Massachusetts
LIFE SCIENCES CENTER

Life Sciences Out-of-School Time Education Grants

Creating Student Surveys for Grant Programs

MLSC STUDENT SURVEY GOALS:

Our primary goal in requiring a pre- and post- program student survey is to gain insight on the impact of grant programs from the perspective of those directly affected by the programs and projects. We hope to gain an understanding of how programs affect the skills, knowledge, interests and attitudes of students or trainees as related to life sciences educational and career pathways. Particularly, we are interested in how these aspects change over time, before, during and after implementation of grant-funded programs.

A secondary objective in asking grantees to administer pre/post surveys is to facilitate information gathering required for MLSC Annual Reports (due one, two, and three years after grant funds cease). We hope that student surveys will provide a mechanism to more easily obtain program and grant impact data requested on reports and can be coordinated well in advance of report due dates.

Finally, student surveys are one way in which to collect information to evaluate the goals and outcomes of a particular project. We hope that they serve as a springboard for, or addition to, other evaluation metrics and methods grantees will determine for their projects. These student surveys can provide invaluable information to enhance and/or expand life sciences initiatives.

HOW TO USE THESE QUESTIONS TO CREATE YOUR STUDENT SURVEYS:

While MLSC will require that grantees administer pre- and post- project/program surveys, there is a great deal of flexibility in this requirement. Below are questions that can be used for surveys. Some questions are mandatory because they align with the annual report program data questions. Including these questions should help grantees have this information ready for annual reports. Mandatory questions have an asterisk. *Please note if you already administer internally developed pre- and post- program surveys, you may use those formats and questions. However, ensure that the questions on your evaluations cover the same content as the mandatory questions listed here (as this program data is required for annual reporting). Please also feel free to adjust the language of all mandatory questions to be age appropriate for your students.*

Other questions/question categories are suggested. These are provided because they align with the options for program evaluation included in annual reports. However, grantees have the flexibility to include only the categories that feel relevant to projects. All specific questions serve as examples for featured categories; grantees can alter phrasing or write questions as preferred. Please add relevant categories of evaluation not suggested below as well.

Grantees may choose the format to deliver the survey. MLSC typically collects annual report data via SurveyMonkey. Similar digital platforms and tools may help to analyze and visualize results quickly. However, grantees can choose the format that would best serve individual programs and students served.

PLANNING FOR IMPLEMENTATION:

It will likely take students 20-40 minutes to complete the pre-and-post surveys, depending on the age group and number of suggested/additional questions and categories included. Be sure to coordinate with teachers or instructors administering the pre-survey to do so within the first few days of the program/project implementation. Post surveys should be completed within the last week of programming. MLSC will not require grantees to submit student survey responses after administering. All significant outcomes should be reported on annual reports. However, grantees must attach one copy of the pre-program survey and one copy of the post-program survey to annual reports.

*Mandatory Questions: Program Data

1. Are you participating in other out-of-school time STEM related activities (after school, weekend, summer) in this school year?
    a. If yes, please list the activities:

2. Are you participating in STEM apprenticeships or internships this school year:
    a. If yes, please list the apprenticeships or internships:

3. During this course or program, what activities have you participated in that have helped you learn more about careers in life sciences? (**post-program survey only**)

Answer questions 4-7 if you are a graduating senior in high school this year:

4. If you are a graduating senior in school this year, what do you plan to do after graduating?
    - ☐ Attend college majoring in STEM
    - ☐ Attending college majoring in a different area of study
    - ☐ Enter post-graduation training programs in STEM
    - ☐ Take a job in life sciences (with a life sciences company)
    - ☐ Take a job in a different field

5. If you are a senior entering college majoring in STEM after graduating high school, what STEM area(s) will you major in?
    a. Biology
    b. Chemistry
    c. Biochemistry
    d. Engineering

e. Mathematics
f. Computer Science
g. Neuroscience
h. Data Science
i. Health Sciences
j. Information Technology
k. Pharmaceutical Sciences
l. Physics
m. Pre-Medical Programs
n. Regulatory Affairs
o. Other (specify)

6. If you are a senior entering a STEM training program after graduating high school, what program and/or training will you receive?

7. If you are a HS senior planning to take a job in life sciences after graduating high school, what type of job in life sciences are you taking? Which company (if applicable)?

Answer questions 8-11 if you NOT yet a graduating senior in high school this year:

8. What do you PLAN to do after graduating?
   - ☐ Attend college majoring in STEM
   - ☐ Attending college majoring in a different area of study
   - ☐ Enter post-graduation training programs in STEM
   - ☐ Take a job in life sciences (with a life sciences company)
   - ☐ Take a job in a different field

9. If you PLAN TO enter college majoring in STEM after graduating high school, what STEM area(s) will you major in?
   - ☐ Biology
   - ☐ Chemistry
   - ☐ Biochemistry
   - ☐ Engineering
   - ☐ Mathematics
   - ☐ Computer Science
   - ☐ Neuroscience
   - ☐ Data Science
   - ☐ Health Sciences
   - ☐ Information Technology
   - ☐ Pharmaceutical Sciences
   - ☐ Physics
   - ☐ Pre-Medical Programs
   - ☐ Regulatory Affairs
   - ☐ Other (specify)

10. If you PLAN TO enter a STEM training program after graduating high school, what program and/or training are you interested in pursuing?

11. If you PLAN TO take a job in life sciences after graduating high school, what type of job in life sciences are you looking for?

Suggested Evaluation Categories

The following categories are listed as possible evaluation metrics for grant-funded programs on the annual report. Grantees may include any suggested categories that are relevant to evaluation goals and aligned with proposals. Grantees may also include other categories and questions as needed.

Categories of Evaluation:

A. Interest or plans for continuing education in STEM or life sciences fields
B. Evaluation of student skills and knowledge
C. Evaluation of student soft skills development
D. Student satisfaction with the program
E. Student awareness and understanding of life sciences careers
F. STEM/Life sciences interests and attitudes (suggested, but not referenced on annual report)

Sample Questions for Each Category:

A. Interest or plans for continuing education in STEM or life sciences fields
   - *Included in Program Data section above*

B. Evaluation of student skills and knowledge
   - ***TECHNICAL SKILL RATING:***
     - Rate your ability to _____ (technical skill determined by program focus) on a scale of 1-5.
     - I am confident in / proficient in / good at _____ (technical skill determined by program focus).
       - (Likert scale rating: Strongly Agree / Agree / Somewhat Agree / Neutral / Somewhat Disagree / Disagree / Strongly Disagree)
     - What new skills have you learned after participating in this program? (*post-survey only*)
   - ***NGSS SCIENCE AND ENGINEERING PRACTICES SKILL RATING:***
     - Rate your ability to _____on a scale of 1-5.

- I am confident in / proficient in / good at _____.
  - (Likert Scale rating: Strongly Agree / Agree / Somewhat Agree / Neutral / Somewhat Disagree / Disagree / Strongly Disagree)

- NGSS Science and Engineering Practices:
  - Asking questions (for science) and defining problems (for engineering)
  - Developing and using models
  - Planning and carrying out investigations
  - Analyzing and interpreting data
  - Using math and computational thinking
  - Constructing an explanation (for science) and designing a solution (for engineering)
  - Engaging in an argument stemming from evidence
  - Obtaining, evaluating, and communicating information

C. Evaluation of student soft skills development.
- I am confident in / proficient in/ good at _____ (professional or soft skill determined by program focus)
  - (Likert Scale rating: Strongly Agree / Agree / Somewhat Agree / Neutral / Somewhat Disagree / Disagree / Strongly Disagree)

- Examples of STEM-related professional or soft skills:
  - Active Listening
  - Teamwork/Collaboration
  - Communication
  - Problem-Solving
  - Critical Thinking
  - Leadership
  - Creativity
  - Time Management

D. Student satisfaction with the program (*post survey only*)
- ***PROGRAM ASPECTS RATING:***
  - (Likert Scale rating: Strongly Agree / Agree / Somewhat Agree / Neutral / Somewhat Disagree / Disagree / Strongly Disagree)
    - Instructors' knowledge about the topic
      - *Sample questions:*
        - The instructors knew the content very well.
        - The instructors gave me good feedback to help me improve my learning.

        - The instructors gave me good feedback to help me improve my STEM/ life sciences skills.

- Facility environment/learning environment
    - *Sample questions:*
        - The program location was easy to get to.
        - The program location was clean and well-organized.
        - I felt like I could ask questions freely in the program.
        - I had a positive experience each day of the program.
            - I left the program each day feeling positive.

- Content
    - *Sample questions:*
        - The information was clearly organized and taught.
        - The information was confusing or too difficult.
        - In the program, we learned things that I am also learning (or have learned) in school.
        - The program helped me to do better in science classes in school.
        - The program gave me the confidence to do more advanced work in the subject.

- Hands-on activities
    - *Sample questions:*
        - The activities were fun.
        - The activities allowed me to work with my hands.
        - The activities allowed me to learn new science skills.

- Materials and equipment
    - *Sample questions:*
        - I used science equipment and tools in this program.
        - I used NEW science equipment and tools in this program.
        - This program helped me get better at using science equipment and tools.
        - The materials we used increased my knowledge about the topics covered.

- Student expectations
    - *Sample questions:*
        - This program met my expectations.
        - I learned what I expected to learn in this program.

E. Student awareness and understanding of life sciences careers
    - List careers you know in the life sciences industry:

- *Sample questions: Yes/No/Likert Scale*
  - I am familiar with life sciences as an industry or field of study.
  - I am familiar with careers in the life sciences.
  - I am interested in learning about life sciences topics.
  - I am interested in learning more about life sciences careers.
  - I am interested in speaking with someone who has a career in life sciences.

F. STEM/Life sciences interests and attitudes

- ***INTEREST AND ANXIETY***
  - I worry about learning science.
  - Science makes me nervous.
  - Science makes me confused.
  - I feel good about myself when I explore science.
  - I know I can do well in science.
  - I enjoy learning about science.
  - I find learning science interesting.
  - The science I learn is relevant to my life
  - Doing science makes me proud.
    - **Reference:** ***Building STEM Confidence*** *(National Inventors Hall of Fame)*

- ***STEM ATTITUDES***
  - I am sure of myself when I do science.
  - Knowing science will help me earn a living.
  - I will need science when I finish school.
  - Science will be important to me in my life's work.
  - I can handle most subjects well, but I cannot do a good job with science.
  - I am sure I could do advanced work in science.
    - **Reference**: *Student Attitudes toward STEM: The Development of Upper Elementary School and Middle/High School Student Surveys (North Carolina State University)*