NSF 2026

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request
IA	-	-	$6.50

Overview

NSF 2026 is dedicated to growing and supporting new activities that set the stage for foundational, breakthrough discoveries and innovations in STEM and STEM education in anticipation of the Nation's 250th anniversary in 2026.

The overall objective of NSF 2026 is to provide a mechanism for identifying long-term (10 years or more), forward-looking agency initiatives in a systematic fashion and then funding their exploration. It will engage a variety of STEM research and education stakeholders and the general public in thoughtfully designed exercises to identify challenges requiring long-term support. It intends to reach beyond single disciplines, directorates, or priority areas and allow for a strategic, agency-level view of science and engineering horizons.

NSF 2026 aims to improve NSF's current process for identifying research areas for long-term investment. While program development occurs throughout NSF, it usually happens at the directorate or division level. Moreover, cross-cutting programs are typically developed on yearly budget cycles, which may limit vision and scope. NSF 2026, one of NSF's 10 Big Ideas, intends to transcend established scientific structures and go beyond standard operating procedures to ensure continuous exploration at the frontiers of discovery and innovation.

NSF 2026 began in FY 2018 with the launch of the first NSF 2026 Idea Machine,[1] which continues into FY 2019. An Idea Machine is a prize competition that invites a broad swath of stakeholders in the science, engineering, and STEM education research enterprise to identify some of the grand challenges for future, long-term investment by NSF, (e.g., to identify the next set of Big Ideas, themes for existing center-scale programs, or other new initiatives). Specifically, NSF is calling on science, engineering, and STEM education researchers from academia, industry, and non-profit organizations, teachers (who are encouraged to enter on behalf of their high school classes), and the public, more broadly, to enter the contest. The most promising entries (narratives and videos) will be posted for public comment and judged by panels of STEM experts from multiple stakeholder groups. The winning ideas will: (1) have the potential for significant scientific and societal impact; (2) can generate a great deal of excitement among judges and the public; and (3) be ambitious, original, timely, and beyond the scope of current and planned NSF activities. The winning entries will be awarded cash prizes and public recognition when the competition ends in fall 2019.

The name "NSF 2026" recognizes and celebrates the Nation's 250th anniversary; however, NSF anticipates that the procedures and policies resulting from this effort will contribute to the development of NSF's long-term investment strategies well beyond 2026. If successful, NSF 2026 will identify STEM research and education initiatives necessary to address the novel scientific and engineering challenges the Nation will face in 2026 and beyond. In addition, the activity will surface the best ways of eliciting the most forward-looking ideas and of supporting discoveries and discoverers over the next decade to sustain America's leadership in the science and engineering enterprise.

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[1] www.nsf.gov/news/special_reports/nsf2026ideamachine/index.jsp

Goals

<u>Overarching Goal</u>: By enabling a broad consensus with respect to major initiatives that require and deserve long-term support, NSF 2026 will effectively bolster NSF's global leadership in fundamental science and engineering research and education, enabling discovery and innovation of unprecedented scale and impact.

The goals of the NSF 2026 Big Idea are:
1. Continue to evolve the Foundation's portfolio of major, long-term investment areas by exploring the winning ideas identified by the NSF 2026 Idea Machine.
2. Refine NSF's procedures for identifying future (FY 2021 through FY 2030) investments, including using novel and existing mechanisms to engage the broader community, such as the Idea Machine, Ideas Labs, and other forms of prize challenges and crowd sourcing. The frequency of these activities going forward will be informed by the outcome of the pilot run of the Idea Machine in FY 2018 and FY 2019.

FY 2020 Investments

<u>Specific Investment 1: Preparing the research community to explore the NSF 2026 Idea Machine winning ideas.</u>
In FY 2020, an investment of $5.50 million will support workshops, Research Coordination Networks (RCNs), and EArly-concept Grants for Exploratory Research (EAGERs), topically focused on the winning ideas identified by the 2018-2019 Idea Machine competition. These catalytic activities will support Goal 1, enabling NSF to refine the winning ideas identified by the Idea Machine. Subsequently, NSF will shape these winning ideas into actionable research themes that can be inserted into existing programs (e.g., Science and Technology Centers and NSF Research Traineeships) and/or into new, long-term NSF 2026 programs that will launch in FY 2021 and beyond. These activities will bring together researchers from multiple STEM disciplines to form collaborative teams, readying them to respond to the new NSF 2026 funding opportunities and tackle the grand challenges identified therein.

<u>Specific Investment 2: Analysis, evaluation, and implementation.</u>
An investment of $1.0 million will support the assessment of NSF's long-term research portfolio, the evaluation of the NSF 2026 Idea Machine and other processes that NSF uses to plan and develop its future long-term initiatives, and the incorporation of lessons learned into the design of the NSF 2026 activity. The assessment continues the work of tracking the evolving NSF portfolio and identifying gaps and opportunities, a critical exercise that will inform future long-term investment strategies at an agency-wide level. The evaluation will assess the success of the first Idea Machine, inform improvements to its design and execution, and support implementation of additional procedures to identify future investment priorities. Taken together, these activities will advance the Foundation's efforts to craft a flexible, sustainable, idea-generating process that can be tailored to meet particular needs and repeated as needed to ensure that NSF stays at the forefront of discovery and innovation. These activities support Goals 1 and 2.