- Resources for digital public engagement
- Evaluation and research resources

https://www.nisenet.org/coronavirus

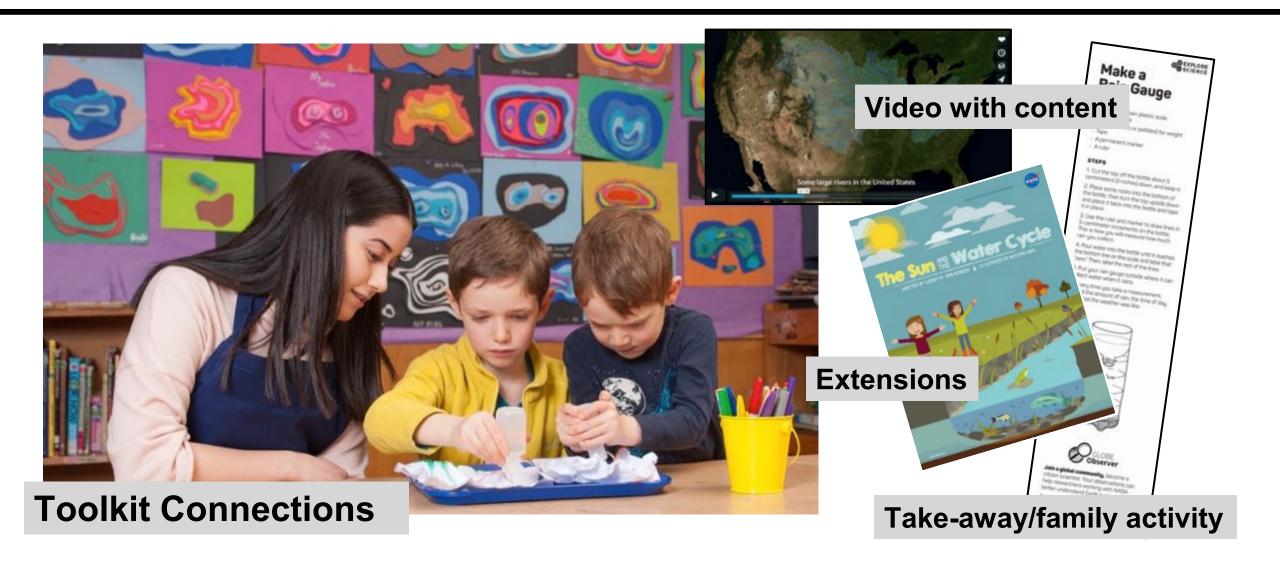
https://www.nisenet.org/athome



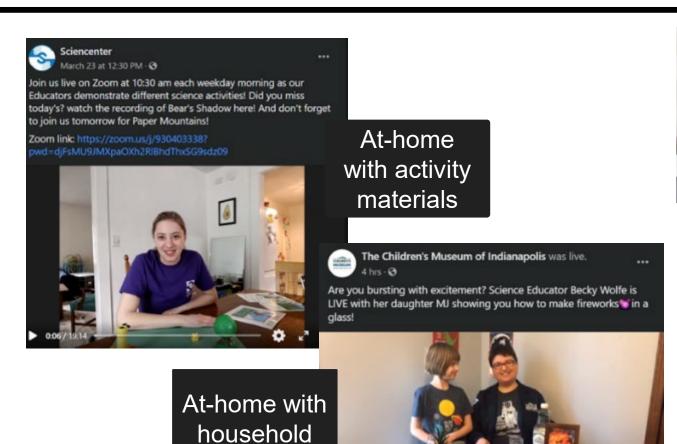
nisenet.org/athome



Collections of At-Home & Online Experiences

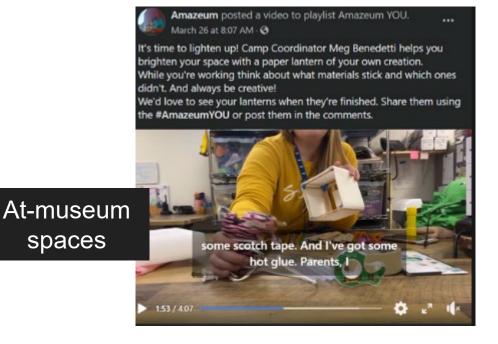


Network Partner Adaptations



materials





Zooming In On Our Strengths

Local and live



Articulating an audience: Touch point for members, local community and longtime supporters to stay connected to the museum

Choosing a platform: Zoom

- Accessibility for our audience
- Privacy controls and live chat functions
- Ability to record sessions

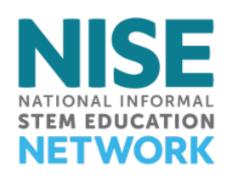
Selecting content: Everyday or no materials

Publicizing our efforts

- Facebook, member emails
- Community partners

Online Experimentation: Verified Content







Get Involved

Learn more and access the NISE Network's online digital resources nisenet.org



Subscribe to the monthly newsletter

nisenet.org/newsletter



Continue the online conversation

bit.ly/nisenetryver











Follow NISE Net on social networking

nisenet.org/social

Thank You







This material is based upon work supported by NASA under cooperative agreement award number NNX16AC67A and 80NSSC18M0061. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).



Resources For Creating A Virtual Program









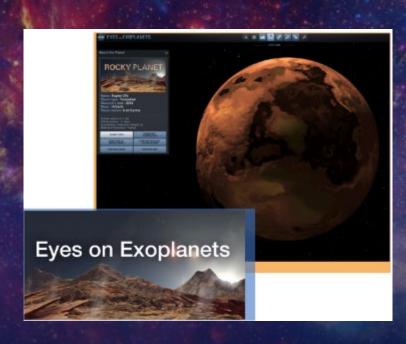




The Big Jump to Virtual



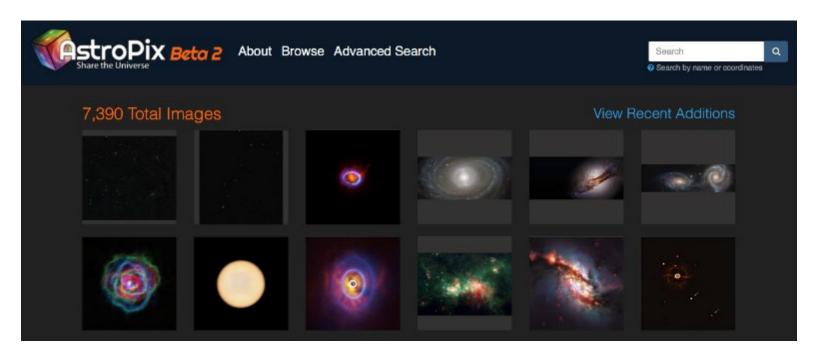






Data Tools & Multimedia Resources

AstroPix



https://astropix.ipac.caltech.edu



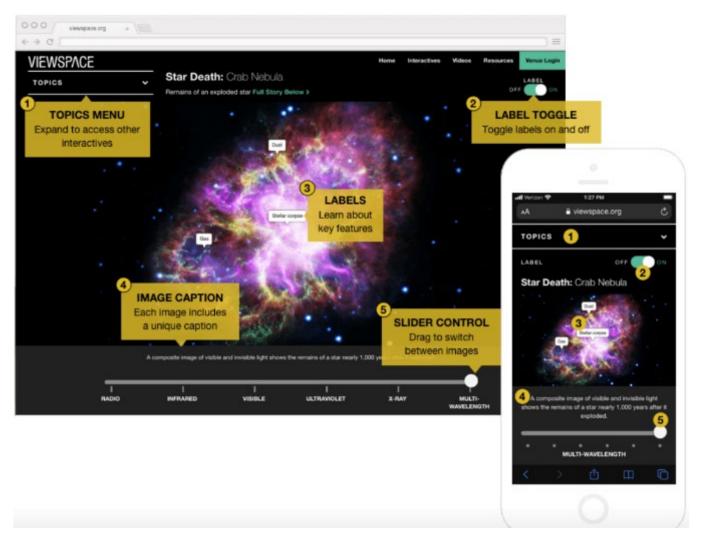
ViewSpace

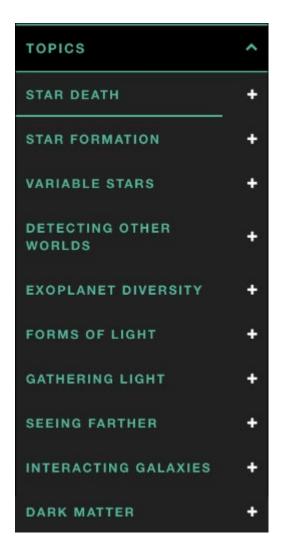


https://viewspace.org



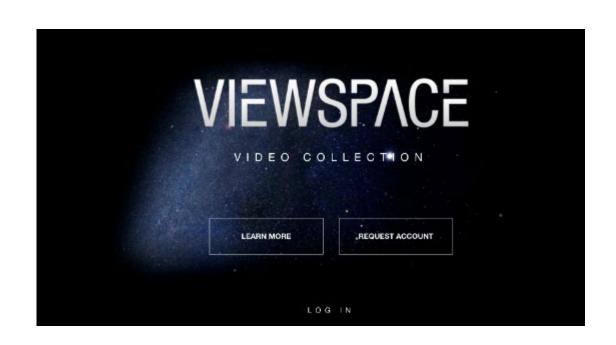
ViewSpace: Interactives

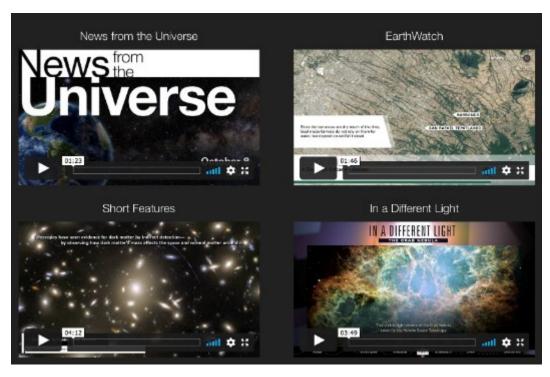






ViewSpace: Video Collection







Eyes on Exoplanets





https://exoplanets.nasa.gov/eyes-on-exoplanets/#/



Informal Learning Network

- Adaptable program models
- New set of program models that feature virtual learning and engagement in a COVID world
- Program models provide:
 - Goals
 - Target audiences
 - Recommendations
 - List of UoL resources
 - Curriculum / activity guides

POPULAR TAGS:











Universe Unplugged



Extreme Astronomy: The Wild Side of Space

BLACK HOLES, STELLAR EVOLUTION, NEBULA,



Understanding the Origins and Diversity of Planets

SOLAR SYSTEM, EXOPLANETS, PLANET FORMATION

NASA'S UNIVERSE OF LEARNING



Women in Astronomy: The Past Inspires the Future

STEM, GIRLS STEAM AHEAD

Science Briefings



The Magnetic Universe

STELLAR DEATH, GALAXY EVOLUTION, MAGNETIC



NASA's Exoplanet Detection: the Missions and Women Involved

EXOPLANETS

Thank You!



Learn more at: www.universe-of-learning.org

This presentation is based upon work supported by NASA under award number NNX16AC65A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Aeronautics and Space Administration.







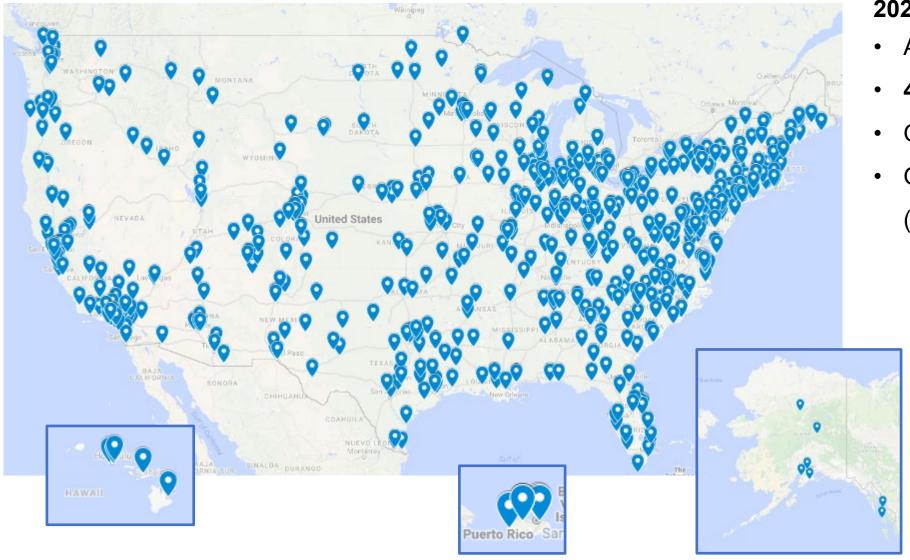


NASA's Museum Alliance is an active community of practice that provides access to NASA resources for informal educators.





NASA's Museum Alliance



2020 Membership

- All **50** states, DC, Puerto Rico
- 41 other countries
- Over 2600 professionals
- Over **1300** organizations (1200+ US, 184 int'l)

India

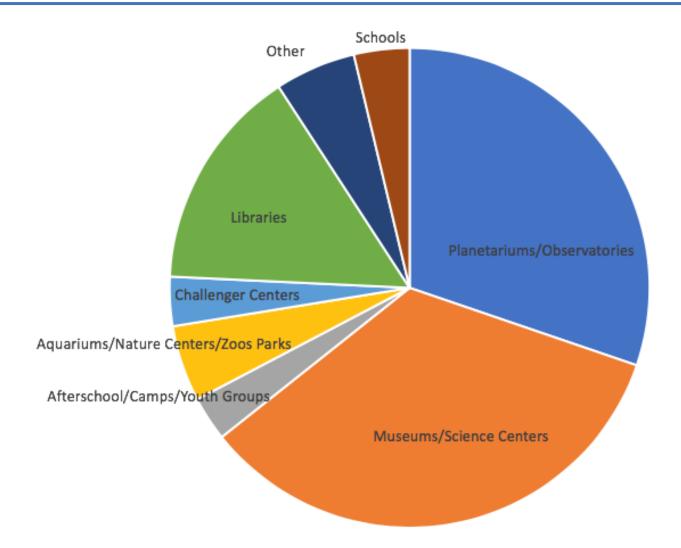
Ireland

International: Italy Argentina Japan Australia Malaysia Austria Mauritius Belgium Mexico Brazil Monaco Canada Netherlands Chile Norway Colombia New Zealand Costa Rica Philippines Czech Republic Portugal Denmark Romania Dominican Rep. South Africa Finland South Korea France Spain Switzerland Germany Guatemala Thailand Turkey Hungary Iceland Turks & Caicos

Ukraine

United Kingdom

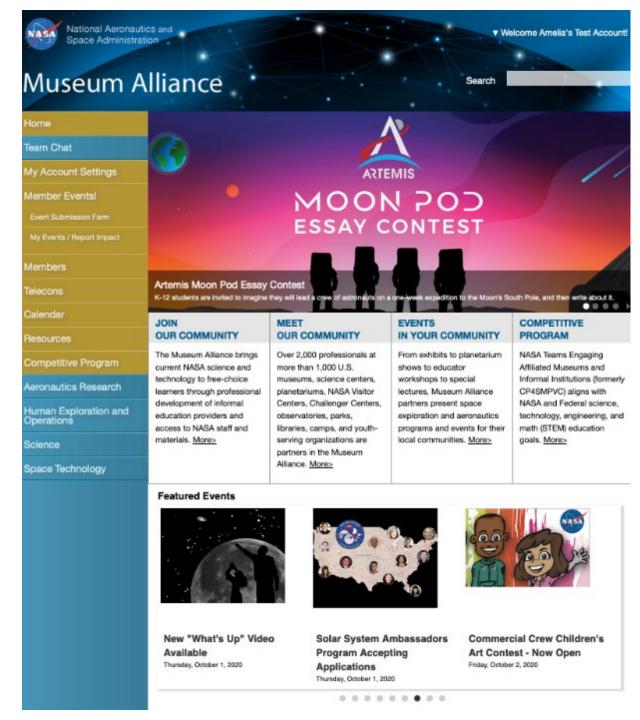
Organizational Membership (US)



- Planetariums/Observatories
- Museums/Science Centers
- Afterschool/Camps/Youth Groups
- Aquariums/Nature Centers/Zoos/Parks
- Challenger Centers
- Libraries
- Other
- Schools

NASA's Museum Alliance

- ✓ Direct **assistance** to members
- ✓ Member website of searchable resources
- ✓ Calendar of mission events, deadlines, trainings, virtual events, anniversaries, STEM-themed days, etc
- ✓ Collaborative **chat** forum
- ✓ Regular live briefings by NASA experts
- √ Weekly newsletter



Resources



Space Technology

Last updated 4/22/2020 with Earth Worldview, NASA eClips resources, Earth Now, SVS Earth Day Gallery, NASA NeMO-Net Citizen Science , and Climate Kids Scrolling Feature for Earth

Earth Day was first celebrated on April 22, 1970; NASA's observation of the Earth Day golden anniversary began on March 3 with a "50-Day Countdown" of daily social media posts highlighting many of the agency's Earth images and environmental projects. All of these posts are available on a blog updated daily on NASA's Earth Day website, which also includes a toolkit of activities for students and families. New content will be posted to the site beginning Monday, April 13. The NASA Earth Facebook account and @NASAEarth on Twitter and Instagram also will have special content through Earth Day.

Resources

Earth 101

- . Meet your home planet
- . Earth stories, games, crafts for kids K-4.
- . Find more Earth Science at https://climate.nasa.gov/
- See our NASA Earth Science 101 telecon for members. Alliand our Earth Science Telecons, like this fan favorite about ARIA to NASA Earth Science is saving time, money, and lives in disaste

Featured

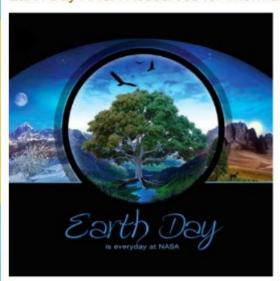
- Earth Day 2020 For members, read more about the 50th Annie this campaign is postconed indefinitely)
- . See the #EarthDayAtHome 2020 campaign and resources.
- Earth Now, new browser-based interactive Earth. Embed it into single line of code <iframe allowfullscreen="" frameborder="0" src="https://eyes.nasa.gov/apps/earth/W" width="500"></ifram "Source" code, and note you can customize height and width, the widths are supported, or simply share the link: https://eyes.nasa.gov/apps/earth/W"



- NASA eClips Earth Day 2020 resource list.
- Trees Challenge 2020 (postponed) GLOBE Observer's month-long citizen science challenge has been postponed. Watch the Observer website for when it might get

Earth Day NASA Resources for Informal Education

▼ Welcome Amelia's Test Account!



Museum Alliance

Team Chat

Member Eventsl

Competitive Program

Aeronautics Research

Human Exploration and Operations

Space Technology

Last updated 4/22/2020 with Earth Worldview, NASA eClips resources, Earth Now, SVS Earth Day Gallery, NASA NeMO-Net Citizen Science, and Climate Kids Scrolling Feature for Earth Day

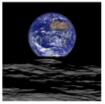
Earth Day was first celebrated on April 22, 1970; NASA's observation of the Earth Day golden anniversary began on March 3 with a "50-Day Countdown" of daily social media posts highlighting many of the agency's Earth images and environmental projects. All of these posts are available on a blog updated daily on NASA's Earth Day website, which also includes a toolkit of activities for students and families. New content will be posted to the site beginning Monday, April 13. The NASA Earth Facebook account and @NASAEarth on Twitter and Instagram also will have special content through Earth Day.

Resources

- · NASA eClips Earth Day 2020 resource list.
- Trees Challenge 2020 (postponed) GLOBE Observer's rechallenge has been postponed. Watch the Observer web reinstated, and enjoy the toolkits of activities, some of windoors.



- . For libraries the STAR Net Our Planet Earth Campaign
- Celebrating Earth's Beauty Looking for Earth images?
 kept here. You can just print out your favorites, and may
 Alternatively, you can use the official NASA ebooks "Eart
 Here's one of our all-time favorites from the gallery, an Ex



Activities

- . Our Home with NASA Earth Science Curriculum and Pl
- How to Read a Heat Map is a complete lesson with NGS science lessons
- NASA NeMO-Net Citizen Science Mapping Coral Reefs
- Image Detectives is a citizen science project to help cate NASA Imagery of Earth.



Earth 101

- · Meet your home planet
- · Earth stories, games, crafts for kids K-4
- . Find more Earth Science at https://climate.nasa.gov/
- See our NASA Earth Science 101 telecon for members. Alliand our Earth Science Telecons, like this fan favorite about ARIA to NASA Earth Science is saving time, money, and lives in disaste

Featured

- Earth Day 2020 For members, read more about the 50th Annie this campaign is postponed indefinitely)
- See the #EarthDayAtHome 2020 campaign and resources.
- Earth Now, new browser-based interactive Earth. Embed it into single line of code <iframe allowfullscreen="" frameborder="0" src="https://eyes.nasa.gov/apps/earth/W/" width="500"></ifram "Source" code, and note you can customize height and width, t widths are supported), or simply share the link: https://eyes.nas



- NASA eClips Earth Day 2020 resource list.
- Trees Challenge 2020 (postponed) GLOBE Observer's month-long citizen science challenge has been postponed. Watch the Observer website for when it might get



Home

Team Chat

My Account Settings

Member Events!

Event Submission Form

My Events / Report Impact

Members

Telecons

Calendar

Resources

Competitive Program

Aeronautics Research

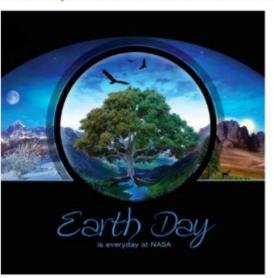
Human Exploration and Operations

Science

Space Technology

Earth Day NASA Resources for Informal Education

▼ Welcome Amelia's Test Account!



Last updated 4/22/2020 with Earth Worldview, NASA eClips resources, Earth Now, SVS Earth Day Gallery, NASA NeMO-Net Citizen Science, and Climate Kids Scrolling Feature for Earth Day.

Earth Day was first celebrated on April 22, 1970; NASA's observation of the Earth Day golden anniversary began on March 3 with a "50-Day Countdown" of daily social media posts highlighting many of the agency's Earth images and environmental projects. All of these posts are available on a blog updated daily on NASA's Earth Day website, which also includes a toolkit of activities for students and families. New content will be posted to the site beginning Monday, April 13. The NASA Earth Facebook account and @NASAEarth on Twitter and Instagram also will have special content through Earth Day.

. Here's a great and easy Earth Day activity of simply letting people truly observe Earth

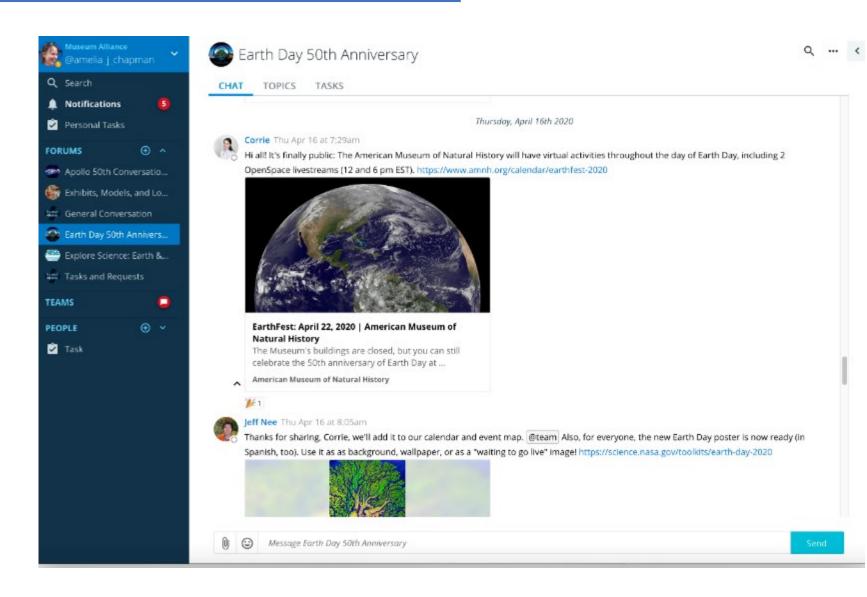
Calendar

- Searchable/sortable by Topic and Type
- Easy to subscribe, share
- Available to public
- Featured events on homepage



Collaborative Chat

- Easy communication with other educators
- ~400 registered users▶ 17% of membership
- Greater transparency, better customer service for members
- Free, unlimited



Presentations by NASA Experts

- Live conversations, Q&A
- Presentation materials
- Key links and websites
- Average of 4 a month
- Archived recording and chats









Member Newsletter

- Weekly updates
- Featured items
- Alerts to new content on site
- Recently redesigned

Happy Women's Equality Day, Alliance,

Celebrate the <u>Past, Present, and Future of Women in Space</u> today and every day! Engage audiences in <u>NASA's Artemis program</u> to send the first woman to the Moon and make our way to Mars. Share inspirational <u>posters</u>, find current <u>role models</u>, and explore <u>history</u>. Find more <u>resources</u> on the site, and always <u>reach out</u> if you have questions, requests, or suggestions. For other resources:



Intro to Infiniscope

Infiniscope offers no fuss, stand-alone, Earth & space science experiences. <u>Custom-designed simulations</u> promote deep understanding by bringing abstract scientific ideas to life. Learn how to quickly and seamlessly integrate them into your curriculum. Join info sessions for <u>Middle School</u> and <u>High School</u>.



National Hispanic Heritage Month

Starting September 15, NASA is celebrating the histories, cultures and contributions of Hispanic Americans. Find curriculum, information, Spanish vocabulary, multimedia, and downloadables on the resource page.



NASA's App Development Challenge (ADC)

ADC is a coding challenge for middle and high school students who take part directly in the Artemis Generation endeavors to land the first woman and the next man on the Moon. Join virtual information sessions, and see all the details on the webpage.

Share and Report Your Events Here Questions? Click for the Team Chat.

Recently Added/Updated:

Resource - Tracy Caldwell Dyson's Iconic Cupola Selfie

Telecon - Solar Dynamics Observatory Mission Update Recording

Reset your password, as needed.





Kevin Frank and **Jeff Nee** in action

Fedi

F00

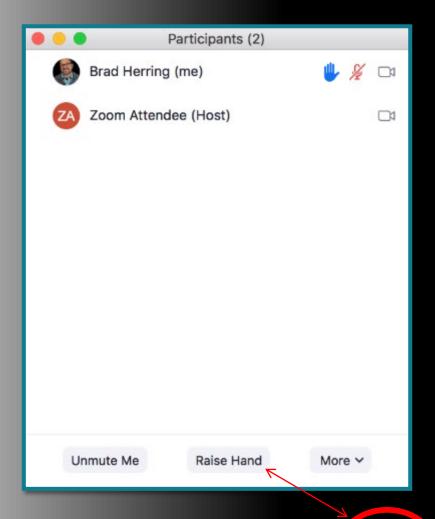
Amelia Chapman (2nd from left at JPL's Dress like Apollo Day)



OpenSpace

Live Demo

How to Participate in the Q&A



How to talk

- Raise your hand
- Keep yourself muted
- Reminder that today's session is being recorded

How to chat

Enter your comments and questions into the chat box



Breakout Groups

Scenario #1:
Observe the Moon
(Facebook Live)

bit.ly/astc2020space1

Scenario #3: Let's Go to Mars (Zoom class)

bit.ly/astc2020space3

Scenario #2:
Beyond our Solar System
(YouTube video/Interactive
Lesson Plan)

bit.ly/astc2020space2

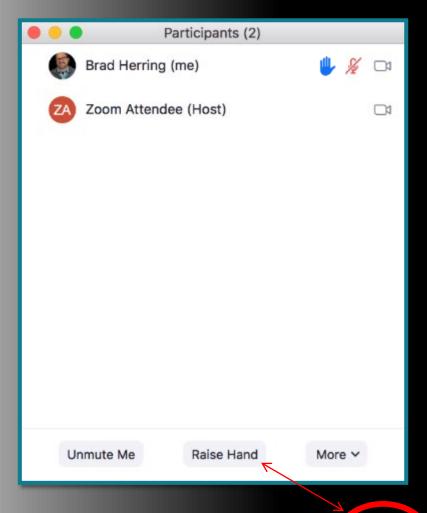
Scenario #4:
Earth's Watersheds
(Take home kit & online facilitation)

bit.ly/astc2020space4



Welcome Back... Let's Wrap-up!

How to Participate in the Wrap-up



How to talk

- Raise your hand
- Keep yourself muted
- Reminder that today's session is being recorded

How to chat

Enter your comments and questions into the chat box

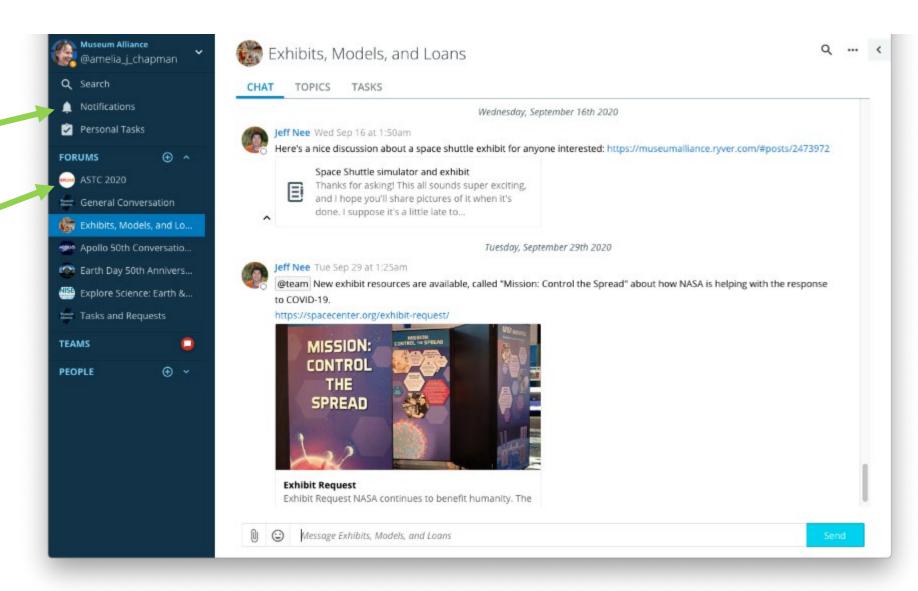


Join the Collaborative Chat (Ryver)

The Resource List has a link to join the chat platform, and a short tutorial on setting these.

If you are already on, no need to rejoin. Just look for this.







Thank You



This material is based upon work supported by NASA under cooperative agreement award numbers NNX16AC67A and 80NSSC18M0061. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).



NASA's Universe of Learning materials are based upon work supported by NASA under award number NNX16AC65A to the Space Telescope Science Institute, working in partnership with Caltech/IPAC, Center for Astrophysics | Harvard & Smithsonian, Jet Propulsion Laboratory, and Sonoma State University.



The NASA Museum Alliance was developed, and is managed, by the Jet Propulsion Laboratory (JPL) Education Office, at the California Institute of Technology, in Pasadena, California, for the National Aeronautics and Space Administration (NASA).



OpenSpace is funded in part by NASA under award No NNX16AB93A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Aeronautics and Space Administration. OpenSpace is also funded in part by the Knut & Alice Wallenberg Foundation in Sweden and the Swedish e-Science Research Centre.

All session resources & links

bit.ly/astc2020space