2700-0150

Appendix 4: Item-by-Item Justification of Youth Baseline Survey Items

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| **Question** | **Research Question** | **Source** | **Answer Options** | **Scale** | **Purpose of Item** | **Justification Notes** |
| Your first name and last name | N/A | SoI student survey 2011 | First name, Last name | N/A | A | Information is used to confirm match in dataset |
| What is your birthday? | N/A | SoI student survey 2011 | Month Day Year | N/A | A | Information is used to generate a unique identifier in dataset for matching purposes |
| What grade level will you enter in fall 2013? Please check one only. | 4 | SoI student survey 2011 | 4th 5th 6th 7th 8th 9th Other | N/A | A,D | 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? | 4 | Adapted from HSLS 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 | D, C | 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 Summer of Innovation? Check all that apply. | 4 | 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 | D | This question is intended to identify youth's motivation for SoI enrollment. |
| Have you ever been in another Summer of Innovation camp? | 4 | Adapted from 4-H Science Youth Survey (2012) | Yes; No; I don't know | N/A | C | Whether a youth has previously participated in an SoI camp will serve as a control variable. |
| What science class did you take last year? | 9 | 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://programs.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 | C | 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 2012-13 science class? | 9 | 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 | D | This question is intended to identify student engagement in past science class at school, which is a dependent variable for this study. |
| Since the beginning of the last school year (2012-2013), which of the following activities have you participated in? | 9 | 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 | D | This question is intended to identify student engagement in extracurricular science activities, which is a dependent variable for this study. |
| Since the beginning of the last school year (2012-2013), how often have you done the following science activities? | 9 | 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. | 9 | Noyce Enthusiasm for Science scale/Common Instrument | Science is something I get excited about | Strongly Disagree Disagree Agree Strongly Agree | D | 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 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 |
| Please indicate the extent to which you agree or disagree with each of the following statements. Select one in each row. | 9 | Noyce Enthusiasm for Science scale/Common Instrument | I like to work on science activities | Strongly Disagree Disagree Agree Strongly Agree | D | 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 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 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 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 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 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 |  |  |

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| **1Research Questions Answered by Parent Survey** | |  |  |  |
|  | 4: What are the characteristics of SoI camps and their participants?  9: How does the SoI experience affect youth engagement with STEM? | | | |
| **2Purpose of Item** | |  |  |  |
|  | A: indicates that the variable from this item will be used for administrative purposes (e.g., documentation of consent or non-consent, longitudinal tracking, pre and post survey data linking) | | | |
|  | D: indicates that the variable from this item will be used in descriptive analysis | | | |
|  | C: indicates that the variable from this item will be used as a control variable | | | |