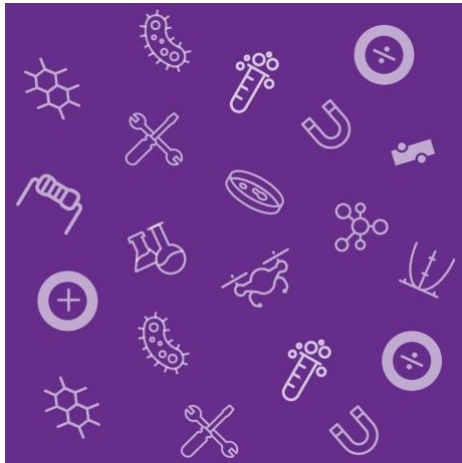
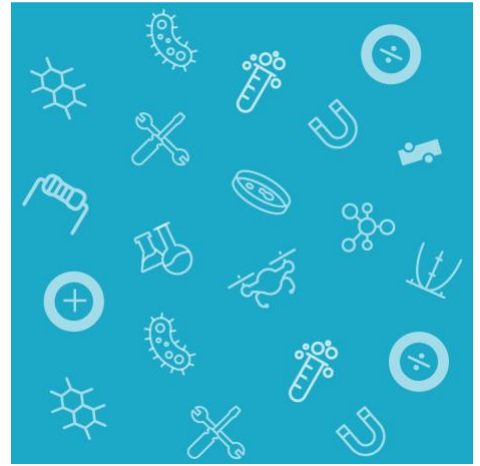


IT STARTS HERE. ★



ARMY EDUCATIONAL OUTREACH PROGRAM

GEMS

2018 Annual Program Evaluation Report

Appendix

August 2019



1 | AEOP Consortium Contacts

U.S. Army Contacts

Matthew Willis, Ph.D.

Director, Laboratory Management
Office of the Deputy Assistant Secretary of the
Army for Research and Technology
matthew.p.willis.civ@mail.mil

Andrea Simmons

Army Educational Outreach Program (AEOP) Director
Office of the Deputy Assistant Secretary of the
Army for Research and Technology
andrea.e.simmons.ctr@mail.mil

AEOP Cooperative Agreement Manager

Christina Weber

AEOP Cooperative Agreement Manager
U.S. Army Combat Capabilities Development
Command (CCDC)
christina.l.weber.civ@mail.mil

Battelle Memorial Institute – Lead Organization

David Burns

Project Director, AEOP CA
Director of STEM Innovation Networks
burnsd@battelle.org

GEMS Program Administrators

Sue Whitsett

NSTA Director of AEOP
National Science Teachers Association (NSTA)
swhitsett@nsta.org

Zach Pekar

GEMS Program Administrator
National Science Teachers Association (NSTA)
zpekor@nsta.org

Evaluation Team Contacts – NC State University

Carla C. Johnson, Ed.D.

Evaluation Director, AEOP CA
carlajohnson@ncsu.edu

Toni A. Sondergeld, Ph.D.

Assistant Director, AEOP CA
tonisondergeld@metriks.com

Janet B. Walton, Ph.D.

Assistant Director, AEOP CA
walton25@purdue.edu

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2 | Table of Contents

AEOP Consortium Contacts	Page 1
Table of Contents	Page 2
Appendix A FY18 GEMS Evaluation Plan	Page 3
Appendix B Student Participant Focus Group Protocol	Page 5
Appendix C Mentor Participant Focus Group Protocol	Page 6
Appendix D GEMS Student Participant Questionnaire	Page 8
Appendix E GEMS Mentor Questionnaire	Page 30
Appendix F NSTA Response to FY18 Evaluation	Page 59

3 | Appendix A – FY18 JSS Evaluation Plan

Questionnaires

As per the approved FY18 AEOP APP, the external evaluation of GEMS includes two post-program questionnaires:

1. AEOP Youth Questionnaire to be completed by student participants; and
2. AEOP Mentor Questionnaire to be completed by Army S&Es, Near Peer Mentors, and/or resource teachers that facilitate, assist, or support students during GEMS educational activities.

Questionnaires are the primary method of data collection for AEOP evaluation and collect information about participants' experiences with and perceptions of program resources, structures, and activities; potential benefits to participants; and strengths and areas of improvement for programs.

Questionnaires are the primary method of data collection for AEOP evaluation and collect information about participants' experiences with and perceptions of program resources, structures, and activities; potential benefits to participants; and strengths and areas of improvement for programs.

The questionnaires were aligned with:

- Army's strategic plan and AEOP Priorities 1 (STEM Literate Citizenry), 2 (STEM Savvy Educators) and 3 (Sustainable Infrastructure);
- Federal guidance for evaluation of Federal STEM investments (e.g., inclusive of implementation and outcomes evaluation, and outcomes of STEM-specific competencies, transferrable competencies, attitudes about/identifying with STEM, future engagement in STEM-related activities, and educational/career pathways);
- Best practices and published assessment tools in STEM education, STEM informal/outreach, and the evaluation/ research communities;
- AEOP's vision to improve the quality of the data collected, focusing on changes in intended student outcomes and contributions of AEOPs like CQL effecting those changes.

The use of common questionnaires and sets of items that are appropriate across programs will allow for comparisons across AEOP programs and, if administered in successive years, longitudinal studies of students as they advance through pipelines within the AEOP. Because the questionnaires incorporate batteries of items from existing tools that have been validated in published research, external comparisons may also be possible. All AEOPs are expected to administer the student and mentor questionnaires provided for their program.

Focus Group Site Visits

As per the approved FY18 AEOP APP, the external evaluation of GEMS includes site visit/onsite focus groups at GEMS sites.

Site visits provide the evaluation team with first-hand opportunities to speak with students and their mentors. We are able to observe the AEOPs in action. The information gleaned from these visits assists us in illustrating and more deeply understanding the findings of other data collected (from questionnaires). In total, evaluators' findings are used to highlight program successes and inform program changes so that the AEOPs can be even better in the future.

Evaluation Activities during GEMS Site Visits:

- One or two 45-minute focus group with 10-15 youth participants;
- One 45-minute focus group with 6-8 mentors;
- 30-60 minutes to observe the program (specifically, to see students engaged in program activities, preferably with their mentors); and
- 10-15 minute transitions between each evaluation activity for moving groups in and out and providing evaluators with time to organize paperwork and take nature breaks.

Data Analyses

Quantitative and qualitative data were compiled and analyzed after all data collection concluded. Evaluators summarized quantitative data with descriptive statistics such as numbers of respondents, frequencies and proportions of responses, average response when responses categories are assigned to a 6-point scale (e.g., 1 = "Strongly Disagree" to 6 = "Strongly Agree"), and standard deviations. Emergent coding was used for the qualitative data to identify the most common themes in responses.

Evaluators conducted inferential statistics to study any differences among participant groups (e.g., by gender or race/ethnicity) that could indicate inequities in the JSS program. Statistical significance indicates whether a result is unlikely to be due to chance alone. Statistical significance was determined with t-tests, chi-square tests, and various non-parametric tests as appropriate, with significance defined at $p < 0.05$. Because statistical significance is sensitive to the number of respondents, it is more difficult to detect significant changes with small numbers of respondents. Practical significance, also known as effect size, indicates the magnitude of an effect, and is typically reported when differences are statistically significant. The formula for effect sizes depends on the type of statistical test used, and is specified, along with generally accepted rules of thumb for interpretation, in the body of the report.

4 | Appendix B – Student Focus Group Protocol

Facilitator: My name is [evaluator] and I'd like to thank you for meeting with us today! We are really excited to learn more about your experiences in GEMS. In case you have not been in a focus group before, I'd like to give the group some ground rules that I like to use in focus groups. They seem to help the group move forward and make everyone a little more comfortable:

- What is shared in the room stays in the room.
- Only one person speaks at a time.
- If you disagree please do so respectfully.
- It is important for us to hear the positive and negative sides of an issue.
- This is voluntary - you may choose not to answer any question, or stop participating at any time.
- We will be audio recording the session for note-taking purposes only. Audio will be destroyed.
- Do you have any questions before we begin?

Key Questions

1. Why did you choose to participate in GEMS this year?
 - How did you hear about GEMS?
 - Who did you hear about it from?
2. We need to understand more about how GEMS is teaching students about STEM career opportunities in the Army and Department of Defense.
 - During GEMS, did you learn anything about STEM careers in the Army or Department of Defense?
 - How did you learn about them (e.g., field trips, invited speakers, other activities, etc.)?
 - Are you interested in pursuing a career in STEM with the Army or Department of Defense?
3. The AEOP sponsors a wide range of national STEM outreach programs other than GEMS. You are definitely eligible to participate in some of these programs and we need to know if you learned about them during GEMS.
 - During JSS, did you learn about any of the outreach programs that the AEOP sponsors? (Camp Invention, JSS, eCM, JSHS, etc.)
 - How did you learn about them?
 - Do you think that you will try to participate in any of those programs?
4. Were you happy that you chose to participate in GEMS this year?
 - What, specifically do you think you got out of participating in GEMS?
 - Were there any other benefits of participating in GEMS?
5. Do you have any suggestions for improving GEMS for other students in the future?
6. Last Chance - Have we missed anything? Tell us anything you want us to know that we didn't ask about.

5 | Appendix C – Mentor Focus Group Protocol

Facilitator: My name is [evaluator] and I'd like to thank you for meeting with us today! We are really excited to learn more about your experiences in JSBS. In case you haven't been in a focus group before, I'd like to give you some ground rules that I like to use in focus groups. They seem to help the group move forward and make everyone a little more comfortable:

- What is shared in the room stays in the room.
- Only one person speaks at a time.
- If you disagree please do so respectfully.
- It is important for us to hear the positive and negative sides of all issues.
- We will be audio recording the session for note-taking purposes only. Audio will be destroyed.
- Do you have any questions about participating in the focus group?

Key Questions

1. When you think about GEMS, what kind of value does this program add?

- How do you think students benefit from participating in GEMS?
- Can you think of a particular student or group of students that benefit the most from GEMS?
- How have you benefited from participating in GEMS?

One of the primary sponsors of the GEMS program is the Army Educational Outreach Program (AEOP). The AEOP needs specific information to create reports and defend funding for its outreach programs, GEMS included.

2. We need to understand more about how GEMS is helping students know more about STEM career opportunities in the Department of Defense, especially civilian positions.

- Have you seen any efforts by GEMS to educate participants about the Army, DoD, or careers in the DoD?
- What strategies seem to be the most effective for GEMS students?
- Do you have any suggestions for helping GEMS teach students about careers in the DoD?

3. The AEOP needs to know if GEMS is teaching students about the other STEM outreach programs that it sponsors.

- First, are you aware of the other programs offered by the AEOP? (e.g., JSS, eCM, JSBS, etc.)
- Have you seen any efforts at GEMS to educate adults or students about the other AEOP programs?
- What seems to work the best? The worst?
- Any suggestions for helping the AEOP educate these students about the other programs?

4. The AEOP is trying to make sure that its programs become more effective at reaching adult and youth participants from underserved and underrepresented groups (racial/ethnic groups, low SES, etc.).
 - Have you seen any efforts by GEMS to help engage underserved or underrepresented groups of adults and youth?
 - What strategies seem to work the best? The worst?
 - Any suggestions for helping GEMS reach new populations of adult and youth participants?
5. What suggestions do you have for improving GEMS?
6. Last Chance - Have we missed anything? Tell us anything you want us to know that we didn't ask about.

6 | Appendix D – GEMS Student Questionnaire

<u>Contact Information</u>		
Please verify the following information:		
*First Name:	<input type="text"/>	
*Last Name:	<input type="text"/>	
*Email Address:	<input type="text"/>	
<i>All fields with an asterisk (*) are required.</i>		

*1. Do you agree to participate in this survey? (required)(*Required)		
<i>Select one.</i>		
<input type="radio"/>	Yes, I agree to participate in this survey	
<input type="radio"/>	No, I do not wish to participate in this survey	Go to end of chapter

*2. Which GEMS site did you participate in? (select one)(*Required)

Select one.

<input type="radio"/>	ALABAMA - FORT RUCKER – U.S. Army Aeromedical Research Laboratory
<input type="radio"/>	ALABAMA - HUNTSVILLE – U.S. Army Aviation & Missile Research, Development & Engineering Center
<input type="radio"/>	ARIZONA - YUMA PROVING GROUND - U.S. Army Test and Evaluation Command
<input type="radio"/>	CALIFORNIA - PLAYA VISTA - U.S. Army Research Laboratory
<input type="radio"/>	FLORIDA - ORLANDO - U.S. Army Research Laboratory
<input type="radio"/>	ILLINOIS - CHAMPAIGN – U.S. Army Engineer Research & Development Center - Construction Engineering Research Laboratory
<input type="radio"/>	MARYLAND - ABERDEEN - Aberdeen Proving Ground
<input type="radio"/>	MARYLAND - FREDERICK – U.S. Army Medical Research and Materiel Command
<input type="radio"/>	MARYLAND - SILVER SPRING – U.S. Army Medical Research and Materiel Command - Walter Reed Army Institute of Research
<input type="radio"/>	MARYLAND - ADELPHI - U.S. Army Research Laboratory
<input type="radio"/>	MASSACHUSETTS - NATICK – U.S. Army Institute of Environmental Medicine
<input type="radio"/>	MISSISSIPPI - VICKSBURG – U.S. Army Engineer Research & Development Center
<input type="radio"/>	NEW JERSEY - PICATINNY -- U.S. Army Armament Research, Development and Engineering Center
<input type="radio"/>	NEW MEXICO - WHITE SANDS – White Sands Missile Range
<input type="radio"/>	TEXAS - SAN ANTONIO – U.S. Army Institute of Surgical Research

*3. How often did you do each of the following in STEM classes at school before participating in GEMS?(*Required)

Select one per row.

	<i>Not at all</i>	<i>At least once</i>	<i>A few times</i>	<i>Most days</i>	<i>Every day</i>
*Learn about science, technology, engineering, or mathematics (STEM) topics that are new to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Apply STEM learning to real-life situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about new discoveries in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about different careers that use STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Interact with scientists or engineers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicate with other students about STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*4. How often did you do each of the following in GEMS this year?(*Required)

Select one per row.

	<i>Not at all</i>	<i>At least once</i>	<i>A few times</i>	<i>Most days</i>	<i>Every day</i>
*Learn about science, technology, engineering or mathematics (STEM) topics that are new to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Apply STEM learning to real-life situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about new discoveries in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about different careers that use STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Interact with scientists or engineers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicate with other students about STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*5. How often did you do each of the following in STEM classes at school before participating in GEMS?(*Required)

Select one per row.

	<i>Not at all</i>	<i>At least once</i>	<i>A few times</i>	<i>Most days</i>	<i>Every day</i>
*Use laboratory procedures and tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Do hands-on STEM activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work in or with a team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Find questions or problems to investigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Plan an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Do an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Examine or analyze data or information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Make a decision or conclusion about the results of an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Discuss an explanation or solution with others or in writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Use a computer to make a model of something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*6. How often did you do each of the following in GEMS this year?(*Required)

Select one per row.

	<i>Not at all</i>	<i>At least once</i>	<i>A few times</i>	<i>Most days</i>	<i>Every day</i>
*Use laboratory procedures and tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Do hands-on STEM activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work in or with a team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Find questions or problems to investigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Plan an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Do an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Examine or analyze data or information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Make a decision or conclusion about the results of an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Discuss an explanation or solution with others or in writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Use a computer to make a model of something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*7. How much did you learn during GEMS? Mark each item with an answer of how much you learned during GEMS. (*Required)

Select one per row.

	<i>No new learning</i>	<i>Learned a little</i>	<i>Learned more than a little</i>	<i>Learned a lot</i>
*New STEM topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to do research in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How scientists and engineers work on real problems in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*8. How much did you learn during GEMS? Mark each item with an answer of how much you learned during GEMS. (*Required)

Select one per row.

	<i>No new learning</i>	<i>Learned a little</i>	<i>Learned more than a little</i>	<i>Learned a lot</i>
*How to ask a question that could be answered with experiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to use knowledge to guess (hypothesis) how an experiment will turn out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to use knowledge to suggest a solution to a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to make a model of an object or system to show its parts and how they work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to design steps for an experiment that are appropriate for the question to be answered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to identify the limitations of procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to carry out procedures for an experiment and recording data accurately	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to use computer models of things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to present data in charts or graphs to find patterns or relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to consider different interpretations of data to answer a question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How to consider different interpretations of data to decide if a solution to a problem works	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to support an explanation for an observation with data from an experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to support an explanation with STEM knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to defend an argument with data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to identify the strengths and limitations to solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How to communicate about experiments and explanations in different ways (talking, writing, graphics)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*9. How much did you learn during GEMS? Mark each item with an answer of how much you learned during GEMS. (*Required)

Select one per row.

	<i>No new learning</i>	<i>Learned a little</i>	<i>Learned more than a little</i>	<i>Learned a lot</i>
*How to stick with a task until it is finished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to make changes when things do not go as planned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to include others' ideas when making decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to communicate well with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to build relationships with professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*How to connect a topic or idea with my personal values or beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*10. The list below includes things your teacher might have done with you in GEMS. Please mark yes or no below to indicate if your instructor used each of the items below in your program. (*Required)

Select one per row.

	<i>Yes - my teacher used this strategy with me</i>	<i>No - my teacher did not use this strategy with me</i>
*Helped me learn about STEM in my everyday life	<input type="radio"/>	<input type="radio"/>
*Helped me understand how I can use STEM to improve my community	<input type="radio"/>	<input type="radio"/>
*Used more than one way to help me learn	<input type="radio"/>	<input type="radio"/>
*Gave me extra help when I needed it	<input type="radio"/>	<input type="radio"/>
*Encouraged me to share ideas with others	<input type="radio"/>	<input type="radio"/>
*Allowed me to work on a team project or activity	<input type="radio"/>	<input type="radio"/>
*Helped me learn or practice STEM skills	<input type="radio"/>	<input type="radio"/>
*Gave me feedback to help me improve in STEM	<input type="radio"/>	<input type="radio"/>
*Talked to me about the education I need for a STEM career	<input type="radio"/>	<input type="radio"/>
*Recommended other Army programs that match my interests	<input type="radio"/>	<input type="radio"/>
*Discussed STEM careers with the Army or Department of Defense	<input type="radio"/>	<input type="radio"/>

*11. After your GEMS program, are you MORE or LESS likely to choose to do each of the following outside of school requirements or activities?(*Required)

Select one per row.

	<i>Much less likely</i>	<i>Less likely</i>	<i>About the same before and after</i>	<i>More likely</i>	<i>Much more likely</i>
*Watch or read non-fiction STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Play with a mechanical or electrical device	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work on solving mathematical or scientific puzzles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Use a computer to design or program something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Talk with friends or family about STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Mentor or teach other students about STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Help with a community service project related to STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Participate in a STEM camp, club, or competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Take an elective (not required) STEM class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work on a STEM project or experiment in a university or professional setting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*12. How far do you want to go in school?(*Required)

Select one.

<input type="radio"/>	Graduate from high school
<input type="radio"/>	Go to a trade or vocational school
<input type="radio"/>	Go to college for a little while
<input type="radio"/>	Finish college (get a Bachelor's degree)
<input type="radio"/>	Get more education after college

*13. How many jobs/careers in STEM did you learn about during GEMS?(*Required)

Select one.

<input type="radio"/>	None
<input type="radio"/>	1
<input type="radio"/>	2
<input type="radio"/>	3
<input type="radio"/>	4
<input type="radio"/>	5 or more

*14. How many Army or Department of Defense (DoD) STEM jobs/careers did you learn about during GEMS?(*Required)

Select one.

<input type="radio"/>	None
<input type="radio"/>	1
<input type="radio"/>	2
<input type="radio"/>	3
<input type="radio"/>	4
<input type="radio"/>	5 or more

*15. How much do you agree or disagree with the following statements about Department of Defense (DoD) researchers and research: (*Required)

Select one per row.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
*DoD researchers advance science and engineering fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD researchers develop new, cutting edge technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD researchers solve real-world problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD research is valuable to society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*16. Mark for each item how much you agree with each statement. (*Required)

Select one per row.

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Don't agree or disagree</i>	<i>Somewhat agree</i>	<i>Agree</i>
*I am interested in a new STEM topic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am thinking about pursuing a STEM career	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I feel like I accomplished something in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I feel more prepared for more challenging STEM activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am thinking creatively about a STEM project or activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I have connected a STEM topic or field to my personal values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*17. Which of the following statements describe you AFTER participating in the GEMS program?(*Required)

Select one per row.

	<i>Disagree - This did not happen</i>	<i>Disagree - This happened but not because of GEMS</i>	<i>Agree - GEMS contributed</i>	<i>Agree - GEMS was primary reason</i>
*I am more confident in my STEM knowledge, skills, and abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in participating in STEM activities outside of school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more aware of other Army (AEOP) programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in participating in other Army (AEOP) programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in taking STEM classes in school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in earning a STEM degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in pursuing a career in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more aware of Army or DoD STEM research and careers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I have a greater appreciation of Army or DoD STEM research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*I am more interested in pursuing a STEM career with the Army or DoD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*18. How SATISFIED were you with the following GEMS features?(*Required)

Select one per row.

	<i>Did not experience</i>	<i>Not at all</i>	<i>A little</i>	<i>Somewhat</i>	<i>Very much</i>
*The location(s) of GEMS program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*The STEM topics included GEMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Teaching or mentoring provided during GEMS activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Educational materials (e.g., workbooks, online resources, etc.) used during program activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Invited speakers events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Field trips or laboratory tours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*19. How interested are you in participating in the following programs in the future?(*Required)

Select one per row.

*19. How interested are you in participating in the following programs in the future?(*Required)				
<i>Select one per row.</i>				
	<i>I've never heard of this program</i>	<i>Not at all</i>	<i>A little</i>	<i>Very much</i>
*Camp Invention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*eCYBERMISSION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Junior Solar Sprint (JSS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Gains in the Education of Mathematics and Science (GEMS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*UNITE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Junior Science & Humanities Symposium (JSBS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Science & Engineering Apprenticeship Program (SEAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Research & Engineering Apprenticeship Program (REAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*High School Apprenticeship Program (HSAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*College Qualified Leaders (CQL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*GEMS Near Peer Mentor Program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Undergraduate Research Apprenticeship Program (URAP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Science Mathematics, and Research for Transformation (SMART) College Scholarship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. What are the three most important ways that GEMS has helped you?

	Benefit #1:	<input type="text"/>
	Benefit #2:	<input type="text"/>
	Benefit #3:	<input type="text"/>

21. What are the three ways that we could make GEMS better?

	Improvement #1:	<input type="text"/>
	Improvement #2:	<input type="text"/>
	Improvement #3:	<input type="text"/>

22. Please tell us about your overall satisfaction with your GEMS experience.

7 | Appendix E – GEMS Mentor Questionnaire

<u>Contact Information</u>		
Please verify the following information:		
*First Name:	<input type="text"/>	
*Last Name:	<input type="text"/>	
*Email Address:	<input type="text"/>	
<i>All fields with an asterisk (*) are required.</i>		

*1. Do you agree to participate in this survey? (required)(*Required)		
<i>Select one.</i>		
<input type="radio"/>	Yes, I agree to participate in this survey	(Go to question number 2.)
<input type="radio"/>	No, I do not wish to participate in this survey	Go to end of chapter

*4. What is your gender?(*Required)		
<i>Select one.</i>		
<input type="radio"/>	Male	
<input type="radio"/>	Female	
<input type="radio"/>	Choose not to report	

*5. What is your race or ethnicity?(*Required)

Select one.

- | | |
|-----------------------|---|
| <input type="radio"/> | Hispanic or Latino |
| <input type="radio"/> | Asian |
| <input type="radio"/> | Black or African American |
| <input type="radio"/> | Native American or Alaska Native |
| <input type="radio"/> | Native Hawaiian or Other Pacific Islander |
| <input type="radio"/> | White |
| <input type="radio"/> | Choose not to report |
| <input type="radio"/> | Other race or ethnicity, (specify):: |

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*6. Which of the following BEST describes the organization you work for? (select ONE)(*Required)

Select one.

<input type="radio"/>	No organization
<input type="radio"/>	School or district (K-12)
<input type="radio"/>	State educational agency
<input type="radio"/>	Institution of higher education (vocational school, junior college, college, or university)
<input type="radio"/>	Private Industry
<input type="radio"/>	Department of Defense or other government agency
<input type="radio"/>	Non-profit
<input type="radio"/>	Other, (specify): <div></div>

*7. Which of the following BEST describes your current occupation (select ONE)(*Required)		
<i>Select one.</i>		
<input type="radio"/>	Teacher	(Go to question number 8.)
<input type="radio"/>	Other school staff	(Go to question number 8.)
<input type="radio"/>	University educator	(Go to question number 13.)
<input type="radio"/>	Scientist, Engineer, or Mathematician in training (undergraduate or graduate student, etc.)	(Go to question number 13.)
<input type="radio"/>	Scientist, Engineer, or Mathematics professional	(Go to question number 13.)
<input type="radio"/>	Other, (specify):: <div style="border: 1px solid black; height: 15px; width: 450px; margin-top: 5px;"></div>	(Go to question number 13.)

*8. What grade level(s) do you teach (select all that apply)?(*Required)	
<i>Select all that apply.</i>	
<input type="checkbox"/>	Upper elementary
<input type="checkbox"/>	Middle school
<input type="checkbox"/>	High school
<input type="checkbox"/>	N/A

*9. Which best describes the location of your school?(*Required)

Select one.

<input type="radio"/>	Frontier or tribal school
<input type="radio"/>	Rural (country)
<input type="radio"/>	Suburban
<input type="radio"/>	Urban (city)
<input type="radio"/>	N/A

*10. At what kind of school did you teach while participating in GEMS?(*Required)

Select one.

<input type="radio"/>	Public school
<input type="radio"/>	Private school
<input type="radio"/>	Home school
<input type="radio"/>	Online school
<input type="radio"/>	Department of Defense school (DoDDS, DoDEA)
<input type="radio"/>	N/A

*11. Do you work at a "Title-I" school?(*Required)	
<i>Select one.</i>	
<input type="radio"/>	Yes
<input type="radio"/>	No
<input type="radio"/>	I am not sure
<input type="radio"/>	N/A

*12. Which of the following subjects do you teach? (select ALL that apply)(*Required)

Select all that apply.

<input type="checkbox"/>	Upper elementary
<input type="checkbox"/>	Physical science (physics, chemistry, astronomy, materials science, etc.)
<input type="checkbox"/>	Biological science
<input type="checkbox"/>	Earth, atmospheric, or oceanic science
<input type="checkbox"/>	Environmental science
<input type="checkbox"/>	Computer science
<input type="checkbox"/>	Technology
<input type="checkbox"/>	Engineering
<input type="checkbox"/>	Mathematics or statistics
<input type="checkbox"/>	Medical, health, or behavioral science
<input type="checkbox"/>	Social Science (psychology, sociology, anthropology)
<input type="checkbox"/>	Other, (specify):: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>
<input type="checkbox"/>	N/A

*13. Which of the following best describes your primary area of research?(*Required)

Select one.

☐ Physical science (physics, chemistry, astronomy, materials science, etc.)

☐ Biological science

☐ Earth, atmospheric, or oceanic science

☐ Environmental science

☐ Computer science

☐ Technology

☐ Engineering

☐ Mathematics or statistics

☐ Medical, health, or behavioral science

☐ Social Science (psychology, sociology, anthropology)

☐ Other, (specify)::

☐ N/A

*14. Which GEMS site did you participate in? (select one)(*Required)

Select one.

<input type="radio"/>	Fort Rucker, Alabama
<input type="radio"/>	Huntsville, Alabama
<input type="radio"/>	Arizona - Yuma Proving Ground
<input type="radio"/>	California - Playa Vista
<input type="radio"/>	Florida - Orlando
<input type="radio"/>	Illinois - Champaign
<input type="radio"/>	Maryland - Aberdeen Proving Ground
<input type="radio"/>	Maryland - Frederick
<input type="radio"/>	Maryland - Silver Spring
<input type="radio"/>	Maryland - Adelphi
<input type="radio"/>	Massachusetts - Natick
<input type="radio"/>	Mississippi - Vicksburg
<input type="radio"/>	New Jersey - Picatinny
<input type="radio"/>	New Mexico - White Sands
<input type="radio"/>	Texas - San Antonio

*15. Which of the following BEST describes your role during GEMS?(*Required)

Select one.

- ☐ Instructor (typically a University or Army Scientist or Engineer)
- ☐ Classroom Assistant
- ☐ Resource Teacher
- ☐ Near Peer mentor
- ☐ Assistant Near Peer mentor
- ☐ Other, (specify)::

*16. How many GEMS students did you work with this year?(*Required)

 students.

*19. How SATISFIED were you with the following GEMS features?(*Required)

Select one per row.

	<i>Did not experience</i>	<i>Not at all</i>	<i>A little</i>	<i>Somewhat</i>	<i>Very much</i>
*Application or registration process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicating with the National Science Teachers Association (NSTA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicating with GEMS organizers / site coordinators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*The physical location(s) of GEMS's activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Support for instruction or mentorship during program activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Stipends (payment)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Invited speakers or "career" events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Field trips or laboratory tours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*20. The list below describes mentoring strategies that are effective ways to establish the relevance of learning activities for students. From the list below, please indicate which strategies you used when working with your student(s) in GEMS. (*Required)

Select one per row.

	<i>Yes - I used this strategy</i>	<i>No - I did not use this strategy</i>
*Become familiar with my student(s) background and interests at the beginning of the GEMS experience	<input type="radio"/>	<input type="radio"/>
*Giving students real-life problems to investigate or solve	<input type="radio"/>	<input type="radio"/>
*Selecting readings or activities that relate to students' backgrounds	<input type="radio"/>	<input type="radio"/>
*Encouraging students to suggest new readings, activities, or projects	<input type="radio"/>	<input type="radio"/>
*Helping students become aware of the role(s) that STEM plays in their everyday lives	<input type="radio"/>	<input type="radio"/>
*Helping students understand how STEM can help them improve their own community	<input type="radio"/>	<input type="radio"/>
*Asking students to relate real-life events or activities to topics covered in GEMS	<input type="radio"/>	<input type="radio"/>

*21. The list below describes mentoring strategies that are effective ways to support the diverse needs of students as learners. From the list below, please indicate which strategies you used when working with your student(s) in GEMS. (*Required)

Select one per row.

	<i>Yes - I used this strategy</i>	<i>No - I did not use this strategy</i>
*Identify the different learning styles that my student (s) may have at the beginning of the GEMS experience	<input type="radio"/>	<input type="radio"/>
*Interact with students and other personnel the same way regardless of their background	<input type="radio"/>	<input type="radio"/>
*Use a variety of teaching and/or mentoring activities to meet the needs of all students	<input type="radio"/>	<input type="radio"/>
*Integrating ideas from education literature to teach/mentor students from groups underrepresented in STEM	<input type="radio"/>	<input type="radio"/>
*Providing extra readings, activities, or learning support for students who lack essential background knowledge or skills	<input type="radio"/>	<input type="radio"/>
*Directing students to other individuals or programs for additional support as needed	<input type="radio"/>	<input type="radio"/>
*Highlighting under-representation of women and racial and ethnic minority populations in STEM and/or their contributions in STEM	<input type="radio"/>	<input type="radio"/>

*22. The list below describes mentoring strategies that are effective ways to support students development of collaboration and interpersonal skills. From the list below, please indicate which strategies you used when working with your student(s) in GEMS. (*Required)

Select one per row.

	<i>Yes - I used this strategy</i>	<i>No - I did not use this strategy</i>
*Having my student(s) tell other people about their backgrounds and interests	<input type="radio"/>	<input type="radio"/>
*Having my student(s) explain difficult ideas to others	<input type="radio"/>	<input type="radio"/>
*Having my student(s) listen to the ideas of others with an open mind	<input type="radio"/>	<input type="radio"/>
*Having my student(s) exchange ideas with others whose backgrounds or viewpoints are different from their own	<input type="radio"/>	<input type="radio"/>
*Having my student(s) give and receive constructive feedback with others	<input type="radio"/>	<input type="radio"/>
*Having students work on collaborative activities or projects as a member of a team	<input type="radio"/>	<input type="radio"/>
*Allowing my student(s) to resolve conflicts and reach agreement within their team	<input type="radio"/>	<input type="radio"/>

*23. The list below describes mentoring strategies that are effective ways to support students' engagement in "authentic" STEM activities. From the list below, please indicate which strategies you used when working with your student(s) in GEMS. (*Required)

Select one per row.

	<i>Yes - I used this strategy</i>	<i>No - I did not use this strategy</i>
*Teaching (or assigning readings) about specific STEM subject matter	<input type="radio"/>	<input type="radio"/>
*Having my student(s) search for and review technical research to support their work	<input type="radio"/>	<input type="radio"/>
*Demonstrating laboratory/field techniques, procedures, and tools for my student(s)	<input type="radio"/>	<input type="radio"/>
*Supervising my student(s) while they practice STEM research skills	<input type="radio"/>	<input type="radio"/>
*Providing my student(s) with constructive feedback to improve their STEM competencies	<input type="radio"/>	<input type="radio"/>
*Allowing students to work independently to improve their self-management abilities	<input type="radio"/>	<input type="radio"/>
*Encouraging students to learn collaboratively (team projects, team meetings, journal clubs, etc.)	<input type="radio"/>	<input type="radio"/>
*Encouraging students to seek support from other team members	<input type="radio"/>	<input type="radio"/>

*24. This list describes mentoring strategies that are effective ways to support students' STEM educational and career pathways. The list also includes items that reflect AEOP and Army priorities. From this list, please indicate which strategies you used when working with your student(s) in GEMS. (*Required)

Select one per row.

	<i>Yes - I used this strategy</i>	<i>No - I did not use this strategy</i>
*Asking my student(s) about their educational and/or career goals	<input type="radio"/>	<input type="radio"/>
*Recommending extracurricular programs that align with students' goals	<input type="radio"/>	<input type="radio"/>
*Recommending Army Educational Outreach Programs that align with students' goals	<input type="radio"/>	<input type="radio"/>
*Providing guidance about educational pathways that will prepare my student(s) for a STEM career	<input type="radio"/>	<input type="radio"/>
*Discussing STEM career opportunities within the DoD or other government agencies	<input type="radio"/>	<input type="radio"/>
*Discussing STEM career opportunities in private industry or academia	<input type="radio"/>	<input type="radio"/>
*Discussing the economic, political, ethical, and/or social context of a STEM career	<input type="radio"/>	<input type="radio"/>
*Recommending student and professional organizations in STEM to my student(s)	<input type="radio"/>	<input type="radio"/>
*Helping students build a professional network in a STEM field	<input type="radio"/>	<input type="radio"/>
*Helping my student(s) with their resume, application, personal statement, and/or interview preparations	<input type="radio"/>	<input type="radio"/>

*25. How useful were each of the following in your efforts to expose student(s) to Army Educational Outreach Programs (AEOPs) during GEMS?(*Required)

Select one per row.

	<i>Did not experience</i>	<i>Not at all</i>	<i>A little</i>	<i>Somewhat</i>	<i>Very much</i>
*Army Educational Outreach Program (AEOP) website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*AEOP on Facebook, Twitter, Pinterest or other social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*AEOP brochure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*It Starts Here! Magazine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*GEMS Program administrator or site coordinator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Invited speakers or “career” events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Participation in GEMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*26. How USEFUL were each of the following in your efforts to expose your student(s) to Department of Defense (DoD) STEM careers during GEMS. (*Required)

Select one per row.

	<i>Did not experience</i>	<i>Not at all</i>	<i>A little</i>	<i>Somewhat</i>	<i>Very much</i>
*Army Educational Outreach Program (AEOP) website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*AEOP on Facebook, Twitter, Pinterest or other social media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*AEOP brochure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*It Starts Here! Magazine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*GEMS Program administrator or site coordinator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Invited speakers or “career” events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Participation in GEMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*27. Which of the following AEOPs did YOU EXPLICITLY DISCUSS with your student(s) during GEMS? (check ALL that apply)(*Required)

Select one per row.

	<i>Yes - I discussed this program with my</i>	<i>No - I did not discuss this program with my</i>
*Gains in the Education of Mathematics and Science (GEMS)	<input type="radio"/>	<input type="radio"/>
*UNITE	<input type="radio"/>	<input type="radio"/>
*Junior Science & Humanities Symposium (JSHS)	<input type="radio"/>	<input type="radio"/>
*Science & Engineering Apprenticeship Program (SEAP)	<input type="radio"/>	<input type="radio"/>
*Research & Engineering Apprenticeship Program (REAP)	<input type="radio"/>	<input type="radio"/>
*High School Apprenticeship Program (HSAP)	<input type="radio"/>	<input type="radio"/>
*College Qualified Leaders (CQL)	<input type="radio"/>	<input type="radio"/>
*GEMS Near Peer Mentor Program	<input type="radio"/>	<input type="radio"/>
*Undergraduate Research Apprenticeship Program (URAP)	<input type="radio"/>	<input type="radio"/>
*Science Mathematics, and Research for Transformation (SMART) College	<input type="radio"/>	<input type="radio"/>
*National Defense Science & Engineering Graduate (NDSEG) Fellowship	<input type="radio"/>	<input type="radio"/>
*I discussed AEOP with my student(s) but did not discuss any specific program	<input type="radio"/>	<input type="radio"/>

*28. How much do you agree or disagree with the following statements about Department of Defense (DoD) researchers and research: (*Required)

Select one per row.

	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neither Agree nor Disagree</i>	<i>Agree</i>	<i>Strongly Agree</i>
*DoD researchers advance science and engineering fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD researchers develop new, cutting edge technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD researchers solve real-world problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*DoD research is valuable to society	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*29. How often did YOUR STUDENT(S) have opportunities to do each of the following in GEMS?(*Required)

Select one per row.

	<i>Not at all</i>	<i>At least once</i>	<i>A few times</i>	<i>Most days</i>	<i>Every day</i>
*Work with a STEM researcher or company on a real world STEM research project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work with a STEM researcher on a research project assigned by my teacher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Design their own research or investigation based upon their own questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Present my STEM research to a panel of judges from industry or the military	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Interact with STEM researchers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Use laboratory or field techniques, procedures, and tools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Design and carry out an investigation or experiment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Analyze data or information and draw conclusions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Work collaboratively as part of a team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Build or make a computer model	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Solve real world problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicate with other students about STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about different careers that use STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Learn about new discoveries in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*30. AS A RESULT OF THEIR GEMS EXPERIENCE, how much did your student(s) GAIN in the following areas?(*Required)

Select one per row.

	<i>No gain</i>	<i>A little gain</i>	<i>Some gain</i>	<i>Large gain</i>	<i>Extreme gain</i>
*In depth knowledge of a STEM topic(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Knowledge of research conducted in a STEM topic or field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Knowledge of research processes, ethics, and rules for conduct in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Knowledge of how professionals work on real problems in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Knowledge of what everyday research work is like in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*31. Which category best describes the focus of your student(s) GEMS activities?(*Required)

Select one.

<input type="radio"/>	Science
<input type="radio"/>	Technology
<input type="radio"/>	Engineering
<input type="radio"/>	Mathematics
<input type="radio"/>	All of the above

*32. AS A RESULT OF THEIR GEMS EXPERIENCE, how much did your student(s) GAIN in their abilities to do each of the following?(*Required)

Select one per row.

If answered. go to question number 34.

	<i>No gain</i>	<i>Small gain</i>	<i>Medium gain</i>	<i>Large gain</i>
*Asking a question that can be answered with one or more scientific experiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Using knowledge and creativity to suggest a testable explanation (hypothesis) for an observation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Considering different interpretations of data when deciding how the data answer a question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Supporting an explanation for an observation with data from experiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Defending an argument that conveys how an explanation best describes an observation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Integrating information from technical or scientific texts and other media to support your explanation of an observation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicating about your experiments and explanations in different ways (through talking, writing, graphics, or mathematics)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*33. AS A RESULT OF THEIR GEMS EXPERIENCE, how much did your student(s) GAIN in their ability to do each of the following?(*Required)

Select one per row.

	<i>No gain</i>	<i>Small gain</i>	<i>Medium gain</i>	<i>Large gain</i>
*Defining a problem that can be solved by developing a new or improved object, process, or system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Using knowledge and creativity to propose a testable solution for a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Making a model of an object or system to show its parts and how they work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Carrying out procedures for an experiment and recording data accurately	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Using computer models of an object or system to investigate cause and effect relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Considering different interpretations of the data when deciding if a solution works as intended	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Organizing data in charts or graphs to find patterns and relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Supporting a solution for a problem with data from experiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Defend an argument that conveys how a solution best meets design criteria	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Integrating information from technical or scientific texts and other media to support your solution to a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicating information about your design experiments and solutions in different ways (through talking, writing, graphics, or math equations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*34. AS A RESULT OF THE GEMS EXPERIENCE, how much did your student(s) GAIN (on average) in the skills/abilities listed below?(*Required)

Select one per row.

	<i>No gain</i>	<i>Small gain</i>	<i>Medium gain</i>	<i>Large gain</i>
*Sticking with a task until it is finished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Making changes when things do not go as planned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Including others' perspectives when making decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Communicating effectively with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Desire to build relationships with professionals in a field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Connecting a topic or field with their personal values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*35. Which of the following statements describe YOUR STUDENT(S) after participating in the GEMS program?(*Required)

Select one per row.

	<i>Disagree - This did not happen</i>	<i>Disagree - This happened but not because of GEMS</i>	<i>Agree - GEMS contributed</i>	<i>Agree - GEMS was primary reason</i>
*More confident in STEM knowledge, skills, and abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in participating in STEM activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More aware of other AEOPs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in participating in other AEOPs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in taking STEM classes in school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in earning a STEM degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in pursuing a career in STEM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More aware of DoD STEM research and careers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*Greater appreciation of DoD STEM research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*More interested in pursuing a STEM career with the DoD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. What are the three most important strengths of GEMS?

	Strength #1:	<input type="text"/>
	Strength #2:	<input type="text"/>
	Strength #3:	<input type="text"/>

37. What are the three ways GEMS should be improved for future participants?

	Improvement #1:	<input type="text"/>
	Improvement #2:	<input type="text"/>
	Improvement #3:	<input type="text"/>

38. Please tell us about your overall satisfaction with your GEMS experience.

8 | Appendix F – NSTA Response to FY18 Evaluation

