SMILE Summer Camp 2014

Science and Math Interactive Learning Experience (SMILE) is now in its 4th year. SMILE is a STEAM camp – the "A" adds the Art of Creativity to the traditional STEM concept.

SMILE began as a partnership between the WCPSS AIG Department and the NCSU Materials Science & Engineering Department. SMILE Camp is synonymous with hands-on science. We do a wide variety of experiments spanning chemistry, physics, materials, and engineering. SMILE camp was created to address the needs of academically/intellectually gifted students to explore real science while doing so among peers. The camp takes place in the labs and classrooms of Engineering Building I on the NCSU Centennial campus. The most common question is what experiments are you going to do? Our answer is that what the students get out of smile camp is the experience – the experience of carrying out experiments, doing science at a level that challenges – with their peers. We maintain a 1 to 3 mentor to camper ratio. We employ a lot of strategies to make sure students are engaged and have the opportunity to work to their potential. The product of most of our experiments go home. At each academic year camp we do new experiments – after almost 150 different experiments – making Nano-ice cream is the only experiment repeated.

Important Registration information:

We are offering a variety of camps this summer. To accomplish this, each camp is limited in size. We do not know which ones will fill up and which ones will not. It is possible that we will add additional sections of a camp topic if sufficient interest is there. So if a camp is full, MAKE SURE YOU GET ON THE WAITLIST. We may make schedule modifications based on a combination of interest/enrollment/waitlist.

The camp tuition includes everything a camper needs for the week. The Tuition is $495 and is broken down as follows: food: morning and afternoon healthy snack and lunch ($60/week), all camp supplies: t-shirt, safety glasses, and backpack($30/week), experiment supplies such as chemicals, rockets, Arduino boards, etc. ($110 per week) plus the camp fee of $295 which covers everything else. All of the experiments that campers use/build/make during the week goes home with them.

Some camps will only have 16 or 10 slots. So to ease the differentiation burden with such small groups, we are limiting some weeks of camp to those that are presently in 5th & 6th grade and the following week to 7th, 8th, and 9th grade. If the week that you need has the wrong age, email me (roger@smilecamp.org). I will compile these and make adjustments to the schedule based on interest if possible.

The Six 2014 Summer Camp descriptions and Weekly Schedule:

Best of SMILE Camp Week

- This weeklong camp is comprised of a set of some of our best experiments gleaned from the last 4 years of SMILE camp. This is the 2nd year that the "Best of" summer camp session has run. The experiments are similar to last year. We will do 2 experiments in the morning and 2 in the afternoon each day. Again, the experiments cover a wide variety of subjects including physics, chemistry, and numerous engineering fields. Examples include growing crystals, magnetism, superconductors, metal casting, making glass, thermite reactions, using the SEM, using liquid nitrogen, and many more…….

Advanced SMILE Camp (the "best-of" week is not a prerequisite)

- For those campers that have attended the "Best of" week, this camp continues the path with different and more in-depth experiments. While this group of hands-on experiments will be different, we plan to cover more interesting and challenging projects. Experiments will include cloud chambers, 3D printing and prototyping, Ruben's Tube, ion lifters, making high temperature superconductors, chemiluminescence, electroluminescence, plasma tubes, and many more……..

Rocketry

- This camp will cover all things rocketry. We will build and launch a variety of rockets – small, medium, and large. We will build some commercial kits and follow that with a camper custom design. Some launches will be near campus. To launch larger rockets, we will have to travel (transportation is provided). Students will explore the science of rocketry through building rockets and doing experiments that include design elements, aerodynamics concepts, and engines. We will measure lift, drag, thrust, and the effect of different air foil shapes using wind tunnels. Campers will keep all the rockets that they build.

Energy

- This camp will explore energy and energy conversion. Students will perform experiments that explore renewable and clean energy including solar, geothermal, and wind as well as traditional sources (fossil & nuclear). We will experiment with energy storage, utilize sunlight to melt glass and metals, make solar cells including a solar powered USB charger. We will also measure and explore the effect of energy conversion efficiencies. We will also tour the NCSU Solar Research House. Campers will keep the projects they build.

Programmable micro controller - Arduino!

- This camp will cover all things Arduino. What these affordable programmable controllers can do is amazing. We will use the Arduino platform to build multiple projects which will build skills in project design and assembly, circuitry, and programming. Campers will gain an understanding of how to utilize the Arduino platform so they know where to go and how to do their own projects. Campers will keep the projects they build including the Arduino board and components which they can utilize to build future projects of their own design.

3D printing and modeling software

- This camp will be a full week of design and print in 3D. We will teach campers how to use a 3D drawing package to make designs which they will then print in 3D. Early in the week, we will show the campers how to download classic designs from the internet and print them while learning how to use the 3D printers. Campers will also use a 3D scanner to scan objects to replicate them or edit and then print their edited scans. Campers will take home all of their designs and builds.

SMILE 2014 Summer Camp Weekly Schedule

		Grade range for each camp*					
Max # of Campers/week		32	16	16	10	10	10
Week of Camp		**Best of SMILE**	**Advanced SMILE**	**3D Printing**	**Rocketry**	**Energy**	**Arduino**
1	**June 16th – 20th**	5th – 9th	5th – 6th	7th – 9th	5th – 6th	7th – 9th	
2	**June 23rd– 27th**	5th – 9th	7th – 9th	5th – 6th			
3	**June 30th **– July 3rd**	5th – 9th	5th – 6th	7th – 9th	7th – 9th	5th – 6th	
4	**July 7th– 11th**	5th – 9th	7th – 9th	5th – 6th			
5	**July 14th – 18th**	5th – 9th	5th – 6th	7th – 9th	5th – 6th		7th – 9th
6	**July 21st – 25th**	5th – 9th	7th – 9th	5th – 6th	7th – 9th		5th – 6th
7	**July 28th – Aug 1st**	5th – 9th	5th – 6th	7th – 9th	7th – 9th		5th – 6th
8	**Aug 4th – 8th**	5th – 9th	7th – 9th	5th – 6th		5th – 6th	7th – 9th
9	**Aug 11th – 15th**	5th – 9th	5th – 6th	7th – 9th		7th – 9th	7th – 9th

* The grade listed here is the current grade **that the camper is in today**.

** June 30th week of camp will be only 4 days (the camp fee is prorated) … no Camp Friday, July 4th.

Important Notes:

- If the camp is full, please make sure you go ahead and register in order to create a wait list! We anticipate making some schedule adjustments due to interest/enrollment/waitlist.
- The total tuition for camp is $495 and is composed of:
  - 1) $60/week for Food: morning and afternoon healthy snack and lunch, and
  - 2) $30/week for camp supplies: t-shirt, safety glasses, backpack, etc.), and
  - 3) $110 per week for experiment supplies: chemicals, rockets, analytical equipment time, Arduino boards, etc. and
  - 4) $295 covers all of the normal camp stuff.
- All experiment materials & products, rockets, solar cell phone chargers, Arduino boards, safety glasses, etc. go home with the camper.
- Experiments start at 8:30 and run to 4:30pm (with breaks for snacks and lunch)
- You need “Before Care” if you need to drop off before 8 and “After Care” if you need to pick up after 5. Before and After Care campers interact with a mentor. No video games.
- Cameras are a good way to provide supplementary documentation for the camper’s lab notebook.
- Lab notebooks will be judged and prizes will be awarded at the end of the week.