

NSF TOWN HALL



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NSF Directorate for Education & Human Resources Division Overview

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**Directorate for
Education &
Human
Resources
(EHR)**

Division of Research on Learning in
Formal & Informal Settings (DRL)

Division of Undergraduate
Education (DUE)

Division of Graduate Education
(DGE)

Division of Human Resource
Development (HRD)

Division of Research on learning

Discovery Research K-12

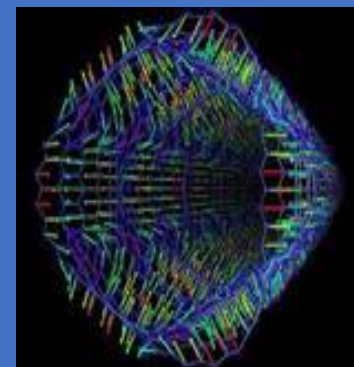
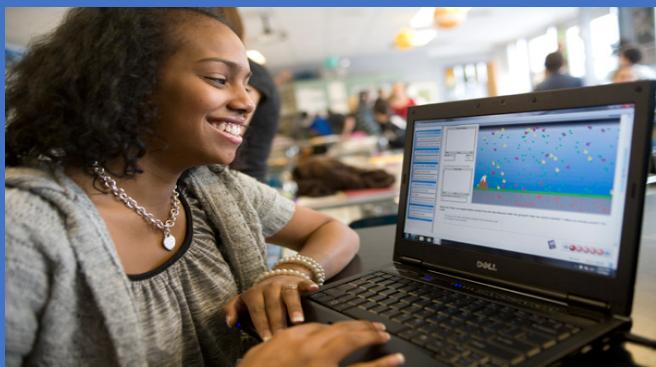
Advancing Informal STEM Learning

STEM+C and CSforAll

ITEST

Cyberlearning, ECR; CAREER

NSF's 10 Big Ideas



NSF INCLUDES

- NSF has funded 67 launch pilots
 - STEM engagement and preparatory experiences for students and other community members
 - Educator training
 - New academic programs that expand access to STEM education
- Multi-year NSF INCLUDES alliances will
 - Engage partners from private and corporate philanthropy, federal agencies and scientific professional societies
 - Structure will provide a networked testbed for research on STEM inclusion
 - Developments from NSF INCLUDES will inform other possible ways through which NSF programs can integrate an inclusion and diversity mindset
- NSF INCLUDES goes beyond NSF



Future of Work at the Human-Technology Frontier

- Understanding how constantly evolving technologies are actively shaping the lives of workers and how people in turn can shape those technologies
- Conduct basic scientific research on the interaction of humans, society, and technology
 - Help shape the future of work to increase opportunities for workers and productivity for the American economy
- Four research themes:
 1. Building the human-technology partnership
 2. Augmenting human performance
 3. Illuminating the socio-technological landscape
 4. Fostering lifelong learning.



Growing Convergence Research

- The grand challenges of today will not be solved by one discipline alone
 - protecting human health
 - understanding the food, energy, water nexus
 - exploring the universe at all scales
- They require convergence: the merging of ideas, approaches and technologies from widely diverse fields of knowledge
- Convergence builds and supports creative partnerships and the creative thinking needed to address complex problems.



Convergence Accelerator Pilot

What is a convergence accelerator?

- A new effort at NSF to accelerate use-inspired convergent research directed at solutions for important national challenges.
- Multi-disciplinary teams including academic and non-academic partners conduct work in phases, with approximately 50 Pilot Phase 1 awards up to \$1 million, then a smaller number of Pilot Phase 2 awards up to \$5 million.

Tracks

- Track A1: Open Knowledge Network
- Track B1: AI & Future Jobs
- Track B2: National Talent Ecosystem

Mid-scale Research Infrastructure

- Funding experimental research capabilities in the mid-scale range
 - Total cost between \$6 million & \$70 million
- The National Science Foundation's science and engineering activities rely increasingly on infrastructure that is diverse in space, cost and implementation time -- everything from major observatories to nationwide sensor networks to smaller experiments
- This gap results in missed opportunities that leave essential science and education undone
- What would be midscale research in education?



NSF's Big Ideas Continued...

▪ **Harnessing the Data Revolution**

- Engaging NSF's research community in the pursuit of fundamental research in data science and engineering, the development of a cohesive, federated, national-scale approach to research data infrastructure, and the development of a 21st-century data-capable workforce.
- There are three principal components of the Harnessing the Data Revolution big idea:
 - Research - across all NSF Directorates
 - Educational pathways - Innovations grounded in an education-research-based framework
 - Advanced cyberinfrastructure - accelerating data-intensive research.

▪ **Navigating the New Arctic**

- Establishing an observing network of mobile and fixed platforms and tools across the Arctic to document and understand the Arctic's rapid biological, physical, chemical, and social changes.
- Arctic change will fundamentally alter climate, weather and ecosystems globally in ways that we do not yet understand but that will have profound impacts on the world's economy and security.

NSF's Big Ideas Continued...

- **Quantum Leap**

- Exploiting quantum mechanics to observe, manipulate, and control the behavior of particles and energy at atomic and subatomic scales, resulting in next-generation technologies for sensing, computing, modeling, and communicating.
- Many of today's technologies -- lasers, computers, GPS and LEDs among them -- rely on the interaction of matter and energy at extremely small and discrete dimensions. By exploiting interactions of these quantum systems, next-generation technologies for sensing, computing, modeling and communicating will be more accurate and efficient.
- There will be strong connections to industry, federal agencies and international partners.

- **Understanding the Rules of Life**

- To enable discoveries that will allow us to better understand such interactions and identify causal, predictive relationships across these scales -- so-called "rules" for how life functions
- To develop research tools and infrastructure
 - To further Rules of Life research
 - And to provide us with the capacity to approach more complex questions than ever before
- To train the next generation of researchers to approach scientific inquiry in a way that crosses scales and scientific disciplines
- And to foster collaboration and convergent research across the Foundation and beyond by helping us to consider multiple levels of organization and complexity in addressing key questions in the life sciences.

- **Windows on the Universe**

- Using powerful new syntheses of observational approaches to provide unique insights into the nature and behavior of matter and energy and help to answer some of the most profound questions before humankind.

NSF 2026

- Investing in bold foundational research questions that are large in scope, innovative in character, originate outside of any particular directorate, and require a long-term commitment. This Big Idea is framed around the year 2026 in order to tie into the Nation's 250th anniversary
- 800 submissions; 100 videos;
- 33 finalists
 - STEM Teaching and learning Incubator
 - Human vs AI Gamers helping Scientists
 - Harnessing the Human Diversity of the Mind
 - Reinventing Scientific Talen
 - Appear EDU –integrate technology into education
 - Why Not Me: STEM Diversity Drivers
 - Integrated Human-Machine Intelligence
- Public Comment Phase: nsf2026imgallery.skild.com





Questions?

10 Big Ideas video link:

https://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=81537

EHR

DIRECTORATE FOR
EDUCATION & HUMAN RESOURCES



*National
Science
Foundation*

ITEST Town Hall

Moderators:

Elizabeth VanderPutten, Acting Division Director of the Division of Research on Learning

Amy Wilson-Lopez & Alejandra Sorto, ITEST Program Directors

- As you reflect on the themes presented at this conference, please
 - Share any **insights, tensions, wonderings, questions, take-aways**, or **ideas** for where to go from here.
 - Constructively **respond** or **react** to others' ideas.
 - NSF moderators will **respond** where appropriate and will provide **closing reflections** on the conversation.