Why It’s Time for **NEW** SCIENCE EDUCATION STANDARDS

Science education needs to keep pace with the changing world around us.

Our nation’s workforce needs people with STEM skills.

*2014-2024*

STEM employment is expected to grow faster than overall employment.

STEM jobs comprise 20% of all U.S. jobs.

We’ve made major advances in science and technology.

STEM majors earn $30K MORE than non-STEM majors over their lifetime.

Science knowledge has an impact on the daily lives of all Americans.

Students are not prepared for the future.

We know more about how students learn science.

Science and technology helps us fight disease, protect the environment, and find new energy sources.

In 2014 only about a third of high school students who took the ACT test were ready for college-level science.

**NEXT GENERATION SCIENCE STANDARDS**

Pathway to Success

Learn how you can support science learning in your school and community at [www.nsta.org/ngss](http://www.nsta.org/ngss)

4. *ACT Inc.: The Education Round Table, & Career Readiness* 2013

NGSS@NSTA

STEM STARTS HERE
# A New Vision for Science Education

Implications of the Vision of the Framework for K-12 Science Education and the Next Generation Science Standards

<table>
<thead>
<tr>
<th>SCIENCE EDUCATION WILL INVOLVE LESS:</th>
<th>SCIENCE EDUCATION WILL INVOLVE MORE:</th>
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<tbody>
<tr>
<td>Rote memorization of facts and terminology</td>
<td>Facts and terminology learned as needed while developing explanations and designing solutions supported by evidence-based arguments and reasoning.</td>
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<td>Learning of ideas disconnected from questions about phenomena</td>
<td>Systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned</td>
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<td>Teachers providing information to the whole class</td>
<td>Students conducting investigations, solving problems, and engaging in discussions with teachers’ guidance</td>
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<td>Teachers posing questions with only one right answer</td>
<td>Students discussing open-ended questions that focus on the strength of the evidence used to generate claims</td>
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<td>Students reading textbooks and answering questions at the end of the chapter</td>
<td>Students reading multiple sources, including science-related magazine and journal articles and web-based resources; students developing summaries of information.</td>
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<td>Pre-planned outcome for “cookbook” laboratories or hands-on activities</td>
<td>Multiple investigations driven by students’ questions with a range of possible outcomes that collectively lead to a deep understanding of established core scientific ideas</td>
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<td>Worksheets</td>
<td>Student writing of journals, reports, posters, and media presentations that explain and argue</td>
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<td>Oversimplification of activities for students who are perceived to be less able to do science and engineering</td>
<td>Provision of supports so that all students can engage in sophisticated science and engineering practices</td>
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