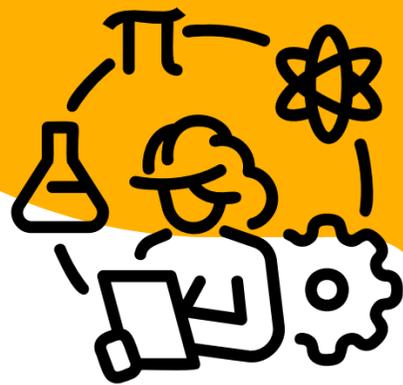


Using the 5E Model to Integrate NASA Resources in STEM Instruction



By Evonnia Smith

Link

Teachers
One-Stop-Shop



Using the 5E Model to Integrate NASA Resources in STEM Instruction

 **Watch the PD Session**
[Click to watch the recorded session or link](#)

 **Slide Deck (PDF)**
[View or download the slide deck](#)

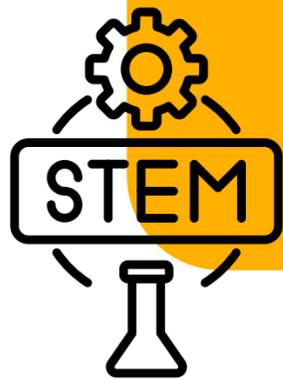
 **Complete the Post-PD Survey**
[Google Form – Feedback & Reflection](#)

 **Featured 5E Lesson: Sea Level & the Aral Sea**
[Open Lesson Plan – PDF](#)

 **NASA Resources Share in this PD**
[Eyes on the Earth](#)
[GEDI](#)
[Artemis](#)
[Citizen Science](#)
[NASA Climate Change](#)

Other Resources:
[The Wonder of Science](#)
[Growing Beyond Earth](#)
[Endeavor STEM Certificate](#)

Justification

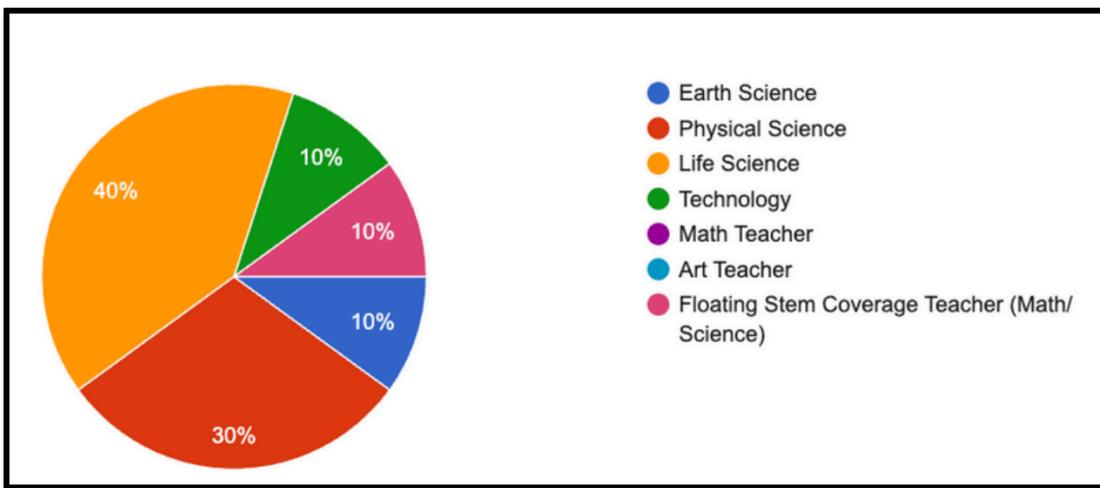


I selected this topic because the 5E instructional model naturally supports inquiry-based, student-centered learning. I wanted to help teachers see how NASA's high-quality resources—such as satellite data, citizen science platforms, and engineering design challenges—can be seamlessly integrated into this model to boost engagement and deepen student understanding in STEM.

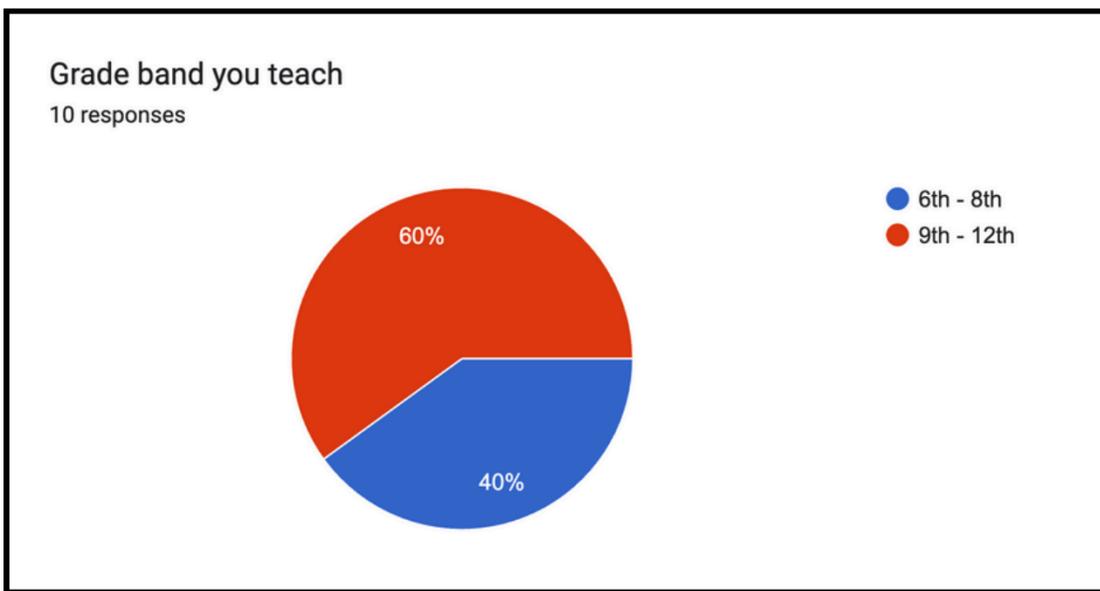
Teachers often seek ways to bring authentic scientific experiences into the classroom. By anchoring lessons around real-world phenomena using the 5E model and NASA tools, educators can help students develop critical thinking skills and a genuine curiosity about Earth and Space Science, and other disciplines.



● **Audience:** Middle and High School Science Teachers



● **Expected Participants:** 10–15 educators



Brief Summary



Educators engaged in this professional development through a **flexible delivery model**, either by attending a virtual recorded presentation or independently reviewing curated resources. The session centered around building familiarity with the **5E instructional model** and how to embed NASA data and tools into inquiry-based science lessons.

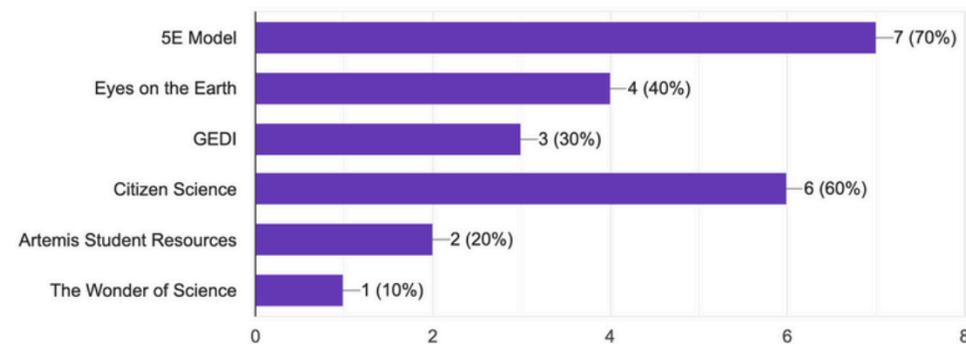
What We Did:

- Teachers were introduced to the 5E model framework and how it supports three-dimensional learning, connecting scientific practices with content and crosscutting concepts.
- They explored a curated set of **NASA resources**—including My NASA Data, Eyes on the Earth, and engineering challenges—designed to enhance each phase of the 5E model.
- Participants reviewed an example lesson I created during the **STEM Method course I** completed through the Endeavor STEM Teaching Certificate Program. This lesson featured NASA datasets and guided inquiry aligned with NGSS.
- After reviewing these examples, educators were given time to use one or more NASA resources to create an on-demand lesson, applying the strategies they had just learned.
- The session also included an introduction to the Endeavor Program itself, where participants were invited to explore the structure, course offerings, and STEM integration strategies provided by Endeavor.

Feedback

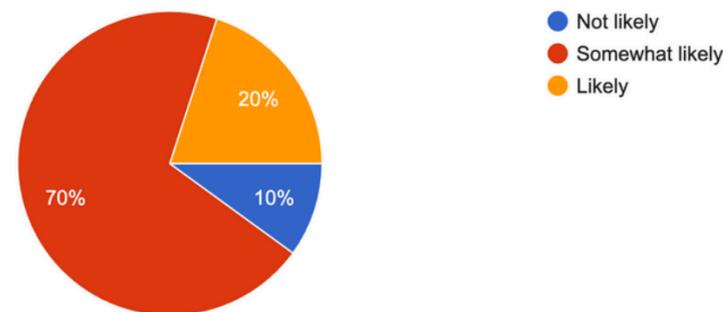
Which NASA resource(s) are you most excited to try in your classroom?

10 responses



How likely are you to apply the 5E model in your upcoming units?

10 responses



Impact on Understanding Inquiry-Based STEM

- **70%** said the 5E + NASA tools enhanced their understanding of inquiry-based STEM instruction.
- Teachers noted how the tools supported exploration-first thinking and deeper inquiry.

notes

Most Valuable Parts

- ✓ 5E Model Overview
- ✓ Sample Lessons
- ✓ NASA Resource Links
- ✓ Wonder of Science site
- ✓ Access to My NASA Data
- ✓ Sea Level Activity

Application Intent

- **70%** of participants said they were somewhat likely to apply the 5E model in upcoming units.
- **20%** said they were likely to use it.
- **10%** marked "not likely," possibly indicating the need for more structured planning time.

Feedback

🔧 Suggestions for Improvement

- Include a living list of resources
- Offer more subject-specific extensions
- Consider in-person versions with added Q&A time
- Schedule earlier in the year to support planning
- More time to explore resources and discuss as a group.

Notes

Follow-Up Potential

- 50% would like to receive follow-up materials or future PD



"I loved the Wonder of Science site! Great to see it paired with NASA tools."

Clear breakdown of the 5E model

"This helped me rethink how I use the 'Explain' phase to tie in NGSS and evidence-based reasoning."

"Through these tools, I engaged students in authentic environmental investigations. This deepens my teaching and their analysis."



"I finally see how the 5E model can be used with real data—not just worksheets."

Breaking the scientific model into 5 steps makes it easier for me and my students to learn."

"Exploration before explanation—this flipped my approach to inquiry."

"The NASA connections are so authentic. My students would be really interested in this!"

Professional learning isn't just about what we know – it's about how we grow together to inspire the next generation of thinkers and change-makers.

Evonnia Smith