

Appendix 2: Item-by-Item Justification of Youth Baseline Survey Items

Question	Source	Answer Options	Scale	Justification Notes
Your first name and last name	SoI student survey 2011	First name, Last name	N/A	Information is used to confirm match in dataset
What is your birthday?	SoI student survey 2011	Month Day Year	N/A	Information is used to generate a unique identifier in dataset for matching purposes
What grade did you enter last fall?	SoI student survey 2011	4th 5th 6th 7th 8th 9th Other	N/A	Information is used to confirm match in dataset, to establish youth eligibility for sample and provide capability to disaggregate findings by grade level and to remove students outside of the grade range from the sample
As things stand now, how far in school do you think you will get?	Adapted from HLS of 2009, Baseline Parent Survey	Less than high school Earn a high school diploma or GED Complete an Associate's degree Complete a Bachelor's degree Complete a Master's degree Complete a Ph.D., M.D., law degree, or other high level professional degree I don't know	N/A	This data element identifies the youth's educational expectations, which may serve as a correlate to student interest in academically focused activities
Why did you sign up for this NASA educational activity? Check all that apply.	Adapted from the AWE Middle School Students Pre-Activity Survey	To have fun To learn more about NASA and space To have something to do To learn more about different majors in college (e.g., engineering, science) To learn more about science To learn about what scientists and engineers do To make my parents/guardians happy To meet others with interests similar to mine To help me to do well in school None of these	N/A	This question is intended to identify youth's motivation for enrollment.
Have you ever been in a	Adapted from 4-H Science	Yes; No;	N/A	Whether a youth has previously participated in a NASA educational

NASA educational activity?	Youth Survey (2012)	I don't know		activity will serve as a control variable.
What science class did you most recently take? This might be the class you are currently taking.	Adapted from HSLs of 2009, Student Baseline Survey; science class titles drawn from CCSSO, State Indicators of Science and Mathematics Education 2007, Table 1.6 (http://program.s.ccsso.org/content/pdfs/SM%2007%20report%20part%201.pdf)	Science or General Science Life Science Earth Science Physical Science, Integrated or Coordinated Science Other science course I don't know	N/A	This question is one of two questions intended to identify student interest in past science class at school. Class subject is identified in order to control for this variable in the analysis of change in student interest.
How much do you agree or disagree with the following statements about your most recent science class?	Adapted from HSLs of 2009, Student Baseline Survey	I enjoyed this class very much I thought this class was a waste of my time I thought this class was boring	Never Rarely Sometimes Often	This question is intended to identify student engagement in past science class at school, which is a dependent variable for this study.
Which of the following activities did you participate in during your most recent school year? This might be	Adapted from HSLs of 2009, Student Baseline Survey	Science club Science competition Science camp Science study groups or a program where you were tutored in science None of these	N/A	This question is intended to identify student engagement in extracurricular science activities, which is a dependent variable for this study.

the current school year.				
During the most recent school year, how often have you done the following science activities? This might be the current school year.	Adapted from HSLs of 2009, Student Baseline Survey; Last two answer options from the Noyce Enthusiasm for Science scale and the AWE Rating Scale for Sense of Community (2009)	Read science books and magazines Access web sites for computer technology information Visit a science museum, planetarium, or environmental center Play games or use kits or materials to do experiments or build things at home Watch programs on TV about nature and discoveries	Never Rarely Sometimes Often	This question is intended to identify student engagement in outside of school time science activities, which is a dependent variable for this study.
Please indicate the extent to which you agree or disagree with each of the following statements. Select one in each row.	Noyce Enthusiasm for Science scale/Common Instrument	Science is something I get excited about	Strongly Disagree Disagree Agree Strongly Agree	This question is part of a validated scale intended to ascertain student enthusiasm/interest in science, which is a dependent variable for this study.
	Noyce Enthusiasm for Science scale/Common Instrument	I like to take things apart to learn more about them		
	Noyce Enthusiasm for Science scale/Common Instrument	I like to participate in science projects		
	Noyce Enthusiasm for Science scale/Common Instrument	I'd like to get a science kit as a gift (for example, a microscope, magnifying glass, a robot, etc.)		
	Noyce Enthusiasm for Science	I like to see how things are made (for example, ice-cream, a TV, an iPhone, energy, etc)		

	scale/Common Instrument			
	Noyce Enthusiasm for Science scale/Common Instrument	I like to watch programs on TV about nature and discoveries		
	Noyce Enthusiasm for Science scale/Common Instrument	I am curious to learn more about science, computers or technology		
Please indicate the extent to which you agree or disagree with each of the following statements. Select one in each row.	Noyce Enthusiasm for Science scale/Common Instrument	I like to work on science activities	Strongly Disagree Disagree Agree Strongly Agree	This question is part of a validated scale intended to ascertain student enthusiasm/interest in science, which is a dependent variable for this study.
	Noyce Enthusiasm for Science scale/Common Instrument	If I have kids when I grow up, I will take them to a science museum		
	Noyce Enthusiasm for Science scale/Common Instrument	I would like to have a science or computer job in the future.		
	Noyce Enthusiasm for Science scale/Common Instrument	I want to understand science (for example, to know how computers work, how rain forms, or how airplanes fly)		
	Noyce Enthusiasm for Science scale/Common Instrument	I enjoy visiting science museums or zoos		
	Noyce Enthusiasm for Science	I get excited about learning about new discoveries or inventions		

	scale/Common Instrument			
	Noyce Enthusiasm for Science scale/Common Instrument	I like reading science magazines		
	Noyce Enthusiasm for Science scale/Common Instrument	I pay attention when people talk about recycling to protect our environment		
	Noyce Enthusiasm for Science scale/Common Instrument	I am curious to learn more about cars that run on electricity		
	Noyce Enthusiasm for Science scale/Common Instrument	I get excited to find out that I will be doing a science activity		
	Noyce Enthusiasm for Science scale/Common Instrument	I enjoy reading science fiction books		
	Noyce Enthusiasm for Science scale/Common Instrument	I like learning about science on the internet		
	Noyce Enthusiasm for Science scale/Common Instrument	I like online games or computer programs that teach me about science		
	Noyce Enthusiasm for Science	Science is boring		

	scale/Common Instrument			
	Noyce Enthusiasm for Science scale/Common Instrument	I do science-related activities that are not for schoolwork.		
	Noyce Enthusiasm for Science scale/Common Instrument	I like science		
	Noyce Enthusiasm for Science scale/Common Instrument	Science is one of my favorite subjects		
	Noyce Enthusiasm for Science scale/Common Instrument	I take science only because I have to		
	Noyce Enthusiasm for Science scale/Common Instrument	I take science only because it will help me in the future		
	Noyce Enthusiasm for Science scale/Common Instrument	Before joining this program, I was interested in science and science-related things		
	Noyce Enthusiasm for Science scale/Common Instrument	Before joining this program, I participated in science activities outside of school		
	Adapted from the AWE Middle School	I like to design a solution to a problem		These questions are intended to ascertain student enthusiasm/interest in engineering, which is a dependent

	Students Pre-Activity Survey			variable for this study.
	Adapted from the AWE Middle School Students Pre-Activity Survey	I like to be part of a team that designs and builds a hands-on project		
	Adapted from the AWE Middle School Students Pre-Activity Survey	I'm curious to learn how to program a computer game		
	Adapted from the AWE Middle School Students Pre-Activity Survey	I like to design and build something mechanical that works		