

Advancing Excellence in STEM Education

The Teacher is the Key

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EFFECTIVE TEACHERS



- * *Engage* students in hands-on, inquiry, and experiential learning that makes connections to previous learning and knowledge.
- * Know the subject matter well, and focus on *rigor, relevance, data, information, and action*.
- * Use technology for instructional and networking purposes.
- * Use a variety of assessment as an instructional and diagnostic tool rather than only an end.
- * Emphasize both knowledge, information, sequential, and data (*L-B*)- AND big picture, relationships, connections (*R-B*).

EFFECTIVE TEACHERS



- Are great *communicators* and collaborators.
- Are excited, enthusiastic, and passionate.
- *Inspire*, motivate, and mentor others.
- Are leaders and innovators who focus on bringing about a better future for ALL students.
- Are team players and decision makers who commit to high standards and expectations.
- Are visionary who continuously pursue opportunities for professional and personal growth.
- Cultivate a culture of commitment vs. compliance.

EFFECTIVE TEACHERS



- Use strategies to engage students through grouping, challenging work, tools, probing questions, enthusiasm.
- Believe effort is the key to student learning.
- Teach for meaning (adequate time, build concepts, concrete to abstract).
- Emphasize ‘doing’ by discussing, thinking, reflecting, sharing, gathering, analyzing, evaluating, defending, postulating, creating, solving, and other *21st Century skills*.

21st-Century Skills

Assessment and Teaching of 21st Century Skills (ATC21S)



More than 250 researchers across 60 institutions worldwide categorized 21st Century skills internationally into four broad categories:

- * **Ways of thinking** - Creativity, critical thinking, problem-solving, decision-making, and learning.
- * **Ways of working** - Communication and collaboration.
- * **Tools for working** - Information and Communications Technology (ICT) and information literacy.
- * **Skills for living in the world** - Citizenship, life and career, and personal and social responsibility.

What Knowledge, Skills, and Attitudes Do High School Graduates Need for Work and Life?



High School Graduates Need to have:

1. The ability to think critically and communicate effectively, both verbally and in writing.
2. Excellent interpersonal skills and are comfortable working in teams, in their own field and across disciplines.
3. Technical skills, the ability to learn new ones and apply them quickly.
4. Knowledge of the global environment and the cultural sensitivity required to operate in a global marketplace.

Daunting Statistics & A Challenge!



- * 30 % Victims (Inactive)
- * 50% Thrivers / Workers (Active)
- * 10% Dreamers (Highly active yet, nonproductive)
- * 10% Innovators / Leaders (Proactive)

Thank you!

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**Texas Regional Collaboratives for Excellence
in Science and Mathematics Teaching**

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