Developing a K–12 STEM Education Indicator System

In 2011, the National Research Council (NRC) released *Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics*, which describes the components of successful science, technology, engineering, and mathematics (STEM) education (National Research Council [NRC] 2011). In response, Congress requested that the National Science Foundation (NSF) identify methods for tracking and evaluating the implementation of the components recommended by the NRC. An NRC-convened committee authored a second report that outlined 14 indicators of successful STEM education that could be monitored and tracked, including markers of students' access to quality learning, educators' capacity, and STEM policy and funding initiatives (NRC 2013). The report also addressed the need for research and data that could be used to measure progress on each indicator, noting that many of the indicators required new kinds of data collection, additional research, and conceptual development.

The STEM Indicators project has identified data sources that can be used for the indicators and other areas in which new data sources are needed (http://stemindicators.org/). New data sources include new questions on the National Teacher and Principal Survey of 2017–18, which will collect, for the first time, data on STEM school magnet programs, the amount of instructional time devoted to science, and teacher professional development in STEM topics. NSF has funded 15 research projects investigating valid and reliable measurement of the indicators and has initiated another grant cycle for additional research and development (http://stemindicators.org/stem-education-researchers/dclprojects/).