National Aeronautics and
Space Administration

INSPIRE - ENGAGE - EDUCATE - EMPLOY

The Next Generation of Explorers

NAC Recommendation
NASA's Role in Sparking STEM Interest

May 2, 2019

NAC Recommendation #2: Spark that Leads to Engagement

- **Recommendation #2**: The Office of STEM Engagement should create a deep and comprehensive document that describes what we know about sparking student interest (spark), STEM engagement, and motivation, and use it to create the foundational evidence for the Office.

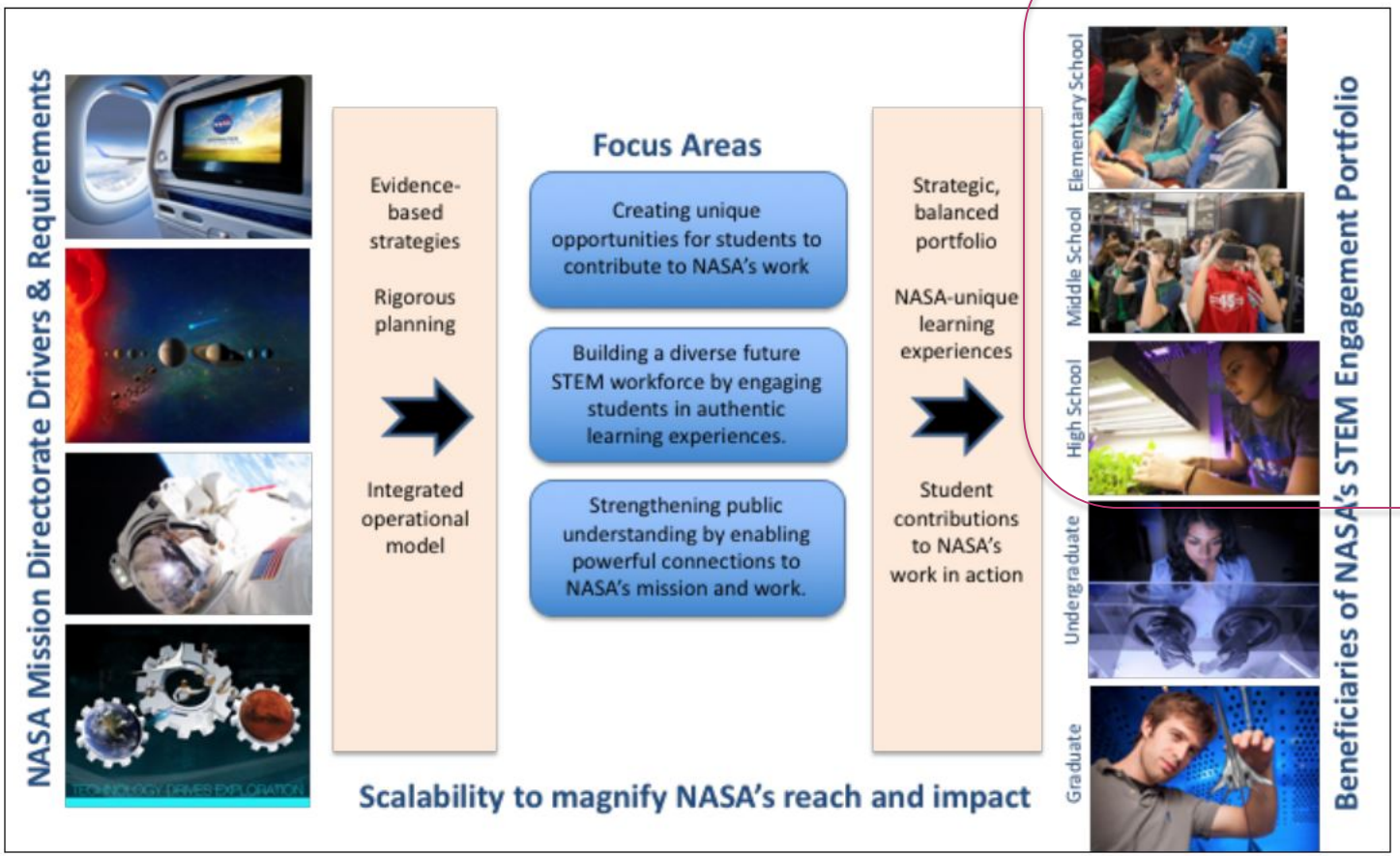
- **Major Reasons for the Recommendation:** NASA is uniquely positioned to inspire and motivate the country with their work. As good stewards of a limited budget, NASA strives to maximize its investments. If NASA could better understand spark, STEM engagement, and motivation, it could be more effective—basing investment decisions on evidence of what works. The Committee feels there is sufficient ambiguity in the field about spark, STEM engagement, and motivation that the Agency should invest in a deeper review of the evidence-based strategies and practices that promote spark, STEM engagement, and motivation.

- **Consequences of No Action on the Recommendation:** Lack of action on this recommendation relegates NASA to using secondary indicators of effectiveness, and could lead to less effective investment decisions. NASA will have limited impact, and will be at greater risk of duplication of ineffective activities.

NAC Recommendation #2: Spark that Leads to Engagement

NAC Recommendation #2	Proposed Approach	Utility
Create a deep and comprehensive document that describes what is known about: • Sparking student interest, • STEM engagement, and • Motivation.	• Engage a panel of nationally recognized STEM education subject matter experts (SME) to develop recommendations for NASA's continued success in STEM engagement. • Convene a Sparking STEM Interest Forum with SMEs at NASA HQ to discuss and prioritize recommendations. • Create a report of STEM education SME findings, recommendations, and next steps for continuing the line of research.	The report will provide foundational evidence that will be used to inform: • NASA's portfolio of STEM Engagement investments and • The design, execution, and performance measurement of NASA's STEM Engagement activities.

OSTEM Portfolio



Sparking student interest,

STEM engagement, and

Motivation

Draft Questions

NAC Recommendation #2

Create a deep and comprehensive document that describes what is known about:

- **Sparking student interest,**
- **STEM engagement, and**
- **Motivation.**

What should NASA do to find success in STEM Engagement?

1. What is the appropriate role in sparking STEM interest for NASA that is unique from other federal agencies? In sustaining STEM interest? In developing and sustaining students' intrinsic motivation to persist in STEM academic and career pursuits?
    - What research-based effective strategies should NASA incorporate into the design and execution of STEM engagement activities to spark STEM interest in diverse student populations, specifically groups traditionally underserved or underrepresented in STEM fields? To sustain STEM interest? To develop and sustain students' intrinsic motivation to persist in STEM academic and career pursuits?
2. To what extent are NASA's goals and priorities for STEM engagement designed to support sparking STEM interest? Sustaining STEM interest? Developing and sustaining students' intrinsic motivation to persist in STEM academic and career pursuits?
3. To what extent is the NASA STEM Engagement Strategy an effective document to guide the design and execution of activities that will spark STEM interest? Sustain STEM interest? Developing and sustaining students' intrinsic motivation to persist in STEM academic and career pursuits?

Phase One Key Milestones

Timeline	Phase One Key Milestones
April 2019	• STEM Education SME's identified
May 2019	• Orientation webinar for STEM Education SMEs • STEM Education SMEs generate abstracts and research prospectus document
June 2019	• STEM Education SME's finalize abstracts and research prospectus • PAEIM Team develops workshop agenda and structure • PAEIM Team completes logistics and travel for staff and STEM Education SMEs for workshop
July 2019	• Convene STEM Education SME workshop at NASA HQ • PAEIM Team generates report of workshop findings
August 2019	• PAEIM Team finalizes report of workshop findings