Clemson University
Engineering and Science Education

SaGE:
Sustainability and Gender in Engineering

Information Regarding Participation

We are interested in your experiences learning science. By filling out this questionnaire, you will help us find ways to improve science education for future students. Please make your best estimate for each item and answer as many questions as possible. There are no right or wrong answers; just do your best. Some questions will not apply to your experiences and can be left blank (e.g. questions about a course you have not taken). Please note:

- You must be 18 years or older to participate.
- The survey will take approximately 20 minutes to complete.
- Participation is voluntary. You may withdraw at any time.
- Participation will NOT impact your grade in this course in any way.
- You will be asked for contact information (email) in case we want to follow-up on some of your survey responses. This information is voluntary and will not be shared with any third party.
- If you have any questions or concerns, please contact Leidy Klotz (leidyk@clemson.edu), Geoff Potvin (gpotvin@clemson.edu), or Zahra Hazari (zahra@clemson.edu).
- You may contact the Clemson University Office of Research Compliance at 864-656-6460, toll-free at 866-297-3071, or irb@clemson.edu if you have any questions regarding your rights as research participants.

Enter your English course name/number on the line below.

Contact:
Leidy Klotz, Ph.D.
leidyk@clemson.edu

This project is funded by the National Science Foundation, grant number NSF 1036617.
## SECTION 1: YOUR CAREER GOALS

1. **How important are the following factors for your future career satisfaction?**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Not at all important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making money</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Becoming well known</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Helping others</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Supervising others</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Having job security and opportunity</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Working with people</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Inventing / designing things</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Developing new knowledge and skills</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Having lots of personal and family time</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Having an easy job</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Being in an exciting environment</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Solving societal problems</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Making use of my talents and abilities</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Doing hands-on work</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Applying math and science</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
</tbody>
</table>

2. **Which BEST describes what you wanted to be in middle school, high school, and college? (Mark only ONE choice per column)**

<table>
<thead>
<tr>
<th>Career Type</th>
<th>Middle school</th>
<th>Beginning of high school</th>
<th>End of high school</th>
<th>In college</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical professional (e.g. doctor, dentist, vet.)</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Health professional (e.g. nursing, pharmacy)</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Engineer</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Environmental scientist</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Chemist</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Physicist</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Biologist</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Computer scientist/Information technologist</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Social scientist (e.g. sociologist, anthropologist)</td>
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<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Other science-related career</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Mathematician</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Science/Math teacher</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Other teacher</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Other non-science related career</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
</tbody>
</table>

3. **Please rate the current likelihood of your choosing a career in the following:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Not at all likely</th>
<th>Extremely likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Science/Math teacher</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Environmental science</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Biology</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Physics</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Chemistry</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Bio-engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Materials engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Civil engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Industrial/Systems engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Environmental engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
<tr>
<td>Electrical/computer engineering</td>
<td>□ □ □ □ □</td>
<td>□ □ □ □ □</td>
</tr>
</tbody>
</table>

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Please continue to the next page

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<table>
<thead>
<tr>
<th>SERIAL #</th>
<th>SERIAL #</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
4. Which of these topics, if any, do you hope to directly address in your career? (Mark ALL that apply)

- Energy (supply or demand)
- Disease
- Poverty and distribution of wealth and resources
- Climate change
- Terrorism and war
- Water supply (e.g. shortages, pollution)
- Food availability
- Opportunities for future generations
- Opportunities for women and/or minorities
- Environmental degradation

SECTION 2: YOUR HIGH SCHOOL EXPERIENCES

5. What type of high school did you attend? (Mark ALL that apply)

- Private
- Public
- Magnet school
- Baccalaureate
- All male or female
- Public charter
- Private religious
- Vocational
- Home-schooled
- Foreign high school

6. How many students were in your high school biology, chemistry, and physics courses? (If you took multiple courses in a subject, please answer questions in this survey based on the LAST version of the course you took.)

**Biology:**
- 1–10
- 11–20
- 20–30
- More than 30

**Chemistry:**
- 1–10
- 11–20
- 20–30
- More than 30

**Physics:**
- 1–10
- 11–20
- 20–30
- More than 30

7. Please estimate the distribution of males and females in your last high school biology, chemistry, and physics courses.

- All females
- More females than males
- About equal
- More males than females
- All males

**Biology:**
-
-
-
-
- 

**Chemistry:**
- 
- 
- 
- 

**Physics:**
- 
- 
- 
- 

8. In terms of learning the material, these courses required:

- Very little memorization
- A lot of memorization

**Biology:**
- 
- 
- 
- 

**Chemistry:**
- 
- 
- 
- 

**Physics:**
- 
- 
- 
- 

9. In terms of learning the material, these courses required:

- Very little conceptual understanding
- A lot of conceptual understanding

**Biology:**
- 
- 
- 
- 

**Chemistry:**
- 
- 
- 
- 

**Physics:**
- 
- 
- 
- 

10. Please indicate whether you did the following as part of your last high school science courses. (Mark ALL that apply)

<table>
<thead>
<tr>
<th>Biology</th>
<th>Chemistry</th>
<th>Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used the internet for blogging, twitter, or other social media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watched science videos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Went on field trips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in outdoor activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in debates, games, or contests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kept an organized binder/notebook that the teacher checked periodically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used clickers or other automated response systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed online assignments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used computer simulations or applets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manipulated physical objects (e.g. used model kits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spoke with female engineer/scientist visitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spoke with male engineer/scientist visitors</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Please indicate how often the following occurred in your LAST high school science courses.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Monthly</th>
<th>Weekly</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biology</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher lectured to the class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We spent time doing individual work in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concepts/ideas were introduced before formulas/equations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We spent time doing small group activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We worked on labs or projects</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classmates taught each other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole-class discussions were held</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher did demonstrations</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Topics were relevant to my life (e.g. chemistry at home, physics of sports)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>You asked questions, answered questions, or made comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other students asked questions, answered questions, or made comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher called on students for responses (not voluntary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chemistry</strong></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>The teacher lectured to the class</td>
<td></td>
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<tr>
<td>We spent time doing individual work in class</td>
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<tr>
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<tr>
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<tr>
<td>We worked on labs or projects</td>
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<tr>
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<tr>
<td>Topics were relevant to my life (e.g. chemistry at home, physics of sports)</td>
<td></td>
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</tr>
<tr>
<td>You asked questions, answered questions, or made comments</td>
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<td></td>
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</tr>
<tr>
<td>Other students asked questions, answered questions, or made comments</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Teacher called on students for responses (not voluntary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher lectured to the class</td>
<td></td>
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<tr>
<td>We spent time doing individual work in class</td>
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<td></td>
</tr>
<tr>
<td>Concepts/ideas were introduced before formulas/equations</td>
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<td></td>
</tr>
<tr>
<td>You asked questions, answered questions, or made comments</td>
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</tr>
<tr>
<td>Other students asked questions, answered questions, or made comments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher called on students for responses (not voluntary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Please indicate whether the following occurred in any projects or labs for these courses. *(Mark ALL that apply)*

<table>
<thead>
<tr>
<th></th>
<th>Biology</th>
<th>Chemistry</th>
<th>Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I picked the topic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I designed/built something</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I orally presented my work to the class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It addressed a community and/or family issue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I integrated ideas and information from various sources</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please continue to the next page
13. Please indicate whether the following topics were covered in your last high school courses. (Mark ALL that apply)

- Energy supply (e.g. fossil fuels, nuclear, solar, wind)
- Energy demand (e.g. in buildings, transportation)
- Climate change
- Terrorism & war
- Water supply (e.g. shortages, pollution, conflict)
- Population growth
- Food availability
- Disease
- Poverty and distribution of wealth and resources
- Sustainable development
- Life cycle analysis
- Biomimicry
- Environmental degradation
- Providing opportunities for future generations
- Work of female engineers/scientists
- Under-representation of females in engineering/science
- Engineering careers, stages, or options
- Benefits of becoming an engineer
- Students’ stories about engineering/science
- Teachers’ stories about their engineering/science experience

14. How many MINUTES did you spend doing work outside of class each day, on average, for your last high school science courses?

- Biology:
  - 0 minutes
  - 5 minutes
  - 15 minutes
  - 30 minutes
  - 45 minutes
  - 60 or more

- Chemistry:
  - 0 minutes
  - 5 minutes
  - 15 minutes
  - 30 minutes
  - 45 minutes
  - 60 or more

- Physics:
  - 0 minutes
  - 5 minutes
  - 15 minutes
  - 30 minutes
  - 45 minutes
  - 60 or more

15. Which, if any, of the following resources did you use during class in your LAST high school science courses? (Mark ALL that apply)

- Computer
- Graphing calculator
- Project supplies/equipment
- Non-textbook reading materials (e.g. newspapers, magazines)

16. What types of questions were you required to answer in your last high school science courses? (Mark ALL that apply)

- Required several steps of calculations
- Required written explanations/essay responses
- Required graphing
- Required drawing or sketching
- Involved data presented in tables
- Involved data analysis
- Required new insight and creativity
- Had more than one correct response

17. How interested were most students in the content/topics in your last high school science course?

Not at all interested | 0 | 1 | 2 | 3 | 4 | Very interested

- Biology:
  - 0
  - 1
  - 2
  - 3
  - 4
  - Very interested

- Chemistry:
  - 0
  - 1
  - 2
  - 3
  - 4
  - Very interested

- Physics:
  - 0
  - 1
  - 2
  - 3
  - 4
  - Very interested
18. **How would you rate your LAST high school BIOLOGY teacher on the following characteristics?**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthusiasm for biology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated all students with respect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained ideas clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained problems and answered questions in several different ways</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to organize lessons and classroom activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to handle discipline and manage the classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Was available to help students outside of class</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

19. **How would you rate your LAST high school CHEMISTRY teacher on the following characteristics?**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthusiasm for chemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated all students with respect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained ideas clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained problems and answered questions in several different ways</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to organize lessons and classroom activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to handle discipline and manage the classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was available to help students outside of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20. **How would you rate your LAST high school PHYSICS teacher on the following characteristics?**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthusiasm for physics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated all students with respect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained ideas clearly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained problems and answered questions in several different ways</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to organize lessons and classroom activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was able to handle discipline and manage the classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was available to help students outside of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. **How frequently have you done the following activities outside of formal courses?**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never in my life</th>
<th>1–2 times</th>
<th>3–4 times</th>
<th>5–6 times</th>
<th>More than 6 times in my life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participated in engineering/science clubs, camps, or competitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tinkered with things (e.g. motors, mechanical devices)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built things (e.g. structures, houses)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in other science/engineering hobbies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read/watched science/engineering programs or literature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read/watched science-fiction programs or literature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presented or gave a poster on science/engineering content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained science/engineering topics to experts (e.g. professionals, teachers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explained science/engineering topics to non-experts (e.g. relatives, peers)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please continue to the next page
SECTION 3: SUSTAINABILITY AND YOU

When answering the following question, consider that the term sustainability is defined as “meeting the needs of the present without compromising the ability of future generations to meet their needs.”

22. To what extent do you disagree or agree with the following:

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

- We can pursue sustainability without lowering our standard of living
- Human ingenuity will ensure that we do not make the earth unlivable
- I feel a responsibility to deal with environmental problems
- Environmental problems make the future look hopeless
- I can personally contribute to a sustainable future
- Pursuit of sustainability will threaten jobs for people like me
- Sustainable options typically cost more
- Nothing I can do will make things better in other places on the planet
- I have the knowledge to understand most sustainability issues
- Climate change is caused by humans
- I think of myself as part of nature, not separate from it
- We should be taking stronger actions to address climate change

23. How likely are you to do the following:

<table>
<thead>
<tr>
<th>Not at all likely</th>
<th>Extremely likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

- Put on more clothes rather than turn up the heat when I’m cold
- Use less water when taking a shower or bath
- Evaluate the necessity of things I buy
- Consider the energy/carbon/ecological impact of my food choices
- Reuse bottles for water, coffee, or other drinks
- Choose public transportation, carpool, bicycle or walk as a means of transportation
- Take sustainability related courses in my area of academic interest
- Contribute time or money to an environmental group
- Educate others about the importance of these or similar actions

SECTION 4: ABOUT YOU

24. To what extent do you disagree or agree with the following:

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

- I prefer to focus on details and leave the big picture to others
- I hope to gain general knowledge across multiple fields
- I often learn from my classmates
- I prefer to focus on the big picture and leave the details to others
- I hope to develop my expertise in one specific field
- I identify relationships between topics from different courses
- I analyze projects broadly to find a solution that will have the greatest impact
- I seek input from those with a different perspective from me
- I seek feedback and suggestions for personal improvement
- When problem solving, I focus on the relationships between issues
- I live in the moment
- I plan ahead
- When problem solving, I optimize each part of a project to produce the best result
25. Please rate your general interest in the following areas.

<table>
<thead>
<tr>
<th>Area</th>
<th>Not at all interested</th>
<th>Very interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding natural phenomena</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding science in everyday life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explaining things with facts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telling others about science concepts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making scientific observations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. How confident are you in your ability to do the following:

<table>
<thead>
<tr>
<th>Task</th>
<th>Not at all</th>
<th>Very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design an experiment to answer a scientific question</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Conduct an experiment on your own</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Interpret experimental results</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Write a lab report/scientific paper</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Apply science knowledge to an assignment or test</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Explain a science topic to someone else</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>Get good grades in science</td>
<td>0 1 2 3 4</td>
<td></td>
</tr>
</tbody>
</table>

27. To what extent do you disagree or agree with the following statements.

<table>
<thead>
<tr>
<th>PHYSICS</th>
<th>MATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>I see myself as a ______ person</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>My parents/relatives/friends see me as a ______ person</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>My ______ teacher sees me as a ______ person</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I am interested in learning more about this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I am confident that I can understand this subject in class</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I am confident that I can understand this subject outside of class</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I enjoy learning this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I can do well on exams in this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I understand concepts I have studied in this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>Others ask me for help in this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I wish I didn’t have to take this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>This subject makes me nervous</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I feel invisible in classes for this subject</td>
<td>0 1 2 3 4</td>
</tr>
<tr>
<td>I can overcome setbacks in this subject</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>

28. In your opinion, to what extent are the following associated with the field of engineering?

<table>
<thead>
<tr>
<th>Area</th>
<th>Not at all</th>
<th>Very much so</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating economic growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preserving national security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving quality of life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saving lives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caring for communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protecting the environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including women as participants in the field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including racial and ethnic minorities as participants in the field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addressing societal concerns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling a moral obligation to other people</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
29. To what extent do you disagree or agree with the following:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning science will improve my career prospects</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science is helpful in my everyday life</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science has helped me see opportunities for positive change</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science has taught me how to take care of my health</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Learning science has made me more critical in general</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science and technology make our lives healthier, easier and more comfortable</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Technology is a solution to nearly all problems</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>I use technology more than my peers</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science and technology are the cause of most environmental problems</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>A country needs science and technology to become developed</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>The scientific method always leads to correct answers</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Scientists are completely neutral and objective</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science and technology will provide greater opportunities for future generations</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>The benefits of new technologies greatly outweigh the risks</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Science and technology are helping the poor</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>We should trust what scientists have to say</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Scientific theories develop and change all the time</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

30. How many college credit hours did you complete before starting college (e.g. AP credits, IB, dual credit)?

- 0
- 1–3
- 4–6
- 7–9
- 10–12
- 13–15
- >15

31. What was the highest level of education for your parents/guardians?

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Male parent/guardian</th>
<th>Female parent/guardian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school diploma</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>High school diploma/GED</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Some college or associate/trade degree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Master’s degree or higher</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don’t know</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

32. Are any members of your family employed in the following professions? *(Mark ALL that apply)*

- Medical/health professional
- Scientist
- Engineer
- Teacher
- Other science, technology, or math related career
- Non-science related career
- Mother/female guardian
- Father/male guardian
- Siblings
- Other relative
- Coach
- Contact with someone in that major/career

33. Which of the following people have contributed to your selection of a career path? *(Mark ALL that apply)*

- Mother/female guardian
- Father/male guardian
- Siblings
- Other relative
- Coach
- Contact with someone in that major/career
- School counselor
- Math teacher
- Biology teacher
- Chemistry teacher
- Physics teacher
- Other teacher

34. Have you participated in Project Lead the Way?

- Yes
- No
35. Which of the following statements describes your family’s interest in science and math? *(Mark ALL that apply)*

- This topic was a diversion or hobby
- This topic was a way for me to have a better career
- My family helped me with my schoolwork in this topic
- My family arranged for tutoring in this topic
- This topic was a series of courses that I had to pass
- This topic was not a family interest

36. Which of the following math courses did you take in high school? *(Mark ALL that apply)*

- Algebra I
- Algebra II
- Geometry
- Integrated Math
- Pre-Calculus
- Non-AP Calculus
- AP Calculus AB
- AP Calculus BC
- Statistics
- Trigonometry/Analytical Geometry

37. For each of the following standardized tests, please indicate the highest score you earned on that test.

SAT: ______ Total ______ Math ______ Critical Reading ______ Writing ______ Don't know ______ Did not take

ACT: ______ Total ______ Math ______ English ______ Science Reasoning ______ Reading ______ Don’t know ______ Did not take

38. Please answer the following for the high school courses you took. *(Mark only ONE level, year, grade, and gender per row.)*

<table>
<thead>
<tr>
<th>HS course subject</th>
<th>Course level</th>
<th>Year taken HS</th>
<th>Final grade</th>
<th>Teacher gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Science</td>
<td>Regular</td>
<td>Regular</td>
<td>A+</td>
<td>F</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>Earth Science</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>1st Biology</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>2nd Biology</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>1st Chemistry</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>2nd Chemistry</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>1st Physics</td>
<td>Honors</td>
<td>Honors</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>2nd Physics</td>
<td>Regular</td>
<td>Regular</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>Math (most advanced)</td>
<td>Regular</td>
<td>Regular</td>
<td>A+</td>
<td>M</td>
</tr>
<tr>
<td>English (most advanced)</td>
<td>Regular</td>
<td>Regular</td>
<td>A+</td>
<td>M</td>
</tr>
</tbody>
</table>

39. For any AP exams you took, please indicate your test score.

<table>
<thead>
<tr>
<th>AP Test Score</th>
<th>AP Calculus AB</th>
<th>AP Calculus BC</th>
<th>AP Biology</th>
<th>AP Chemistry</th>
<th>AP Physics B</th>
<th>AP Physics C</th>
<th>AP Environmental Science</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
<td>1 1 1 1 1 1 1</td>
</tr>
</tbody>
</table>
SECTION 5: DEMOGRAPHIC QUESTIONS

40. What is your gender?  ○ Female  ○ Male

41. With which racial group(s) do you identify? (Mark ALL that apply)
   ○ African-American or Black  ○ Caucasian or White
   ○ South Asian (e.g. Indian, Pakistani, Bangladesh, Sri Lankan, etc.)  ○ East Asian (e.g. Chinese, Korean, Japanese, etc.)
   ○ Other Asian  ○ Native Hawaiian or Pacific Islander
   ○ American Indian or Alaskan Native  ○ Other

42. Please indicate if you are of Hispanic origin:  ○ Yes  ○ No

43. Which category best fits you and your parents’ or guardians’ background?
   Born in United States
   Me  ○ Yes  ○ No
   Male Parent or Guardian  ○ Yes  ○ No
   Female Parent or Guardian  ○ Yes  ○ No

44. Was English the primary spoken language in your household?  ○ Yes  ○ No

45. To help us estimate the size of the community you come from, please provide your home ZIP Code.

46. What year are you in college?  ○ 1st year  ○ 2nd year  ○ Other

47. We would like to contact the high school science teachers of some students participating in this survey (your teachers will not know your survey responses). Please provide the following for your most advanced high school science courses:
   Teacher’s Name:
   Biology  Chemistry
   Physics  Math

Name of High School: ____________________________________________
City: __________________________ State: __________________________

We may contact some students to ask follow-up questions. All communications will be confidential and your email will NOT be disclosed to any third party.

Your email address: ____________________________________________

Note: By completing this survey, you attest that you are 18 years of age or older and that you agree to participate in this research study.

You have reached the end of the survey.
Thank you for your time.
It is our goal that many science educators will benefit from the insights you have provided!