MISO
Maximizing the Impact of STEM Outreach
Science, Technology, Engineering and Mathematics

THE WILLIAM & IDA FRIDAY INSTITUTE FOR EDUCATIONAL INNOVATION
NC STATE UNIVERSITY COLLEGE of EDUCATION

Golden LEAF FOUNDATION
This project received support from The Golden LEAF Foundation.

Student Attitudes toward STEM Survey (S-STEM)

Upper Elementary (4-5th)

Last Updated October 2012

Appropriate Use
The Upper Elementary School (4-5th) S-STEM Survey is intended to measure changes in students' confidence and efficacy in STEM subjects, 21st century learning skills, and interest in STEM careers. The survey is available to help program coordinators make decisions about possible improvements to their program.

Recommended citation for this survey:

> Friday Institute for Educational Innovation (2012). *Upper Elementary School STEM-Student Survey*. Raleigh, NC: Author.

The development of this survey was partially supported by the National Science Foundation under Grant No. 1038154 and by the Golden LEAF foundation.

The framework for part of this survey was developed from the following sources:

> Erkut, S., & Marx, F. (2005). *4 schools for WIE* (Evaluation Report). Wellesley, MA: Wellesley College, Center for Research on Women. Retrieved April 5, 2012 from http://www.coe.neu.edu/Groups/stemteams/evaluation.pdf
>
> Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, 2010-11 Edition.

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DIRECTIONS:

There are lists of statements on the following pages. Please mark your answer sheets by marking how you feel about each statement. For example:

Example 1:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I like engineering.	○	○	○	○	○

First: As you read the statement, think about your life and how you feel. Do you agree or disagree with the statement when you think about yourself? How strongly do you agree or disagree?

Second: Fill in the circle that best describes how you feel.

There are no "*right*" or "*wrong*" answers! How you feel is the best answer.

PLEASE FILL IN ONLY ONE ANSWER PER QUESTION.

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Math

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. Math has been my worst subject.	○	○	○	○	○
2. When I'm older, I might choose a job that uses math.	○	○	○	○	○
3. Math is hard for me.	○	○	○	○	○
4. I am the type of student who does well in math.	○	○	○	○	○
5. I can understand most subjects easily, but math is difficult for me.	○	○	○	○	○
6. In the future, I could do harder math problems.	○	○	○	○	○
7. I can get good grades in math.	○	○	○	○	○
8. I am good at math.	○	○	○	○	○

Science

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
9. I feel good about myself when I do science.	○	○	○	○	○
10. I might choose a career in science.	○	○	○	○	○
11. After I finish high school, I will use science often.	○	○	○	○	○
12. When I am older, knowing science will help me earn money.	○	○	○	○	○
13. When I am older, I will need to understand science for my job.	○	○	○	○	○
14. I know I can do well in science.	○	○	○	○	○
15. Science will be important to me in my future career.	○	○	○	○	○
16. I can understand most subjects easily, but science is hard for me to understand.	○	○	○	○	○
17. In the future, I could do harder science work.	○	○	○	○	○

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Engineering and Technology

Please read this paragraph before you answer the questions.

Engineers use math and science to invent things and solve problems. Engineers design and improve things like bridges, cars, machines, foods, and computer games. **Technologists** build, test, and maintain (or take care of) the designs that engineers create.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
18. I like to imagine making new products.	○	○	○	○	○
19. If I learn engineering, then I can improve things that people use every day.	○	○	○	○	○
20. I am good at building or fixing things.	○	○	○	○	○
21. I am interested in what makes machines work.	○	○	○	○	○
22. Designing products or structures will be important in my future jobs.	○	○	○	○	○
23. I am curious about how electronics work.	○	○	○	○	○
24. I want to be creative in my future jobs.	○	○	○	○	○
25. Knowing how to use math and science together will help me to invent useful things.	○	○	○	○	○
26. I believe I can be successful in engineering.	○	○	○	○	○

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21st Century Learning

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
27. I can lead others to reach a goal.	○	○	○	○	○
28. I like to help others do their best.	○	○	○	○	○
29. In school and at home, I can do things well.	○	○	○	○	○
30. I respect all children my age even if they are different from me.	○	○	○	○	○
31. I try to help other children my age.	○	○	○	○	○
32. When I make decisions, I think about what is good for other people.	○	○	○	○	○
33. When things do not go how I want, I can change my actions for the better.	○	○	○	○	○
34. I can make my own goals for learning.	○	○	○	○	○
35. I can use time wisely when working on my own.	○	○	○	○	○
36. When I have a lot of homework, I can choose what needs to be done first.	○	○	○	○	○
37. I can work well with all students, even if they are different from me.	○	○	○	○	○

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Your Future

Below is a list of types of work that you could do when you are older. As you read about each type of work, you will know if you think that work is interesting. Fill in the circle under the words that describe how interested you are in doing that when you are older.

There are no "*right*" or "*wrong*" answers. The only correct responses are those that *are true for you*.

	Not at all Interested	Not So Interested	Interested	Very Interested
1. **Physics:** People study motion, gravity and what things are made of. They also study energy, like how a swinging bat can make a baseball switch directions. They study how different liquids, solids and gas can be turned into heat or electricity.	○	○	○	○
2. **Environmental Work:** People study how nature works. They study how waste and pollution affect the environment. They also invent solutions to these problems.	○	○	○	○
3. **Biology:** People work with animals and plants and how they live. They also study farm animals and the food that they make, like milk. They can use what they know to invent products for people to use.	○	○	○	○
4. **Veterinary Work:** People who prevent disease in animals. They give medicines to help animals get better and for animal and human safety.	○	○	○	○
5. **Mathematics:** People use math and computers to solve problems. They use it to make decisions in businesses and government. They use numbers to understand why different things happen, like why some people are healthier than others.	○	○	○	○
6. **Medicine:** People learn how the human body works. They decide why someone is sick or hurt and give medicines to help the person get better. They teach people about health, and sometimes they perform surgery.	○	○	○	○
7. **Earth Science:** People work with the air, water, rocks and soil. Some tell us if there is pollution and how to make the earth safer and cleaner. Other earth scientists forecast the weather.	○	○	○	○

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	Not at all Interested	Not So Interested	Interested	Very Interested
8. **Computer Science:** People write instructions to run a program that a computer can follow. They design computer games and other programs. They also fix and improve computers for other people.	○	○	○	○
9. **Medical Science:** People study human diseases and work to find answers to human health problems.	○	○	○	○
10. **Chemistry:** People work with chemicals. They invent new chemicals and use them to make new products, like paints, medicine, and plastic.	○	○	○	○
11. **Energy/Electricity:** People invent, improve and maintain ways to make electricity or heat. They also design the electrical and other power systems in buildings and machines.	○	○	○	○
12. **Engineering:** People use science, math and computers to build different products (everything from airplanes to toothbrushes). Engineers make new products and keep them working.	○	○	○	○

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About Yourself

1. How well do you expect to do this year in your:

	Not Very Well	OK/Pretty Well	Very Well
English/Language Arts Class?	○	○	○
Math Class?	○	○	○
Science Class?	○	○	○

2.

	Yes	No	Not Sure
Do you plan to go to college?	○	○	○
Do you plan to take advanced math or science classes in future years in school?	○	○	○

3.

	Yes	No	Not Sure
Do you know any adults who work as scientists?	○	○	○
Do you know any adults who work as engineers?	○	○	○
Do you know any adults who work as mathematicians?	○	○	○
Do you know any adults who work as technologists?	○	○	○

Thank you for taking this survey! This is the end!