

Overview

For over 20 years My NASA Data (MND) has curated NASA Earth science data and provided the data to educators in engaging learner-centered resources. MND has recently featured story maps as an innovative way to engage students in NASA Earth data. A story map is a cloud-based lesson that engages the learner in interactive geospatial maps using NASA data, and other multimedia content, text, and tasks that can be seamlessly incorporated in classroom instruction. This immersive technology eliminates the need for the user to move among tricky interfaces to access and visualize Earth science data, and no special software is required to be downloaded. Each story map integrates data from different NASA satellite missions, retrieved from Distributed Active Archive Centers (DAACs). Story maps are organized by Earth system sphere and phenomena within each sphere and aligned to Next Generation Science Standards.

My NASA Data has produced 25 story map lesson plans related to the following Earth science phenomenon:



- Air Quality
- Hurricane Dynamics
- Urban Heat Island



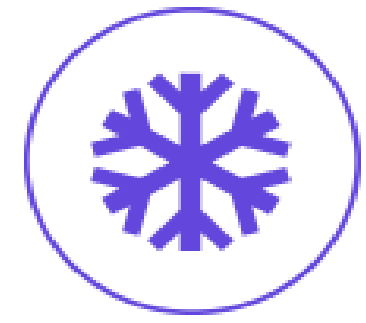
- Phytoplankton Distribution



- Plant Growth Patterns
- Volcanic Eruptions
- Ocean Circulation Patterns



- Albedo Values
- Sea and Land Ice Melt



- Snow and Ice Extent
- Earth's Energy Budget
- Solar Eclipse

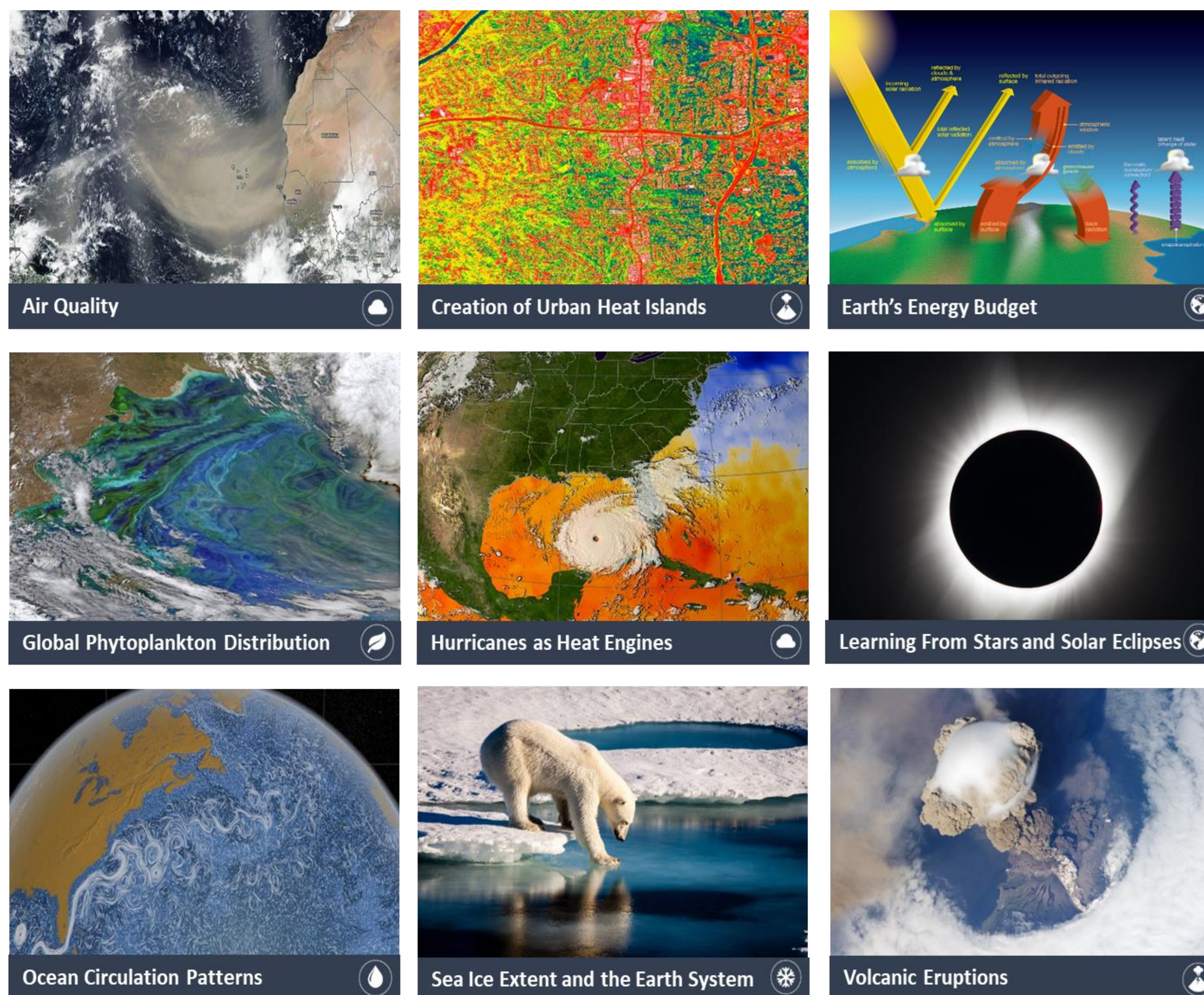


- Systems and System Models

Story Maps

About This Resource:

The MND story maps are written for middle and high school science teachers and students as they connect with the Earth systems science phenomena featured in the Next Generation Science Standards (NGSS). MND has produced 25 story map lesson plans on the topics of air quality, the urban heat island effect, Earth's energy budget, phytoplankton distribution, hurricane formation, solar eclipses, ocean circulation patterns, sea ice extent, and volcanic eruptions. Nine of them are extended story maps and written in the 5E format, which is an effective teaching framework.



<https://mynasadata.larc.nasa.gov/basic-page/5e-earth-system-story-map-collection-lesson-plans>

Two Types

5E Story Map

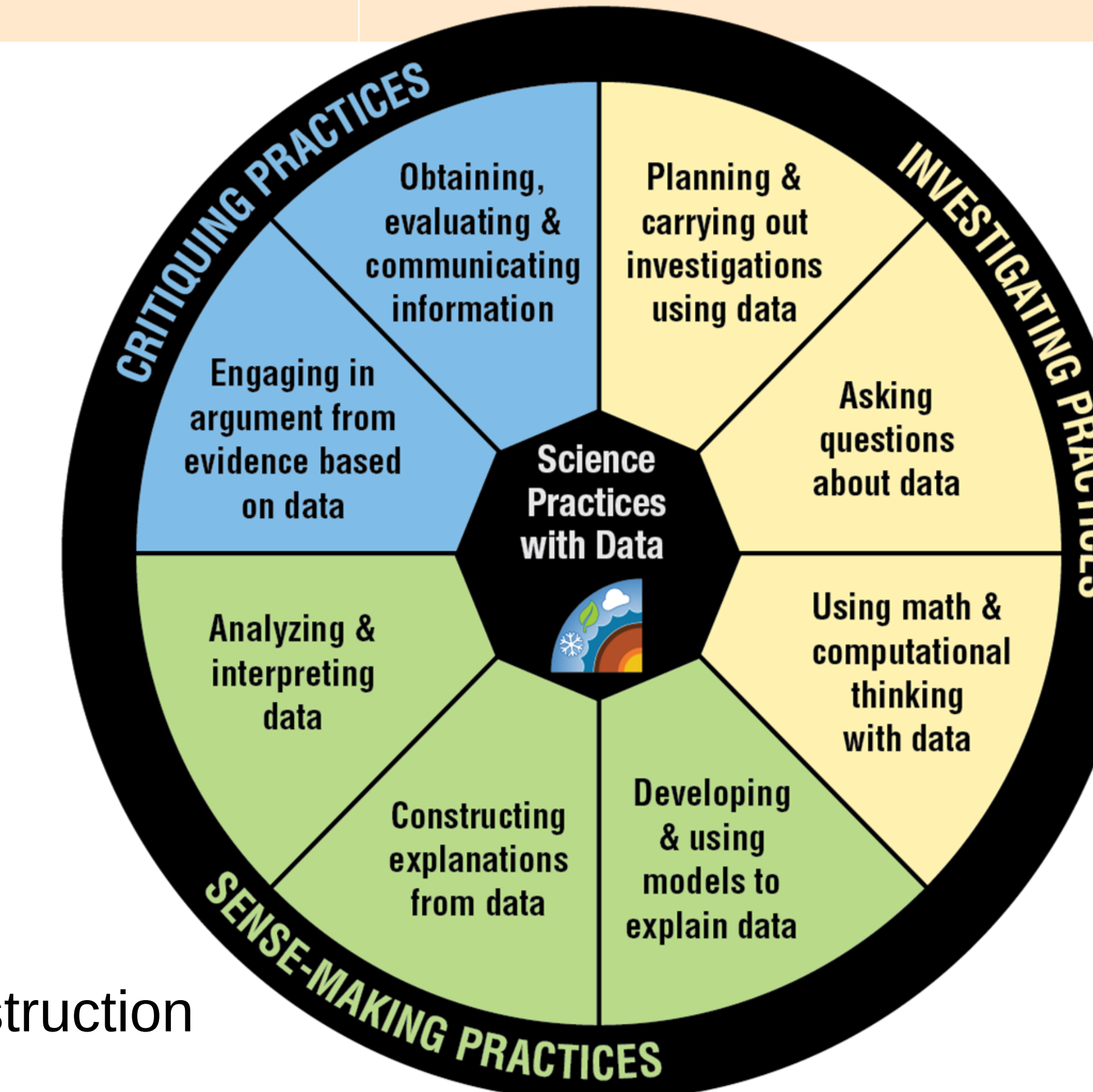
- 5E learning model
- Takes more than a class period to complete

Interactive

- Varies in length

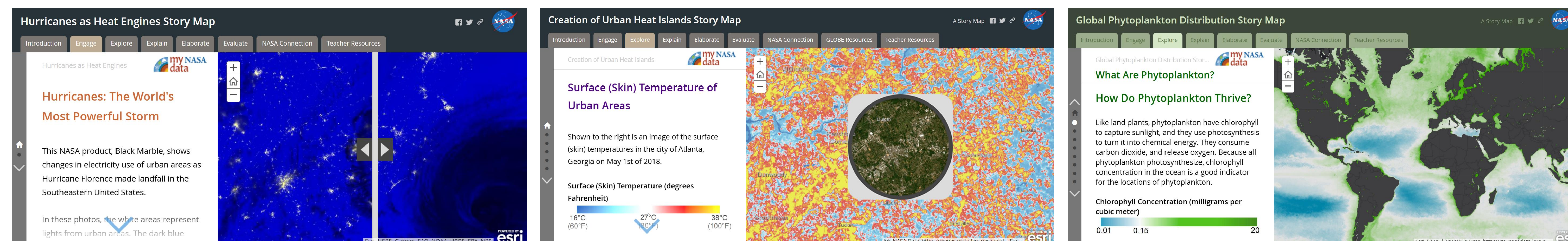
Features:

- NASA Earth science satellite data in various formats
 - Maps
 - Graphs
 - Tables
- NGSS aligned
- Data analysis tools
 - Sliders to compare variables
 - Time series
 - Interactive maps
- Resources for classroom use
- Teacher answer keys
- Supports in-person or virtual instruction



Format

- 1 Narrative Text**
Provides context and accompanies maps, data, and multimedia content, guiding users through the material.
- 2 Lesson Questions**
Integrated throughout the Story Map to assess student understanding and engagement.
- 3 Interactive Map**
Serves as a dynamic tool, often featuring multiple data layers for detailed exploration.
- 4 Analysis Tools**
Enables users to examine data changes across both space and time, fostering critical thinking and a deeper understanding of Earth system processes.



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Outcomes

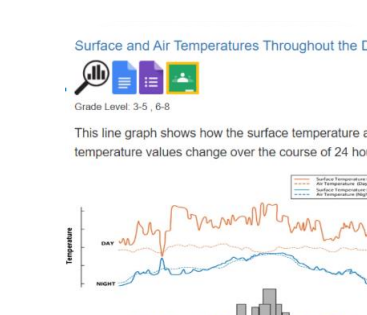
During Fiscal Year 2024, The My NASA Data website received over **175,000** story map views. These metrics highlight the interest in story maps as an Earth science educational resource.

Lessons Learned

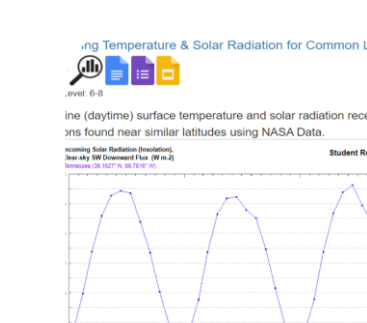
1. Utilize the interactive and visual elements
2. Align to education standards
3. Use common learning models
4. Provide authentic science experiences
5. Develop an implementation guide
6. Gather feedback and iterate
7. Provide resources of varying lengths

The My NASA Data team tests its story maps with educators, whose preferences help guide the product to completion. The team also gathers feedback from subject matter experts to ensure the context, content, and methods are scientifically and educationally sound.

Additional Resources



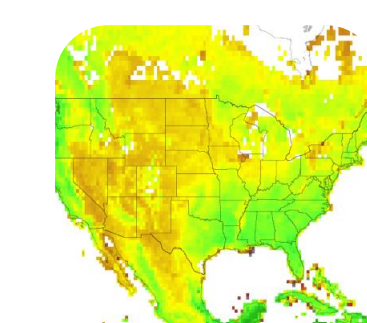
Mini Lessons
(Student Facing - Short)



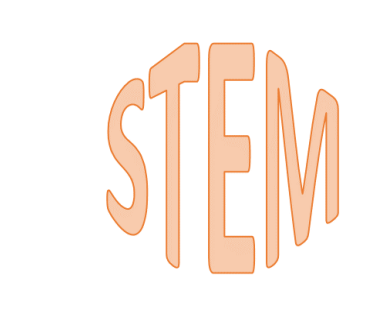
Lesson Plans
(Teacher Facing - Varied Length)



Data Literacy Cubes
(Differentiated Questions for Maps, Graphs, & Data)



Earth System Data Explorer
(Maps, Graphs, & Data - over 60 Datasets)



STEM Career Connections



GLOBE Connections