Smithsonian Institution

This content package contains a variety of thematic content to address themes of the environment, climate change & STEM, priority topics designated by IIP. These topics include green building, oceans & waterways, wildlife, ecosystems, atmosphere & space. We have split the content by the type of media or usage: Videos; Articles; Lessons and activities; Online exhibitions; Webcasts; Posters and Images. We also provide ideas for ways to use the content in an American Spaces program. Please send any feedback to Liz Tunick (TunickL@si.edu).

Videos

Ocean portal videos: http://ocean.si.edu/conservation (oceans & waterways)

A series of videos focused on various topics relating to ocean life, ecosystems, conservation, and the evolution of the ocean over time. *Use these videos to host an ongoing public program focused on the environment and climate change, with the videos providing the basis for discussion each time. Recommended videos are:*

- Marine Debris
- Fish on a Farm
- Protecting Sharks: How Nets Hurt
- Recycled Fishing Gear Converted Into Energy

Ecosystems on Edge: https://www.youtube.com/playlist?list=PLL71NEDhCwbEeVjozRs_DNGPQ5fxkHWcM (ecosystems)

Series of videos from Smithsonian Environmental Research Center on climate change and its impact on ecosystems, including forests, rivers, underwater species, and more. *Use these videos to host an ongoing public program focused on the environment and climate change, with the videos providing the basis for discussion each time. Recommended videos are:*

- Forests and Climate Change
- Points of Invasion
- Nutrient Odyssey
- Forest Survival

Why Design Now: http://www.youtube.com/watch?v=8uOZkFyPrXU (green building, STEM)

Why Design Now? series from the Cooper-Hewitt, National Design Museum explores the work of designers addressing human and environmental problems across many fields of design, from architecture and product design to fashion, graphics, new media and landscape design. Videos cover a variety of topics on wind and solar energy and design. *Use these videos to host an ongoing public program focused on innovations in energy use, with the videos providing the basis for discussion on what is being done, and can be done, locally. Recommended videos are:*

- Z-20 Concentrated Solar Power System

- M10 Kite Power System
- Hope Solar Tower
- MIT CityCar

Smithsonian Science Videos: http://smithsonianscience.org/category/video/ (ecosystems)

These videos from the Smithsonian Tropical Research Institute, National Museum of Natural History, National Zoo, and more, cover a variety of topics relating to wildlife, environment, and climate change. *Use these videos to either host ongoing public programs, or create a web/blog series for American Spaces visitors to respond to with their thoughts. Some recommended videos are:*

- New Climate Archive Discovered in Sub-Arctic
- Century Long Smithsonian Experiment Tests Forest Diversity
- If a Supernova Vaporized Our Ozone Layer, What Would Happen to Life on Earth?
- Streams Damaged by Too Many Hard Surfaces in Urban Areas

Revolutionizing the Urban Farm: http://www.smithsonianmag.com/videos/category/arts-culture/revolutionizing-the-urban-farm/ (green building, STEM)

In this video from Smithsonian Magazine, Ben Greene discusses how his farmery turns industrialized produce on its head by allowing food to be grown and sold in the same space. *Use this video as the basis for a discussion, or ongoing participatory exercise, through which visitors document innovative ideas in the community that work in service of the environment.*

Articles

Smithsonian Science Research News: http://smithsonianscience.org/category/research-topics/climate-change/ (ecosystems)

This blog series from the Smithsonian Tropical Research Institute, National Museum of Natural History, National Zoo, and more, covers a variety of topics relating to wildlife, environment, and climate change. *Use the "climate change" category of articles to explore new discoveries and breakthroughs from Smithsonian scientists. Use articles as they are published either as handouts for American Spaces visitors or as part of a web/blog series, for American Spaces visitors to respond with their thoughts. Some recommended articles include:*

- Wetlands Sinking with Human Built Structures
- Mangroves Creep North in Response to Warmer Temperatures
- Ancient Algal "Tree Rings" Show Dramatic Decline in Arctic and Sub-Arctic Sea Ice

Smithsonian Archives' Women in Science Wednesday: http://siarchives.si.edu/blog/tag/women-science-wednesday (women & science)

Every Wednesday, Smithsonian Archives publishes a blog post with a short, photographic profile of a groundbreaking woman scientist from the past, from all around the world. *Use blog posts as they are published either as handouts for American Spaces visitors or as part of a web/blog series, for American Spaces visitors to respond with their thoughts. Some recommended posts include:*

- Chien-Shiung Wu, physicist
- Florence Rena Sabin, anatomist/medical researcher
- Jane Stafford, medical writer
- Catherine Macfarlane, gynecologist
- Mildred Clare Scoville, mental health specialist

Lessons and activities

A Green City: Past, Present, and Future: http://dx.cooperhewitt.org/lessonplan/mobility-a-green-city-past-present-and-future/ (green building)

This activity from the Cooper-Hewitt, National Design Museum explores historical perspectives of city development and planning alongside an analysis of transportation systems past and present. Users are encouraged to reflect on designs from the past and create new designs for the future, and use design thinking strategies to creatively problem solve and communicate new ideas for the future of transportation in city settings. *Use this activity guide (which includes a list of materials for hands-on programming) and vocabulary list to host a discussion and design lab on the effects of transportation on the environment and how cities can be made greener. "Making it Local" section provides framework for activities and discussion on sustainable urban planning in your community.*

Energy Efficient Chemical House: http://dx.cooperhewitt.org/lessonplan/the-energy-efficient-chemical-house/ (green building, innovation)

This activity from the Cooper- Hewitt, National Design Museum challenges users to design a house that can effectively heat and cool itself using only one heat source and one cooling source. *Use this lesson plan to host a creative, hands-on workshop in which participants design an energy efficient chemical house. Consider working with a local engineer to facilitate the activity.*

Using What's Local: Native Materials, Local Sources: http://dx.cooperhewitt.org/lessonplan/materialsusing-whats-local-native-materials-local-sources/ (green building)

This activity from the Cooper-Hewitt, National Design Museum explores design strategies that harness local and native materials, by looking at past civilizations around the world. Included is a design challenge to develop an infrastructure model from local materials. *Use this lesson plan to host a workshop or discussion series on the reuse of recycled materials and use of local materials in the construction of buildings. If hosting a discussion series, it might begin with looking at the innovative strategies of reuse in select civilizations of the*

past, and eventually evolve to look at examples of reuse in contemporary societies (see "Design Other 90" link below). Consider working with a local architect or engineer to facilitate this activity.

Water, Water, Everywhere:
http://nationalzoo.si.edu/Animals/ReptilesAmphibians/Exhibit/Topics/water_quality.cfm (oceans & waterways)

This website from the National Zoo features four tests that anyone can do to monitor the conditions of local waterways, particularly in ensuring that the wildlife in those waterways are not being affected by pollution. *Use this as a handout for American Spaces visitors, or as a public challenge for visitors to report/document the results of their tests.*

Online exhibitions

Coral Reef Interactive: http://www.mnh.si.edu/exhibits/ocean_hall/reef_interactive/reef_interactive.html (ecosystems)

In this interactive from the National Museum of Natural History, users can choose different personas (hotel manager, tourist, local resident) to explore decisions for how to care for a local coral reef, taking into account a number of competing factors. *Use this interactive to engage individual visitors on themes of climate change and conservation, or with groups to facilitate a discussion on how different types of people can take action to conserve coral reefs and surrounding habitats.*

Portraits of the Ocean: Photographs of Brian Skerry: http://ocean.si.edu/brian-skerry (oceans & waterways)
https://www.flickr.com/groups/portraitsofplanetocean/

In this exhibition, award-winning photojournalist Brian Skerry creates an underwater journey to explore the mystery and beauty of marine life and environments. *Consider using photographs featured in the exhibition as images that can be posted around an American Space, with activities in which visitors write down their descriptions/captions of the photographs in English. The associated Flickr page is a place where anyone around the world can contribute ocean photos—use this as a challenge for visitors to document their local environment.*

5 Simple Things You Can Do For the Ocean: http://ocean.si.edu/ocean-news/5-simple-things-you-can-do-ocean (oceans & waterways)

Website from the National Museum of Natural History on what simple actions you can take to be a steward of the ocean. *Print this guide as a handout for American Spaces visitors, or use it as a framework for a participatory exercise/graphic where visitors can document what they have done to fight climate change.*

Take Action Against Climate Change: http://ecosystems.serc.si.edu/take-action/ (general)

This climate change guide from the Smithsonian Environmental Research Center lists tangible steps to fight climate change; stop invasive species; reduce pollution in your community. *Print this guide as a handout for*

American Spaces visitors, or use it as a framework for a participatory exercise/graphic where visitors can document what they have done to fight climate change. Spaces could create a visitor challenge with presentations and/or prizes, such as having visitors calculate and compare their nitrogen footprint.

Prehistoric Climate Change and Why It Matters Today:
http://smithsonianeducation.org/idealabs/prehistoric_climate_change/index.htm (wildlife)

This interactive from National Museum of Natural History explores the history of climate change and how it continues to impact us today. Users complete an exercise where they compare and identify leaf imprints in fossils to reach conclusions about climate change over time. *Use this interactive to engage individual visitors on themes of climate change and conservation, or with groups to facilitate a discussion on what career paths can be pursued to fight climate change.*

Here, There, Everywhere: http://hte.si.edu/own.html (STEM, general)

This online exhibition from the Smithsonian Astrophysics Observatory uses analogies to teach topics in science, engineering, and technology. Topics cover a wide range: light, electricity, wind, atoms, etc. *"Make Your Own Exhibit" section allows you to print high resolution images to recreate your own exhibit in American Spaces on the topics of science, engineering, and technology. There is also a selection of videos that could be used for an ongoing public program focused on science. Recommended videos include "Seeding the Environment" and "The Shape of Speed." A robust Activities section also provides ideas for possible hands-on programming.*

Webcasts

National Air and Space Museum Webcasts: http://airandspace.si.edu/events/webcasts.cfm (atmosphere & space)

Various webcasts from famed astronauts, engineers, astrophysicists on topic of space, flight, engineering, and more. *Use these webcasts to host an ongoing public program focused on breakthroughs in science, with the webcasts providing the basis for discussion each time. Recommended webcasts include:*

- Red Bull Stratos: Mission to the Edge of Space
- Living and Working in Space: Conducting Solar Observations from Skylab
- Meet the New Astronaut Class
- Sally Ride: How Her Historic Space Mission Opened Doors for Women in Science

Climate Change Online Conference:
https://squirrel.adobeconnect.com/_a751959191/p49326658/?launcher=false&fcsContent=true&pbMode=normal (wildlife)

Online conference video (total time: 53 min) from the Smithsonian Center for Learning and Digital Access & the National Zoo on the impact of climate change on wildlife and the measures that can be taken to reduce human impact and carbon footprint. *Individual visitors to American Spaces might wish to listen to these webcasts and then contribute their own ideas on what they can do to reduce their impact on wildlife.*

Inventing Our Way Out of Climate Change:
https://squirrel.adobeconnect.com/_a751959191/p81079294/?launcher=false&fcsContent=true&pbMode=normal (general)

Online conference video (total time: 53 min) from Smithsonian Center for Learning and Digital Access and National Museum of American History on climate change and how inventions can be a way for young people to take action. *Use this webcast as the basis for a larger discussion on ideas for how actions to protect the environment can be taken at a local level.*

Posters and images

Earth From Space: http://www.sites.si.edu/exhibitions/exhibits/earth/main.htm (atmosphere & space)

40 detailed satellite images of the planet, illustrates how satellite imagery is gathered and used to expand mankind's understanding of life on Earth.

Green Revolution: http://www.sites.si.edu/greenRevolution/index.htm (general)

Fully digital exhibition to build their own "eco-zibit." Includes access to a robust website to download exhibition design files, graphics, fabrication plans.