NSF Broader Impacts Themes

- **Advance discovery while promoting teaching, training, and learning.**
- **Broaden participation of underrepresented groups.**
- **Enhance research and education infrastructure.**
- **Broadly disseminate results to enhance understanding.**
- **Provide benefits to society.**

Examples:

Advance discovery while promoting teaching, training, and learning:

- Integrate research activities into the teaching of science, math and engineering at all educational levels (e.g., k-12, undergraduate science majors, non-science majors, and/or graduate students).
- Include students (e.g., k-12, undergraduate science & non-science majors, graduate students) as participants in the proposed activities.
- Participate in the recruitment, training, and/or professional development of k-12 teachers.
- Partner with educators to develop effective means of incorporating research into learning and education.
- Encourage student participation at meetings and activities of professional societies.
- Establish mentoring programs for high school students, undergrads, grad students, or postdocs.
- Involve grad students and postdocs in high school/community college/undergrad teaching activities.
- Develop, adopt, adapt, or disseminate effective models/ pedagogic approaches to STEM teaching.

Broaden participation of underrepresented & minority (URM) groups:

The NSF recognizes women, African-Americans, Hispanics, Native Americans, and Pacific Islanders as underrepresented in science, technology, engineering and mathematics.

- Establish research and education collaborations with URM students and/or faculty.
- Include URM students as participants in the proposed research/education activities.
- Establish collaborations with community colleges, colleges for women, historically black colleges & universities.
- Mentor early-career scientists and engineers who are from underrepresented groups.

- Participate in developing new approaches (e.g., use of information technology and connectivity) to engage underserved individuals, groups and communities.
- Participate in conferences, workshops and field activities where diversity is a priority.

Enhance research and education infrastructure:

- Establish collaborations between disciplines and institutions, industry, government, and international partners.
- Stimulate and support the development and dissemination of next-generation instrumentation, multi-user facilities, and other shared research and education platforms.
- Upgrade the computation and computing infrastructure, including advanced computing resources and new types of information tools (e.g., large databases, networks and associated systems, and digital libraries).
- Develop activities that ensure that multi-user facilities are sites of research and mentoring for large numbers of science and engineering students.

Broadly disseminate results:

- Partner with museums, nature centers, or science centers to develop exhibits, workshops, hands-on demos, etc.
- Involve the public or industry in research and education activities.
- Give presentations to the broader community (e.g., museums, libraries, festivals, science cafes, radio shows).
- Make data available in a timely manner by means of databases, digital libraries, or other venues.
- Publish in diverse media (e.g., non-technical literature, websites, blogs) to reach broad audiences.
- Present research and education results to policy-makers, members of Congress, and industry.
- Participate in multi- and interdisciplinary conferences, workshops, and research activities.
- Integrate research with education activities in order to communicate in a broader context.

Bring benefits to society:

- Demonstrate the linkage between discovery and societal benefit by providing specific examples and explanations regarding the potential application of research and education results.
- Partner with academic scientists, staff at federal agencies, and/or the private sector on both technological and scientific projects to integrate research into broader programs and activities of national interest.
- Analyze, interpret, and synthesize research and education results in formats useful for non-scientists.
- Provide information for policy formulation by federal, state and local agencies.