



Army Educational Outreach Program
End-of-Program Evaluation
WEEK 1

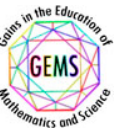
	Excellent	Above Average	Average	Below Average	Extremely Poor
INSTRUCTIONAL ACTIVITIES					
Adhesion Experiment/Lap Shear Set-up	13	15	2		

* Not all students rated this event.

INSTRUCTIONAL ACTIVITIES	COMMENTS, QUESTIONS, ETC FROM THE LAB
Adhesion Experiment/Lap Shear Set-up	<ul style="list-style-type: none"> - This was really cool because it was a real life application. - It was cool, but I wish I could see the results. - I will remember the smell of adhesion forever. - Smelly but cool. - Could have more seats - We should have chairs. - Great scientists and good experiments. - Seats would have been nice. - Good - Nicely Explained - The person could have explained this better. - Awesome. - Was a fun, hands-on activity - It was fun putting that glue on the coupons and seeing how it came out. - Very fun and advanced - Very fun, both presenters were very friendly & fun

1. What did you enjoy the most about participating in GEMS this week?

- Making new friends and doing hands on experiments.
- Leak Tree, Robotics, Bridges, and my team bonding.
- Lego robotics & bridge building.
- Lego Robotics.
- I enjoyed the lab experiments a lot.
- All of the teamwork and meeting new people.
- I enjoyed all the hands-on activities and how we didn't just spend 5 minutes doing the experiment and answering 30 questions.
- The people and labs, generally in a great environment.
- **The leak tree and adhesion projects because they were the most hands on.**
- Leak Tree & Tensile Testing.
- Having the opportunity to work with real scientists.
- I enjoyed all the fun experiments.



- The experiments.
- Being able to do STEM like activities.
- The Leak Tree was the most enjoyable experiment in this GEMS week.
- I enjoyed the speech by the soldiers and the engineering we did.
- GEMS allowed me to experience a more adult and real life science experiments in which I felt as though my interests and opinions were received as an equal to the teacher.
- Making friends, doing extremely fun and innovative things.
- Surface Tension
- Leak Tree
- The Leak Tree
- Meeting new people.
- The hands-on experiments with everyday items.
- The network of new friends.
- I enjoyed the robotics and leak tree. The robotics because I liked how we could be creative and build (hands-on). The leak tree because we worked as a team and got the job done.
- I enjoyed the robotics and electronic communications labs the most and the leak tree.
- Seeing different things and environments, seeing how they are used.
- The leak tree.
- I enjoyed getting to meet the scientists face-to-face and learning about their backgrounds.
- Always having a hands on activity.

2. How did GEMS help to prepare you for your math and science classes for the upcoming school year?

- By teaching us early the things we need to know.
- It has given me experience, knowledge, and challenges.
- I took the polymer lesson, which helped me out a lot.
- It keeps me remembering what I learned in school.
- It helped me learn how to find the easiest most efficient way to solve a problem.
- I will be more interested because of GEMS. Help me understand concepts better.
- Gave me new information about math and science that I can use in school.
- Made me excited and I'm looking forward to it.
- It helped me observe experiments better.
- GEMS helped me prepare for the classes I need to take for my career.
- It gave me a mental picture of what was to come.
- It gave me a better understanding of things for my lessons in school.
- GEMS helped me to be prepared for my math and science classes for the upcoming school year by doing fun experiments and learning new objects.
- Foreshadowed the involvement.
- GEMS allowed me to perfect forming in-depth hypothesis, as well as be aware of the science beyond classroom doors that connects with elementary concepts for the upcoming school year.

- Showed me how cool the labs could be. Set high standards.
- It was good review.
- Gained experience doing experiments in the lab.
- It gave me a “heads up” on what to expect for chemistry.
- GEMS is not like science at my school, it’s much better. Science at school is too much talking.
- It gives me the knowledge that my school does not provide.
- Taught me methods to use.
- It did by giving me a better understanding of ratios and the properties of substances.
- I’m more prepared to make math more fun and interesting for myself.
- It allowed me to remember what I had already forgotten since school ended.
- Exposed me to new things.
- GEMS helped show how we can apply the things we learn in the classroom.
- It gave me an idea of what I am to learn in my upcoming year.

3. What activity or aspect of GEMS made the biggest impression on you? Why?

- The leak tree because we had to communicate and work together.
- Getting to work in the laboratories.
- Engineering because I learned I like to build now.
- The Leak Tree.
- The learning activities made a BIG impression on me.
- The engineering.
- It was amazing being in a learning environment where everyone wanted to be there, because at school there are always people who don’t care and refuse to do the work.
- The leak tree because that was when our group used the most teamwork and got to know everyone better.
- **All the hands on activities, such as the adhesion project, because I rarely got to do hands on projects in school this year.**
- **Tensile testing and adhesion. I enjoyed that I was able to participate in helping out on a real experiment that helps our soldiers.**
- I think the bridge building had the biggest impression on me because we got to compete and build it on our own, with our designs.
- I liked the robotics because it made me think of a career I like.
- The leak tree because it was the most hands on experience I got.
- The more hands on activities said “hey lets learn and be more interested”
- The Lego Robotics at GEMS was the biggest impression on me because it helped me learn how to program our robot and someday, I would want to be an engineer.
- It is hard to pick one activity, but the speech the soldier gave and the nylon instructors summer jobs made me think about my future.
- The aspect of being treated as an intern and perform intern research (leak tree, nylon synthesis, robotics) and seeing a dream coming true before me became the biggest impression.
- The hands-on activities, how they helped out and asked questions while you did the lab.

- The surface tension because I did not know much about the equipment we were using.
- Leak Tree, reviewed the danger of accidents.
- The leak tree.
- GEMS does a very good job of making sure we understand these jobs are for the Army.
- It went more in-depth on experiments and concepts.
- Science and the soldier, he made me really decide to go into the Air Force.
- The robotics activity because it got me to talk more and get me out of my comfort zone.
- The robotics, electronic communications labs, and leak tree – they were interactive and fun
- Lego Robotics – everyone got together and just had fun
- The bridge building because it simulated what real engineers do.
- **My favorite was the adhesion because what we made was really going to be used on armor.**



Army Educational Outreach Program
End-of-Program Evaluation
WEEK 2

	Excellent	Above Average	Average	Below Average	Extremely Poor
INSTRUCTIONAL ACTIVITIES					
Adhesion Experiment/Lap Shear Set-up	13	10	6		

Note * Items not every student responded to

INSTRUCTIONAL ACTIVITIES	COMMENTS, QUESTIONS, ETC FROM THE LAB
Adhesion Experiment/Lap Shear Set-up	<ul style="list-style-type: none"> - It was fun (2) - Informative, good - Adhesive had a very strong smell - Interesting (2) - Pretty fun (2) - Cool

1. What did you enjoy the most about participating in GEMS this week?

- The robotics and bowling.
- Asking Questions
- Leak Tree Lab (2)
- The various experiments
- The hands-on activities and experiments
- I enjoyed the Leak Tree the most
- The environment and the people
- **Adhesion Experiment**
- Meeting friends & dealing with chemicals
- Special experiments I couldn't do anywhere else; advanced teachers and learning
- Labs, nice people
- Lego Robotics
- The labs and meeting new people
- Meeting nice people who like STEM and doing cool experiments.
- The fun and exciting activities
- The experiments
- I enjoyed the bridge building the best
- Straw rockets, leak tree, bowling, everything
- Leak Tree, Robotics, Bridges, Straw Rockets
- Doing all the labs, meeting the scientists and using the real lab tools
- I liked the labs and they helped me understand science more
- Doing the leak tree was a lot of fun
- The many different fun and exciting labs.
- I enjoyed the labs and meeting new people



- I learned close to all the things we learned about this week but we actually got to perform the experiments ourselves at GEMS whereas the teacher may just show you a video of the experiment in school.
- Cool Science Experiments
- Meeting new people and doing the experiments.
- I enjoyed building the bridge on the computer the most.

2. How did GEMS help to prepare you for your math and science classes for the upcoming school year?

- I was able to take part in many science experiments.
- I learned science principle
- It taught me the basic concepts for these classes
- The robots helped introduce me to the program I will be using next year.
- It helped show me what science and math is used in real life applications
- They put in into real life situations.
- It helped me by knowing more about the basics.
- I know more information about science
- Chemistry for this upcoming year.
- Yes, I am in the computer and networking technology at Hartford Tech High School and the Electronic Communications and computer-networking session gave me a preview of what I'll be learning in high school.
- It taught me more about STEM
- It gave me more knowledge
- It taught me more about STEM
- I have learned things relevant to the level science I will be taking especially since I will be taking STEM at John Carroll
- I learned a lot in the two fields
- It gives me an edge and more experience with lab stuff
- It made me a little more aware and smarter and I can choose my high school classes based off of what I liked the most at GEMS
- I feel like I may get better grades in math and science
- Taught me some science and math tricks to succeed in school
- It prepared me by keeping my mind in focus over the summer and teaching me new things that will guide me in school.
- It was a good review and also taught more about certain courses I can take and may be interested in
- Helped me know the hands-on experiments
- Lab experience
- GEMS helped me see how you apply math and science outside the classroom

3. What activity or aspect of GEMS made the biggest impression on you? Why?

- Spectroscopy
- The experience
- The engineering aspects, bridge building, excited because my goal in life is to be an engineer
- I believe the robotics made the biggest impression on me because I plan on pursuing that.
- The nylon synthesis was very interesting because we could see the reaction and it created an everyday material.
- Electronic communications because I am very interested in electronics.

- How it is very hands-on
- **The adhesion experiment**
- The last speaker from the Army. He made me think about life differently
- **The tensile testing and adhesion experiment because it was really used and I loved the application to Army Weapons and Systems.**
- Beer-Lambert's Law. Anything with Doctor Rose is always cool and fun
- Leak Tree was really fun (3)
- Bridge building day 1
- The science because I believe it is what I will do
- Robotics and Bridge Building
- Surface Tension, I never realized how important it was in science
- The smoothness and efficiency of the labs. Everything was amazing.
- The biggest impression made on me was doing by the labs and scientists because it was the most fun for me.
- I think the adhesive lab project was the most effective and made the biggest impression on me because I learned that the things we do actually help out and its not just for fun and they will actually use the things we made.
- The labs and how people got their jobs taught me how important school is
- The labs, specifically bridge building, gave me an idea of what I want to be in the future.
- The mentors and SEAPs were really friendly and made learning fun. The environment felt very comfortable
- The nylon, because they really walked you through everything and were very nice
- Making things for soldiers that save lives.
- The bridge building activity made the biggest impression on me because it showed me how technology can be used to plan out big projects

4. Additional Comments:

- Fun program as usual
- Thanks for an awesome program! I hope to come next year.
- Really fun, interesting and cool!
- Bring back some of the building and engineering sessions.
- I really enjoyed the program
- Hopefully I'll be able to keep doing this



Army Educational Outreach Program
End-of-Program Evaluation
WEEK 3



	Excellent	Above Average	Average	Below Average	Extremely Poor
INSTRUCTIONAL ACTIVITIES					
Adhesion Experiment/Lap Shear Set-up	19	8	1	1	

INSTRUCTIONAL ACTIVITIES	COMMENTS, QUESTIONS, ETC FROM THE LAB
Adhesion Experiment/Lap Shear Set-up	<ul style="list-style-type: none"> - it was interesting - fun experiment (6) - probably the most interesting and fun - really cool (2) - interesting to work on our own adhesive - had fun making coupons - ok but could be for a shorter time - it was okay liked making adhesive - different in a good way – enjoyed session - it was fun but if it moved a little faster it would have been better - a lot of time standing around - great instructors; not much to the lab - liked how our data will be used by the army - nice people - awesome

1. What did you enjoy the most about participating in GEMS this week?

- It was fun that we got to break stuff with 25,000 lbs of force.
- I enjoyed the Leak Tree the most this week in GEMS.
- I enjoyed meeting new people and doing hands on experiments with them.
- I really enjoyed the chemistry related labs. They inspired me to look into jobs in that area.
- I liked all the experiments that we did.
- Working in the labs.
- The bowling
- Making new friends and being challenged by the difficult labs.
- All the labs we got to do, such as bridge building.
- I liked meeting new people.
- I enjoyed the rockets, bridges, and SEAPs the most.
- What I enjoyed most about GEMS this week was the robotics.
- I really enjoyed several things here at GEMS. Those things include: bowling, leak tree, robots, bridges, and tensile testing.
- All of the hands on activities.
- I enjoyed the hands on experiments.
- Learning with the scientists and working on the hands on activities.



- The teachers, SEAP students, and instructors.
- I enjoyed the labs lands on experiments like leak tree and bridge building.
- The different and various labs. It is hard to be specific, but I liked the fact that each day was different.
- The nylon lab, there was a lot to do, I learned a lot; and they were so much fun to be with.
- The leak tree was my favorite. I had fun plugging up the leaks.
- In GEMS I enjoyed the straw rockets, Environmental session, bridge building, and nylon synthesis.
- Making new friends and being challenged more than ever.
- Enjoyed the variety of things we learned about and the hands on activities.
- I loved doing hands on experiments.
- I enjoyed the different activities and made new friends. All of the people and children are nice, helpful, and funny.
- The incredibly hands-on activities and the open acceptance and encouragement of questions.
- I enjoyed how almost all activities were both informative and fun.
- I enjoyed the leak tree session.
- I enjoyed the robotics lab and there robot fights.

2. How did GEMS help to prepare you for your math and science classes for the upcoming school year?

- It introduced me to new things that I might learn about next year
- It made me think before school started.
- GEMS gave me knowledge that I did not know prior to coming
- Gives me special knowledge for classes I have yet to take.
- GEMS taught me stuff that I could never understand from my science teacher. It was easy to understand and we tested every theory.
- It helped keep my brain fresh over the summer
- Taught me new things while having fun in labs
- It kept my brain working over the summer
- GEMS helped give me some insight on chemistry, which I am taking this year
- GEMS helped teach me more science in math. It helps me understand science more.
- Opened my mind to new aspects of chemistry & learned new math techniques.
- Taught me real life use and applications of studies I learned from school.
- I learned more in the different area of science to apply in school.
- It provided me with more information for future use in my classes.
- It opened up new experiences and taught me a little about every subject.
- It taught me new things
- It taught me new concepts I may use in school
- They refreshed my memory and taught me new and advanced things.
- It taught me more complicated ways to doing math and science.
- Yes, it did because I learned many new facts related to STEM.
- It helped me decide what I might want to do in my futures.
- By providing more information and improving my observation ability.
- It kept my brain working and I learned new words.
- The advanced classes
- I got a head start in science and math
- GEMS refreshed my memory of past science info and taught me new info too

- They gave me knowledge on some of the subjects I am going to learn about, giving me prior knowledge
- It showed me that math is used in everyday life when working at APG
- It helped me learn more about science for next year.
- I learned about physics

3. What activity or aspect of GEMS made the biggest impression on you? Why?

- All the people who care about you. Most summer camps don't care about you that much.
- The labs that we worked on this week!
- Leak tree because it showed how important it is to wear protective suite while dealing with chemicals.
- Everything in GEMS made a big impression on me. It taught me how to really work with a group of people to get the job done. It also gave me new knowledge in interesting subjects.
- It's a very serious place where you can't goof around.
- Lunch/break because I got to bond with my friends – and bowling.
- Leak tree because it taught me to work together.
- Networking because it helped me learn how to interact with people.
- Bridge Building gave a change in view and showed the difference between engineering and science.
- Leak Tree it was a first hand experience.
- The bridges made the biggest impression on me because I learned how hard it would be to be an engineer and how fun it could be.
- Robots made the biggest impression on me because not only did I learn a lot about unmanned robots but I also had lots of fun
- The biggest impression that made on me was their opening presentation. It really told us what was going to happen and they set the tone.
- The Leak Tree because it taught valuable lessons and was fun. It also helped us use teamwork.
- The bridge building because it gave me an opportunity to do the job of a civil engineer.
- Everyone was so nice and welcoming and I made a lot of new friends.
- Nylon Synthesis – we also talked about biological aspects of chemistry
- When the college students in the Nylon lab told us how they got their internships because it showed me the importance of networking.
- All the labs – to see the various scientists and engineers at work taught me about the different types of jobs.
- Electronic Communications & Computer Networking – I liked learning past ways of communications and using the telegraph.
- The nylon synthesis made the biggest impression on me because it helped me understand chemical reactions better.
- The nylon synthesis was helpful because we got to talk to some college kids about engineering.
- Beer's Law experiment because at first I was so confused but eventually learned the concept and was really interested.
- I liked working in real lab situations because it will help me figure out what kind of job in science that I might enjoy doing.
- I think the bridge building made the biggest impression on me because it would be really cool to have that job.

- **The adhesive and tensile testing showed me that I am interested in that subject of science – making stuff and testing it is what I would like to do.**
- The involvement of the interns in some of the activities has inspired me to apply for an internship myself.
- I enjoyed that there were things that were very fun like bowling, leak tree, bridge building and battle bots.
- The lego robots – I have great interest in robotics and mechanical engineering
- Robotics

4. Additional Comments:

- Can I come back next year – don't mix groups according to age.
- Everyone was EXTREMELY friendly including the SEAP students and the teachers.
- It was very fun – But I didn't like how early we had to come in and how long the day felt.
- Camp was a lot of fun
- I would like to be a SEAP next year or start an internship.
- I think it is a good program.
- I had lots of fun this year.
- The surface tension lab should have only been one hour in length.
- Electrical Engineering?
- I would definitely do it again!
- I will definitely apply for GEMS next year.
- Amazing program – I would LOVE to come back again.
- Thank you!
- Great Program – Thanks Dr. Young & ARL



Army Educational Outreach Program
End-of-Program Evaluation
WEEK 4



	Excellent	Above Average	Average	Below Average	Extremely Poor
INSTRUCTIONAL ACTIVITIES					
Adhesion Experiment/Lap Shear Set-up	12	14	3		

INSTRUCTIONAL ACTIVITIES	COMMENTS, QUESTIONS, ETC FROM THE LAB
Adhesion Experiment/Lap Shear Set-up	<ul style="list-style-type: none"> - The process was interesting - Cool facts about armor and designs – nice lab - Love the fact we’re producing real and useful data - very cool, loved the hands on - I did not enjoy standing so long - a lot of standing – kind of loud in the lab – otherwise good - a lot of fun, learned a lot - there was a lot of waiting - I liked how our data was actually useful in their job - It was fun and organized - Awesome - I found it cool in learning how to do it. - New – Mixing glue - This was fun and enjoyable - It was interesting - Great time - Something to do while waiting? - I liked that what we were doing was real work.

1. What did you enjoy the most about participating in GEMS this week?

- Watching the robots fight, bowling. & leak tree
- Learning about the various fields of science and meeting professionals
- Bridge Building (3)
- I enjoyed the straw rocket experiment on Monday
- Meeting people and labs
- Robotics, learning more about STEM, meeting new people
- All the experiments
- Straw Rockets
- I liked the leak tree because we simulated a chemical leak wearing a non-water proof suit and we got drenched
- Experiments I could participate in
- I really had fun playing with the snap circuits and the leak tree



- **The participation in producing useful data for adhesive testing was wonderful**
- Meeting new people
- The variety of experiments we got to do
- Learning about the new technologies
- Meeting new people and learning about careers
- I liked the hands on experience and going to the different labs to work alongside real scientists.
- I loved the hands on activities and the variety of activities
- The things I enjoyed most was the hands on experiments
- The experiments – it was fun, intriguing and essential to knowledge
- The leak tree
- I enjoyed building the robots and putting them to the test.
- I liked learning different areas of science and doing different types of experiments.
- Learned a lot of enjoyed making new friends
- Every activity was enjoyable and had a lot of new information
- I enjoyed the hands on experience and meeting people with the same interests
- I liked that we got to learn lots of different things about science

2. How did GEMS help to prepare you for your math and science classes for the upcoming school year?

- We learned some things that could help with the work we will be doing in school.
- I learned and revisited the scientific method and vocab
- Very well!
- Learned about polymers and other scientific aspects that will give me a step up
- It helped me get a head start in chemistry
- I learned the basics of science and new definitions
- I am moving on to Physics so some of the labs have helped me a lot
- Retouch – learned materials.
- I can prepare for subjects like chemistry (especially) while getting a good review on math (length, width, thickness, etc). I learned new laws too. Also I got a review on lab objects, like test tubes, beakers, etc.
- It gave me summer practice
- It helped me with more advanced things
- GEMS helped me think outside the box
- It provided me with ideas for my research projects that I will be working on in the upcoming school year
- It will help me with honors chemistry next year.
- It refreshed my memory and taught me new things
- It got my brain working again after a long summer of rest and relaxation
- I learned how to ask questions
- Some physics practice was useful
- They were able to explain things to me in a way my teachers could not with their materials
- Prepared me for gathering and analyzing data
- It helps me learn more about science and it makes me one step ahead of my class
- It gave me a strong base to refer back to
- More info on things in science
- I learned about lots of science that will help me this year
- Scientific terms etc
- GEMS made me more confident to take higher level classes

- It refreshed my memory of basic topics
- Helped me review for upcoming courses in my upcoming school year
- Explained a lot of topics I would be going into in my year of 10th grade

3. What activity or aspect of GEMS made the biggest impression on you? Why?

- I liked how they mention modeling molecules (building kits) I think it would really help since I'm more hands on and visual
- Networking – it gave me insight into an area of science that I have never explored before
- Science and the Solider – it was very inspirational
- Science and the Soldier – tied together science and service and impacted me
- All of the labs because it was very interesting and fun
- The people, they were nice, patient, and understanding – they got the picture through
- Engineering because I now have an interest in it
- Polymers because I liked it!
- The battle robots because we learned about robotics
- Beer's lab – made sense - test is an understandable why
- Meeting new people and the scientists
- **The adhesive testing was the biggest influence as I learned that practical research is not boring**
- The leak tree because it showed me that I can take things I've learned in school and apply it to real life
- The army soldier at the end
- That there were a lot of hands on experiments
- I think science and the solider had the biggest impression because it grounded the week and gave reason to why we did the experiemetns
- I liked that we were able to work with the scientists. Instead of just having them show us their job; we were able to do their job as well.
- I loved how we got to use real lab settings.
- The activity that made the biggest impression is bridge building – I like engineering.
- The robots.
- The leak tree. I learned that protection is essential in some careers, but especially in chemical spills. I also learned that strategy and team work plays a huge role in such missions.
- The Lego Robotics showed me more about robots that I could think
- The Lego Robotics and the Bridge Building because I never did these activities.
- Engineering, I want to become an engineer
- Leak tree, extremely hands on and interesting.
- Bridges
- The Lego bots. Robotics just appeal to me, so it was an enjoyable experience.
- The online bridge building, I always wanted to build things and see them used on the computer and that was my first time doing it.

4. Additional Comments:

- The SEAPs were fun to talk to and hang out with.
- Can you try to make the program end the same time every day (besides Fridays)?
- The DNA I didn't understand because I haven't taken life science yet
- Loved it
- Lovely program – THANK YOU DR. YOUNG!

- This was Fun!
- Loved the program – Gave me very valuable information into various fields of science and I hope to participate in future programs similar to this one.