



Ready for 21st Century Careers

Making Sure Students Get the Science,
Technology, Engineering and Math Education
They'll Need to Succeed in the New Economy

A Note On Public Agenda's Choicework Guides

Public Agenda **Choicework Guides** support dialogue and deliberation on a wide variety of issues. They have been used in thousands of community conversations and classrooms, by journalists and researchers, and by individual citizens looking to gain perspective on public issues.

Each guide is organized around several alternative ways of thinking about an issue, each with its own set of values, priorities, pros, cons and tradeoffs. The different perspectives are drawn both from what the public thinks about an issue, based on surveys and focus groups, as well as what experts and leaders say about it in policy debates.

Customizing to fit your situation

Note that the Choicework Guides are meant to help people start thinking and talking about an issue in productive ways—they are not meant to rigidly restrict thinking or dialogue. The perspectives described are not the only ways of dealing with the problem, nor are the viewpoints mutually exclusive in every respect. Many people would mix and match from different perspectives, or add additional related ideas.

Additionally, users of these guides have the option of providing various kinds of nonpartisan information along with them as context for a conversation.

Public Agenda's Community Conversations Model

Public Agenda often uses these guides as discussion starters for community conversations as part of a larger program of community dialogue and action. Such conversations are frequently a solid first step toward new partnerships and initiatives.

Public Agenda's approach to community conversations involves several principles and guidelines that can be flexibly applied to different settings:

- Local, nonpartisan sponsors/organizers
- Diverse cross-section of participants, "beyond the usual suspects"
- Small, diverse dialogue groups with trained moderators and recorders
- Nonpartisan discussion materials that help citizens weigh alternatives (Choicework)
- Strategic follow-up to connect dialogue to action

If you would like to learn more about Public Agenda's approach to public engagement, or to see a full list of our **Choicework Guides** (including print, Spanish and video versions), please visit the Public Engagement section of our web site at www.publicagenda.org.

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Ready for 21st Century Careers:

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Introduction

Whether they're planning to attend a four-year university, a two-year degree program or enter an on-the-job training program, today's students will be living in a world of rapid technological change where more and more good jobs and promising careers will require a solid background in science, technology, engineering and math (STEM). From nursing to auto mechanics to marketing, workers will need a greater mastery of these subjects than ever before. Even many jobs that do not directly involve STEM will require the kinds of analytic skills that these subjects help students to develop.

A solid grasp of STEM subjects can also help students become more capable citizens, better able to understand important issues such as cloning, global warming and the latest economic trends.

Finally, higher achievement in math, engineering, technology and science is important to our region and to our country if we are to compete successfully in the new global economy.

Unfortunately, recent studies suggest that we are not doing a good enough job teaching STEM subjects to today's students. For example,

- Fewer than half of all high school graduates are prepared for basic college-level math.
- It is estimated that 60% of all new jobs in the 21st century will require the kinds of STEM skills that are possessed by only 20% of the current workforce.
- The U.S. ranked 24 out of 29 industrialized nations in an international standardized test of mathematics skills and knowledge.

How can we change these trends and make sure that all students who graduate from our high schools have the STEM education they'll need? To help you and your neighbors talk about this, we present three approaches to improving student achievement in STEM subjects. Among these choices there are probably some ideas you'll like and some you won't. The main point is that we can't do everything at once. We need to make choices and set priorities. Which ideas make the most sense to you—and why?

Approach A: Invest in Great Teachers

Skilled, enthusiastic teachers with deep knowledge of their subject area are the key to helping students master math, engineering, technology and science (STEM) subjects. Knowledgeable and inspiring teachers bring the material alive, fine tune it to the needs of different kinds of learners, and motivate them to work hard. Unfortunately, too many STEM teachers don't know their subject matter well enough to help students develop the background they'll need to succeed in college or job-training programs after high school.

Therefore, we should do things like:

- Raise salaries to attract and retain talented STEM teachers—even if it means paying them more than teachers in other subject areas
- Place the most experienced and capable STEM teachers in the toughest schools.
- Provide strong professional development in STEM subjects so that teachers can keep up with advances in their fields, and provide training to elementary school teachers—who may not be very strong in STEM subjects at all.
- Create better ways for teachers to communicate with parents by scheduling teacher/parent conferences at different times of day and by creating websites where teachers and parents can interact online.

People who like this approach say,

- “The human touch is what counts. You can't have great schools and motivated students without great teachers.”

But others say,

- “It's not realistic to expect every teacher to be a superstar.”

Approach B: Create Smart Accountability

The key to better results is demanding more of our teachers, students and schools through a strong and smart system of accountability. We need to know how well all of our students are doing, which of our teaching methods are really working, and how best to encourage the results that we want. By carefully assessing student achievement on a regular basis, and by putting on the right mix of incentives in place, we'll motivate everyone to try harder, work smarter and get the job done.

Therefore, we should do things like:

- Measure student progress regularly through a variety of well-crafted tests and assessments.
- Create incentives that reward or penalize school leaders based on student performance.
- Allow students to graduate from middle and high school only if they demonstrate that they've learned the coursework in core STEM subjects.
- Encourage families to expect high student achievement in STEM subjects.

People who like this approach say,

- “High expectations coupled with a smart system of assessment and accountability will motivate students to perform at high levels.”

But others say,

- “How do we know that tougher STEM graduation requirements won't just create more drop-outs rather than better-motivated student?”

Approach C: Implement a 21st Century Curriculum from Kindergarten through High School

Accountability doesn't mean much if we haven't decided what to teach. The real key to student success is developing an innovative, up-to-date, STEM curriculum that, beginning in elementary school, gets students excited and prepares them for the opportunities of today's world. Such a curriculum should be engaging, demanding and carefully focused on the essential knowledge and skills appropriate to each level of schooling. And as much as possible, it should be a common curriculum across schools and districts, as some other counties have, to help make sure all students are measuring the core concepts required for success after high school.

Therefore, we should do things like:

- Develop an innovative and challenging curriculum that gets kids very excited about STEM subjects early on in elementary school, and lays the foundation for success in later grades.
- Rather than trying to cover too much, concentrate on a select number of essential STEM areas each year, and lengthen the school year to ensure kids are mastering and retaining knowledge they'll need for success in the next grade.
- Implement curriculum as consistently as possible across classrooms, schools and districts so all students have the same opportunities.
- Create partnerships with businesses and colleagues so students see real-world applications and emerging career opportunities.

People who like this approach say,

- “We should start young with relevant, engaging, common curriculum designed to prepare all students for the real world.”

But others say,

- “An overly-detailed curriculum will stifle the creativity of teachers.”

Using this Guide in a Community Conversation, Discussion Group or Classroom Setting

After discussing the choices on the previous pages, you may wish to consider and talk through the following questions.

Summarizing a Choicework Conversation

These questions are a good way to summarize a Choicework dialogue, prior to considering more action-oriented questions.

1. In our conversation so far, have we discovered any common ground? What do we agree on or have in common?
2. What were our important areas of disagreement—the issues we may have to keep talking about in the future?
3. What are the questions and concerns that need more attention? Are there things we need more information about?

Bridging from Dialogue to Action

These questions can help you move from deliberation and dialogue about the issue at hand to actions that can help address the issue.

1. How can we work together to make a difference in our community on the issues we discussed today?
Note: if this question generates a long list of potential actions, they can be prioritized by asking each person to list his or her top three ideas
2. Is there anything that you, as individuals, might do, or do differently, as a result of today's conversation?
3. What would you like to see happen to follow up on today's conversation? What should the immediate follow-up steps be?

About Public Agenda

Public Agenda is a nonpartisan, nonprofit research and public engagement organization. We work to ensure that the public has the best possible conditions and opportunities to engage thoughtfully in public life and that decision-making by leaders is well-informed by people's values, ideas, and aspirations. Our programs aim to inform public policy, strengthen communities, and empower citizens.

Want to Learn More?

Want to find out more about Public Agenda's distinct approach to improving public life? Interested in connecting with other citizens to address critical issues? If so, you can check out our online community and sign up to find out about activities that bring people together to strengthen their communities. Email us at publicengagement@publicagenda.org. You can also keep in touch by becoming a fan on Facebook or by following us on Twitter @PublicAgenda.

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