Connecting Teachers to Climate Change using Science on a Sphere

Michael Trumbower- School Programs Coordinator
The Wild Center, Tupper Lake, NY
Climate Program Values

- Action Oriented
- Solutions Focused
- Youth Driven
- Hopeful
- Place Based
Engaging with Science on a Sphere
Visual Thinking Strategies
Teacher Climate Institute

Get hands-on with exploration of climate change across curriculum

Collaborate with other educators

Experience and take home ready-to-teach lessons that support interdisciplinary learning and New York State Science Learning Standards

FREE Professional Development Event!

October 19, 2018

Located at The Wild Center, 45 Museum Drive, Tupper Lake, NY. 8:00am-3:00pm.

To register, visit www.fehb.org and click the My Learning Plan icon

For questions contact Michael Trumbower, School Programs Coordinator: mtrumbower@wildcenter.org, (518) 359-7800 x112
The Wild Center’s Teacher Climate Institute
Climate Resiliency: Empowering Students Across Curriculum
Hosted by The Wild Center, Tupper Lake, NY
October 19, 2018

Agenda
8:00 – Arrival at The Wild Center

8:15-8:30 - Welcome & Introduction
   Presented by Michael Trumbower, and Erin Griffin, The Wild Center

8:30-9:15: Understanding Climate Change in The North Country with Science on a Sphere
   Presented by Michael Trumbower, The Wild Center

9:15-10:45: Connecting with Climate Change
   - Circle of Commonalities, UN Sustainable Development Goals
     Presented by Erin Griffin, The Wild Center

10:45-11:00: Break

11:00-12:00: Diving into the Data
   - Climate Generations Grades 6-8 Curriculum - Lessons 1+2 – Human Impacts and Reading Graphs
     Presented by Nicole Morin and Michael Trumbower, The Wild Center

12:00-1:00: Lunch

1:00-2:30: Sustainability & Climate Solutions
   Green Technology Tour by Nick Corcoran
   Sustainable School Activity presented by Michael Trumbower, The Wild Center

2:30-3:00: Discussion & Wrap-Up
   - Reflection on how to best implement changes in their curriculum
   - Post-Surveys
     Facilitated by Michael Trumbower, The Wild Center
Building Connections

Global SOS datasets → Resources that teachers can use in the classroom

- SOS Explorer (Lite)
- U.S. Climate Resilience Toolkit
- New York State Climate Change Change Clearinghouse
Meet the Challenges of a Changing Climate
Find information and tools to help you understand and address your climate risks.

LEARN HOW TO BUILD RESILIENCE ➤
SEE WHAT OTHERS ARE DOING ➤
USE THE CLIMATE EXPLORER ➤
TOUR THE TOOLKIT ➤
STEPS TO RESILIENCE

Use this framework to discover and document climate hazards, then develop workable solutions to lower climate-related risks. Watch the overview video or click any step to learn more.

1. Explore Hazards
2. Assess Vulnerability & Risks
3. Investigate Options
4. Prioritize & Plan
5. Take Action
Case Studies

Communities, businesses, and individuals are taking action to document their vulnerabilities and build resilience to climate-related impacts. Click dots on the map to preview case studies, or browse stories below the map. Use the drop-down menus above to find stories of interest. To expand your results, click the Clear Filters link.
Exploring Case Studies

1 - Break into Groups
2 - Send a representative to pick a town/state
3 - Pull out your phone and head to https://toolkit.climate.gov/
4 - Scroll down to Case Studies find your town/state
5 - Start Exploring!
Exploring Climate Resilience
Case Studies around the Nation

- Head to the US Climate Resilience Toolkit website and select the Case Studies option at the top of the page.
- Zoom in to locate your group's town or state.
- Take a look at what they are doing to build a more Resilient Community and reflect on your findings below.

<table>
<thead>
<tr>
<th>Climate Risk/Impact:</th>
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<tbody>
<tr>
<td>Town/State of Case Study:</td>
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<table>
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<tr>
<th>Who is working on the issue?</th>
<th>What is being done to address the issue and build Resilience?</th>
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What surprises/interests you in this project?

Can you see using any ideas from this in your community?
Solutions

What resiliency measures did you explore?
Did they surprise or inspire you in any way?
New York State Climate Smart Communities

WHAT WOULD A CLIMATE SMART COMMUNITY DO?

- **WILLIAMSON**: First NY municipality to power all its facilities with solar energy.
- **SYRACUSE**: Requires LEED Silver standards in public building construction/renovation.
- **Syracuse**: Gets clean power from 100kW wind turbine.
- **DEWITT**: Plans to reduce municipal greenhouse gas emissions by 25% by 2030.
- **CLIFTON PARK**: Capped its landfill with 3,000 solar panels.
- **WATERSLICE**: First NY municipality with curbside household organic waste composting.
- **KINGSTON**: A waterfront floating task force prepares community for rising sea levels.
- **BEDFORD**: Twenty low-emission fed vehicles and eight EV charging stations.
- **NORTH HEMPSTEAD**: LEED Platinum community center, with EV charging, solar, geothermal, and Nassau County's first "grey water" system.
- **ULSTER COUNTY**: Only NY county getting 100% of its electricity from renewable sources.
- **ORANGE COUNTY**: Tracks efficient lighting, heating, cooling, water fixtures and alternative fuel vehicles with energy management system.
- **MADISON COUNTY**: Sponsored NY's first Solarize campaigns.
- **SUFFOLK COUNTY**: Requires bicycle lanes as part of all new road construction.
- **ERIE COUNTY**: Employs an energy manager who maximizes efficient use of energy countywide.
- **GENEVA**: Comprehensive plan promotes renewable energy, pedestrian-friendly design and green-space conservation.
- **SKANEATELES**: Solar and geothermal additions to village hall create NY's first net zero energy municipal building.
MISSOURI

Missouri’s location in the interior of the North American continent exposes it to a climate with large ranges in temperature with hot, humid summers and cold winters. The lack of mountain barriers both to the north and to the south, and the state’s inland location away from the moderating effects of the oceans, allow it to be influenced by both cold Arctic air masses and warm, moist air masses from the Gulf of Mexico. Average annual temperatures across the state vary over a range of about 10°F from north to south. The year 2012 was the hottest on record, with an average annual temperature of 58.6°F, 4.1°F higher than the long-term average.

Since the beginning of the 20th century, temperatures in Missouri have risen approximately 0.5°F (Figure 1) and temperatures in the 2000s have been higher than any other historical period with the exception of the early 1930s Dust Bowl era. This warming has been concentrated in the winter and spring while average summer temperatures have not increased substantially in the state until the most recent 5 years, a feature characteristic of much of the Midwest (Figure 2). Due to extreme drought and poor land management practices, the summers of the 1930s remain the warmest on record. The recent summer warming has been characterized by much warmer nights (above “Dust Bowl” levels) while daytime highs have only increased a little. The state has also experienced a below average occurrence of extremely hot days (maximum temperature above 100°F) (Figure 3a). In addition to the overall trend of higher average temperatures, the state has experienced an above average number of very warm nights (minimum temperature above 75°F) (Figures 2 and 4). Since 1950, the annual number of these very warm nights has increased by about 2 days per decade at St. Louis Lambert Airport. Also, there is an upward trend in summer humidity since the mid-20th Century. The winter warming trend is reflected in a below average number of very cold nights (minimum temperature below 0°F) over the past 25 years (Figure 3b).
Resources

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NOAA Science on a Sphere  https://sos.noaa.gov/What_is_SOS/

Visualizing Change  http://vischange.org/

US Climate Resilience Toolkit  https://toolkit.climate.gov/

NYS Climate Smart Communities  https://climatesmart.ny.gov/

NOAA National Centers for Environmental Information | State Climate Summaries -  https://statesummaries.ncics.org/

LabX- Extreme Event Game  https://labx.org/