

## **Appendix 4: Item-by-Item Justification of Youth Follow-up Survey Items**

<b>Item #</b>	<b>Question</b>	<b>Source</b>	<b>Answer Options</b>	<b>Scale</b>	<b>Justification Notes</b>
1	Your first name and last name	SoI student survey 2011	First name, Last name	N/A	Information is used to confirm match in dataset
2	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
3	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
4	What did you like best about this NASA activity?	Adapted from the AWE Immediate Post-Activity Survey for Middle School-Aged Participants - Science	Open-ended	N/A	Student perception of SoI used to inform the interpretation of the findings.
5	If you were in charge, how would you change your NASA experience?	Adapted from the AWE Immediate Post-Activity Survey for Middle School-Aged Participants - Science	Open-ended	N/A	Student perception of SoI used to inform the interpretation of the findings.
6	Would you recommend that your friends participate in this NASA activity? Please explain why or why not.	Adapted from the AWE Immediate Post-Activity Survey for Middle School-Aged Participants - Science	Yes No Open-ended	N/A	Student perception of activity used to inform the interpretation of the findings.

7	How much did participating in this NASA activity impact you?	Adapted from the AWE Immediate Post-Activity Survey for Middle School-Aged Participants - Science	<p>Increased my knowledge of NASA and space</p> <p>Increased my interest in studying science or engineering in college</p> <p>Helped me understand science better</p> <p>Led me to a better understanding of my own career goals</p> <p>Made me decide to take different classes in school (including college) than I had planned</p> <p>Made me more confident in my ability to succeed in science</p> <p>Increased my confidence in my ability to participate in science projects or activities</p> <p>Helped me connect with others who have similar interests</p>	N/A	Student self-reported impacts will assist in triangulation of outcome findings and also offers an exploration of possible outcomes that are not the focus of this evaluation study.
8	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 ( <a href="http://programs.ccsso.org/content/pdfs/SM%2007%20report%20part%201.pdf">http://programs.ccsso.org/content/pdfs/SM%2007%20report%20part%201.pdf</a> )	<p>Science or General Science</p> <p>Life Science</p> <p>Earth Science</p> <p>Physical Science,</p> <p>Integrated or Coordinated Science</p> <p>Other science course</p> <p>I don't know</p> <p>None</p>	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.
9	How much do you agree or disagree with the following statements about your current science class?	Adapted from HSLs of 2009, Student Baseline Survey	<p>I enjoy this class very much</p> <p>I think this class is a waste of my time</p> <p>I think this class is boring</p>	<p>Never</p> <p>Rarely</p> <p>Sometimes</p> <p>Often</p>	This question is intended to identify student engagement in past science class at school, which is a

					dependent variable for this study.
10	Which of the following activities did you participate in during your most recent school year? This might be the current school year. Check all that apply.	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.
11	Since you began participating in this NASA activity, how often have you done the following science activities?	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.
12	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	I like to participate in science projects		

		Instrument			
		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 scale/Common Instrument	I like to see how things are made (for example, ice-cream, a TV, an iPhone, energy, etc)		
		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		
		Noyce Enthusiasm for Science scale/Common Instrument	I like to work on science activities		
		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	I want to understand science (for example, to know how computers work, how rain forms, or how airplanes fly)		

		Instrument			
		Noyce Enthusiasm for Science scale/Common Instrument	I enjoy visiting science museums or zoos		
		Noyce Enthusiasm for Science scale/Common Instrument	I get excited about learning about new discoveries or inventions		
		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	I like learning about science on the internet		

		Instrument			
		Noyce Enthusiasm for Science scale/Common Instrument	I like online games or computer programs that teach me about science		
		Noyce Enthusiasm for Science scale/Common Instrument	Science is boring		
		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	Before joining this program, I was interested in science and science-related things		

		Instrument			
		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 Students Pre-Activity Survey	I like to design a solution to a problem		These questions are intended to ascertain student enthusiasm/interest in engineering, which is a dependent 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		