Welcome and opening session

Panelist Resources


Other Resources

Stories of how youth are affected by and responding to climate change: https://yaleclimateconnections.org/topic/youth/

Climate education resources developed by Phil Bell at the University of Washington: https://www.climetime.org

Communicating to children about climate change: A cross-sectoral call to action

Panelist Resources

K-12 Climate Action: https://www.k12climateaction.org/, https://www.k12climateaction.org/blog/climate-action-plan-2021

“For Gen Z, climate change is a clear and present danger to our planet”: https://www.usatoday.com/story/opinion/2020/10/07/climate-change-gen-z-urgent-threat-our-planet-column/3636669001/

From Laura Schifter: K-12 Climate Action Plan 2021: https://www.k12climateaction.org/blog/climate-action-plan-2021


From Nathaniel Kendall-Taylor: We have research on our website (frameworksinstitute.org) that might be helpful and then I think the Yale Program on Climate Communications is an amazingly valuable source on these issues of public thinking and framing.

Other Resources


The 2018 National Climate Assessment. A go-to resource on the state of climate science for the nation until the next one is released in 2023: https://nca2018.globalchange.gov

NASA resources, many geared towards children: https://climatekids.nasa.gov, https://earthobservatory.nasa.gov/blogs/eokids
NSF Design & Discovery Forum: Climate Science, Children, and the Media

Chat Resources


NOAA videos from 2014 about the National Climate Assessment 3: https://vimeo.com/channels/nca/videos

NASA Earth science resources involving the International Space Station, with many hands-on opportunities for youth: https://www.nasa.gov/station

Training on metaphors and messages that work best with museum audiences about climate change from National Network for Ocean and Climate Change Interpretation, which is funded by NOAA and NSF: https://climateinterpreter.org/training

Classroom resource for educators: Columbia Climate School - The Earth Institute - EI Live K12: https://www.earth.columbia.edu/videos/channel/k12-education

The MY HERO Project provides media arts training to youth so they can share their environmental hero short films, art stories. Their online media library is filled with short films made by professionals and students from around the world. https://myhero.com/climate-change-resources, https://myhero.com/slater

The United Nations 17n Goals for Sustainability and Development: https://sdgs.un.org/goals


‘Young Voices for the Planet,’ where kids lead efforts to help the climate and video pieces are produced on each effort: https://www.youngvoicesfortheplanet.com/


A website with a climate blog and educational resources: https://climateinterpreter.org/


A blog post on the international young activists’ work to deal with climate change in their own backyards: https://blogs.agu.org/sciencecommunication/2021/03/05/antarcticlog-sannas-reindeer/

Climate change conversation tools from FrameWorks: https://www.frameworksinstitute.org/issues/climate-change-and-environment/
A Scientific American article about educators dealing with children who are falling victim to conspiratorial information: https://www.scientificamerican.com/article/schoolkids-are-falling-victim-to-disinformation-and-conspiracy-fantasies/

“Plausibility reappraisals and shifts in middle school students' climate change conceptions”:
conceptions=https://www.sciencedirect.com/science/article/pii/S0959475213000285?cas_a_token=TQU8pHoGsAAAAA:t6mWC4ji1vruOke5GWInqzTKJQjwSR0xvFNMLQzxGtvo-89tOlgZ7mECKILrQ4mbx2QeMhfZZw

CLIMATE ALIVE!: NOAA's Ocean Today Program videos featuring NOAA Climatologist Tom DiLiberto that help kids make sense of wild weather and introduce the science of climate change:
https://oceantoday.noaa.gov/climate-alive-wild/welcome.html

Maine climate ed bill being considered now:
https://legislature.maine.gov/bills/getPDF.asp?paper=HP1409&item=1&snum=130

A FrameWorks report: Expanding Our Repertoire: Why and How to Get Collective Climate Solutions in the Frame:

Sesame Workshop in India community level campaigns with children:

“Evaluating sources of scientific evidence and claims in the post-truth era may require reappraising plausibility judgments”:
https://www.tandfonline.com/doi/full/10.1080/00461520.2020.1730181?casa_token=tA-Efbj_no4AAAAA%3A1cdeICqBjF0x3G00-T5bkOe2q5DEffmK5QGj3ytskczmfX5MDZmNguJmHYuUv0Rm-B0iw9EWjXw0A

Understanding Science: online resources about the process of science published by Berkeley:
https://undsci.berkeley.edu

Champions of Coastal Resilience: A professional development program in Hawai‘i that helps teachers engage their students in storytelling/film editing to discuss climate change related impacts to their community shorelines. Using multiple lenses - personal, family, cultural, and overlaying with NOAA data visualization tools like sea level rise viewer. Funded in part by NOAA B-WET program:
https://www.learningendeavors.org/programs

Full Option Science System (FOSS) course for children “Observing Nature”:

Elmo’s teaching basic concept of air: https://fb.watch/b6jYC1cyEY/

NPR survey: Most Teachers Don’t Teach Climate Change, 4 Out of 5 Parents Wish They Would:
Video about NCSE Teacher Ambassador Melissa Lau: https://www.youtube.com/watch?v=h-mPa0LT-oQ


A survey conducted in the largest school district in the US - NYC - showed that teachers want to teach about climate change but they don’t have the proper training, time, resources and support: 
https://static1.squarespace.com/static/6001a539f8f42f6c20a08362/t/61d7371b336fc71c4a409186/1641494299699/CRETF+ClimEd+Survey+2021.pdf

National Geographic project on citizen science species counting: https://www.nationalgeographic.org/projects/bioblitz/


A study on the children’s science podcast Brains On! with recommendations for media producers about how to address challenging and scary topics with children: https://www.brainson.org/story/2020/10/13/brains-on-coronavirus-research

Earthinators: a youth-led whole-of-nation movement to get every Indians on board; getting everyone motivated to help transform India into a glowing global city of sustainability. 
https://sites.google.com/view/earthinators,
https://www.linkedin.com/company/earthinators, https://twitter.com/earthinators,

Inclusive science communication: Creating compelling stories together

Panelist Resources

From Rese Cloyd: Here are the stories that we developed for How We Respond 
https://howwerespond.aaas.org/communities/

From Rese Cloyd: I wrote a short thread that points to several of the stories and resources we developed as a part of the How We Respond program 
https://twitter.com/EngageClimate/status/1492173456301080579

From Sunshine Menezes: Highly recommend the Doug Medin & Megan Bang paper, the culture of science communication (https://doi.org/10.1073/pnas.1317510111) for more thoughts on this, and especially how we represent the natural world

Other Resources

An inclusive science communication starter kit created by the Metcalf Institute and collaborators: https://metcalfinstitute.org/metcalf-releases-inclusive-scicomm-starter-kit/
NSF Design & Discovery Forum: Climate Science, Children, and the Media
Chat Resources

A report from AAAS: “How We Respond: Communities and scientists taking action on climate change”:
https://howwerespond.aaas.org/

“Local Climate Experts: The Influence of Local TV Weather Information on Climate Change Perceptions” (2016):
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4638344/

Article from Yale Climate Connections “How to talk with kids about climate change”:

Climate Central Media Library, an independent organization of leading scientists and journalists researching and reporting the facts about our changing climate and its impact on the public:
https://medialibrary.climatecentral.org

“Weather Girls” on the Big Screen: Stereotypes, Sex Appeal, and Science” (2014):
https://journals.ametsoc.org/view/journals/bams/95/3/bams-d-12-00079.1.xml

A survey conducted at Sesame Workshop India with 6-10-year-olds: https://fb.watch/b6jYC1cyEY/

Article about kids teach parents about climate change - by learning about climate change in class, interviewing their own families, and hosting community meetings:

A series of webinars on preserving and applying traditional knowledge: http://indigenouseducation.org

Article on indigenous knowledge by Robin Wall Kimmerer:
https://emergencemagazine.org/feature/corn-tastes-better/


Native Skywalkers, a website about indigenous astronomy: https://www.nativeskywatchers.com/

Native Earth, Native Skies - NASA-funded award to Oklahoma State University to increase understanding and interest in STEM by middle school students in the Cherokee, Choctaw and Chickasaw Nations by developing holistic curriculum that interweaves Native American stories and language with STEM principles: https://education.okstate.edu/research/centers/native-earth-native-sky/


Podcast episode on climate change and women of color: https://t.co/tjIF7MyTnZ,
https://twitter.com/ourbodypolitic/status/1483518470272831488?s=27

Global Learning and Observations to Benefit the Environment (GLOBE), an earth systems measurement partnership between NASA, NSF and NOAA: https://www.globe.gov/

GLOBE citizen science measurement app, including a clouds and climate challenge and a toolkit for informal educators and activities for families: https://observer.globe.gov,
A multimedia library aimed at students and teachers: [https://myhero.com/explore](https://myhero.com/explore)

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**Sharing the science: What do kids need to know? What do producers need to know?**

**Panelist Resources**

From Sunshine Menezes: Related to inclusive science communication, generally, check out the resources we’ve collected at this link, and don’t miss the “Inclusive SciComm Resources” via the blue button on that page. It leads to a crowdsourced Google doc with TONS of additional resources. [https://inclusivescicomm.org/resources/](https://inclusivescicomm.org/resources/)

From Laura Schifter: Sharing a blog by a student in KY about engaging students in climate change through art: [https://www.k12climateaction.org/blog/artistic-engagement-in-schools-prepares-students-for-climate-action](https://www.k12climateaction.org/blog/artistic-engagement-in-schools-prepares-students-for-climate-action)

**Other Resources:**

A children’s media program about the environment from Argentina: [https://www.youtube.com/watch?v=SNR97-o-NOI](https://www.youtube.com/watch?v=SNR97-o-NOI)

A PBSKids TV show “Elinor Wonders Why” game on exploring nature sights and sounds: [https://pbskids.org/elinor/games/elinor-nature-sights-and-sounds](https://pbskids.org/elinor/games/elinor-nature-sights-and-sounds)


The Understanding Global Change Project emphasizes systems thinking in Social-Studies and History curricula: [https://ugc.berkeley.edu/](https://ugc.berkeley.edu/)

A Super Bowl ad about the environment: [https://www.youtube.com/watch?v=tIp251KCz6k](https://www.youtube.com/watch?v=tIp251KCz6k)

The 2009 USGCRP Climate Literacy: The Essential Principles of Climate Science is an interagency guide that provides a framework and essential principles for formal and informal education about climate change: [https://www.globalchange.gov/browse/educators](https://www.globalchange.gov/browse/educators)

A systems modeling tool to allow students to express their ideas about systems and construct a computational simulation of their ideas without needing to write code: [https://sagemodeler.concord.org](https://sagemodeler.concord.org)

A National Network for Ocean and Climate Change Interpretation guide on Framing with Explanatory Metaphors: [https://climateinterpreter.org/sites/default/files/resources/framing_with_explanatory_metaphors_handout.pdf](https://climateinterpreter.org/sites/default/files/resources/framing_with_explanatory_metaphors_handout.pdf)

Growing Up Boulder, a city resource for children in Boulder, CO: [https://www.growingupboulder.org/](https://www.growingupboulder.org/)

CLIMATE ALIVE!: a NOAA’s Ocean Today Program featuring NOAA Climatologist Tom DiLiberto that help kids make sense of wild weather and introduce the science of climate change - [https://oceantoday.noaa.gov/climate-alive-wild/welcome.html](https://oceantoday.noaa.gov/climate-alive-wild/welcome.html)

NASA resource for kids: [https://climatekids.nasa.gov/](https://climatekids.nasa.gov/)
Cornell geothermal project: https://deepgeothermalheat.engineering.cornell.edu/


An article by Anya Kamenetz on the importance of play: https://www.npr.org/2022/02/10/1079406041/researcher-says-rethink-prek-preschool-prekindergarten


A standard framework on anti-bias education: https://www.learningforjustice.org/frameworks/social-justice-standards

National Girls Collaborative Project, a hub for STEAM resources: https://ngcproject.org

A podcast on food and climate: https://soundcloud.com/user-337207863

PBSKids Cyberchase Green It Up: https://www.wnet.org/education/greenitup

What works? Successful science-media collaborations

Panelist Resources


From Michael Levine, Noggin/Nickelodeon: FrameWorks has a slew of materials on framing successful communications work: www.frameworks.org

From Michael Levine, Noggin/Nickelodeon: NASA and Noggin have a partnership that will results in two new games later this year—one featuring a rocket scientist.

From Michael Levine, Noggin/Nickelodeon: To see an exchange between 5-7 year olds and the astronauts in the ISS see this link: https://www.nasa.gov/stem-ed-resources/lift-off-to-the-international-space-station-with-noggin.html?utm_source=stemexpress&utm_medium=email&utm_campaign=stemjune102021

From Marc Etkind: A NASA graphic novel: https://www.nasa.gov/specials/calliefirst/

Other Resources

NASA Science Mission directorate: https://science.nasa.gov

Shifted Space, a transmedia project about space junk: https://www.shiftedspace.org/

The Geena Davis Institute on Gender in the Media: [https://seejane.org](https://seejane.org)

An NSF funded collaboration with Latinx families, Univision, and Literacy Partners to develop a five-episode telenovela that will share activities families can use to spark children’s interest in science. [https://www.edc.org/edc-use-themed-telenovela-enhance-informal-science-learning-latinx-families](https://www.edc.org/edc-use-themed-telenovela-enhance-informal-science-learning-latinx-families)


A National Academies program to connect scientists with media: [http://scienceandentertainmentexchange.org/](http://scienceandentertainmentexchange.org/)

The Arctic Climate Game Jam: [https://climategamejam.org/](https://climategamejam.org/)

A collection, based on the PBSKids show Molly of Denali, of videos, digital games, lessons, teaching tips, and activities that educators can utilize in the classroom: [https://pbslearningmedia.org/collection/molly-of-denali/](https://pbslearningmedia.org/collection/molly-of-denali/)

Learning with Media, One Adventure at a PBS KIDS program Molly of Denali teaches children about informational text. Two new studies show that it works: [https://edc.org/learning-media-one-adventure-time](https://edc.org/learning-media-one-adventure-time)

Classroom resources from PBS: [https://pbslearningmedia.org/collection/universe/home/](https://pbslearningmedia.org/collection/universe/home/)

An article from the Sierra Club about using the show Molly of Denali to teach children about climate change: [https://www.sierraclub.org/sierra/2021-6-winter/critic-s-notebook/children-s-programming-needs-tackle-climate-change](https://www.sierraclub.org/sierra/2021-6-winter/critic-s-notebook/children-s-programming-needs-tackle-climate-change)


The Norman Lear Center, which conducts impact studies of media and entertainment: [https://www.mediaimpactproject.org/](https://www.mediaimpactproject.org/)


NASA resources on climate: [https://climate.nasa.gov](https://climate.nasa.gov)
The 2015-2020 CPB-PBS Ready To Learn Initiative:
https://whyy.pbslearningmedia.org/collection/rtl2015/

Taking action
Panelist Resources

From Carrie McDougall: NOAA’s education resources supporting climate resilience:
https://www.noaa.gov/office-education/elp/resilience-hub

From Jean-Claude Brizard: “Climate Change Enters The Therapy Room”:
https://www.nytimes.com/2022/02/06/health/climate-anxiety-therapy.html?referringSource=articleShare


From Jean-Claude Brizard: White House Fact Sheet: Lifting America’s Game in Climate Education, Literacy, and Training:
https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/climateed-dec-3-2014.pdf

From John Fraser [Knology]: These kids are taking on the “system” to eliminate plastics through policy change http://www.cafeteriaculture.org/about.html

From Marisa Nightingale: Check out East Los High on Hulu - innovative transmedia and storytelling that made a positive impact.

Other Resources

Digital Promise: https://digitalpromise.org/

Capita work on climate and early adulthood: https://www.capita.org/climatechange

The Tri-Agency Climate Education (TrACE) Collaboration: https://cleanet.org/trace/index.html

Children, clean air, and potable water in India:
https://www.instagram.com/p/CZZUFk0hrev/?utm_source=ig_web_copy_link

A Scientific American article about children and climate change:

Community actions to combat climate change in India:
https://timesofindia.indiatimes.com/blogs/voices/community-actions-to-combat-climate-change/

Young Voices for the Planet: https://www.youngvoicesfortheplanet.com/

Climate solutions videos from the Cayuga Nature Center:
NSF Design & Discovery Forum: Climate Science, Children, and the Media
Chat Resources

Inventing Tomorrow, a documentary on children and climate. Includes classroom activities:  
https://www.inventingtomorrowmovie.com/

Global Warming’s Six Americas:  https://climatecommunication.yale.edu/about/projects/global-warmings-six-americas/

Article about Sesame Workshop India work on climate: 


Helping kids understand the value of air:  
https://www.instagram.com/p/CWXRXP8IUfD/?utm_source=ig_web_copy_link

The Sustainable Development Goals:  https://www.globalgoals.org/

NCTE resources for teaching about climate:  http://bit.ly/InterdisciplinaryClimate

Peer teaching about climate in India: 
https://www.instagram.com/p/CZ1hJDHP1Wv/?utm_source=ig_web_copy_link

A NASA community of practice for educators formal and informal:  https://nasacentral.force.com/cop/s/

A Berkeley resource for ocean literacy:  https://mare.lawrencehallofscience.org/

A free weekly online NASA newsletter of education opportunities:  https://www.nasa.gov/stem/express

NOAA Ocean Today video content to promote ocean literacy for middle schoolers: 
https://oceantoday.noaa.gov/