**LUSD STEAM Festival Assignment May 19-20, 2017**

**Friday 5-8 PM**

**Saturday 9-Noon**

**Science, Technology, Engineering, Art and Math**

**Assignment for Secondary Grades**

The Friday night STEAM Festival promises to be an unforgettable event that you won’t want to miss. It’s happening at Lompoc High School. For more information go to: <http://www.ccstemexpo.org/> and click on “STEAM Festival”.

There will be a variety of hands-on demonstrations of various scientific principles and/or engineering. You are to study some of these, sketch how the demonstrations work, and write a few brief sentences discussing the scientific principles or engineering at work.

You must choose 4 different demonstrations.

You are to choose one demonstration from four different categories.

For each demo sketch a figure showing how the apparatus was set-up. Label the figure with important pieces of equipment. For many demos you should draw both a before and an after picture.

In a few sentences, explain the scientific concepts or demonstrated engineering (see the next page for a template).

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| **Group 1**:  **Computer Science** | * Coding with Ozobots- Smallest robot that is capable of being coded to make games and solve challenging puzzles to open the locked box. (Booth 22) * Design and write code to make a webpage (Booth 19) * Experiment with Robots, dismantle a computer and put back together (Booth 19) | * Friday Only * Friday and Saturday * Friday and Saturday |
| **Group 2**:  **Environmental Science** | * NatureTrack will provide the materials and seed to make "Bee Feed Seed" packets. (Booth 10) * Agua Pura hands on watershed model (Booth 9) * Water filtration demonstration; field testing equipment; environmental engineering information (Booth 25) | * Friday Only * Friday Only      * Friday Only |
| **Group 3**:  **Life Science** | * Touch Tanks & ROV Demonstration- with Cabrillo High (Booth 24) * Look at pond water and Elodea under the microscope (Booth 15) * Interactive Marine Aquaria- with UCSB (Booth 6) | * Friday Only * Friday (maybe Saturday) * Saturday Only |
| **Group 4:**  **Mathematics** | * Hands-on Math Activities (Booth 3) | * Friday and Saturday |
| **Group 5:**  **Earth Science** | * Rock Separation and Earth Science (Booth 2) | * Friday Only |
| **Group 6**:  **Physical Science** | * Make Slime (Booth 7) * Launch model rockets, do space trivia, have patch making for younger kids (Booth 34) * Demonstration and hands on activity of Elephant Toothpaste (Booth 40) * Learn to throw different types of baseball pitches and the science behind them Upper Elementary (Booth 36 or 38) * Local ocean dive shop provides gear and dive classes - Make a Cartesian diver (Booth 13) * Hit target with Trebuchet (Booth 33) * Make ice cream in a bag (Booth 24) * Water Balloon Cannon | * Friday Only * Friday Only * Friday Only * Friday Only * Friday (maybe Saturday) * Friday (maybe Saturday) * Saturday Only * Saturday Only |
| **Group 7:**  **Art** | * We will use ink pens to do a calligraphy hands on demonstration (Booth 6) * Art Activities- Los Berros (Booth 4) | * Friday Only      * Friday and Saturday |
| **Group 8:**  **Engineering** | * Rockets (Booth 1) * Make a paper rocket then launch outside on a pneumatic air launcher (Booth 35) * Build a simple circuit using a lithium battery, copper tape, and LED light. Middle School (Booth 12) * Promotion of annual Summer Reading Program "Reading by Design,”. Sign-up for library cards and build with LEGOs. (Booth 14) * Design, Electronics, Robotics, and Manufacturing with plenty of hands-on activities for engineers of all ages. (Booth 21) * Design and Launch Rockets (Booth 34) | * Friday Only * Friday Only * Friday and Saturday * Friday and Saturday * Friday and Saturday * Saturday Only |
| **Group 9:**  **Technology** | * Robotics, Arduino, Invention, Design Thinking, Graphics (Booth 20) * Robotics and information on the YMCA robotics club and how we integrate STEAM in our afterschool programs (Booth 26) * 3D printing, Robots, littleBits. T-shirts, paper circuits, Dremel tools, Arduino boards and more. Some to look at, some to do! (Booth 27) * Demonstration of a FIRST Robotics Robot by local FIRST World Championship competition team (Booth 42) * Hot hand test & others with Vernier probes (Booth 22) | * Friday Only * Friday and Saturday * Friday and Saturday * Saturday Only * Saturday Only |

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student School: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Demonstration Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Sketch of Presentation**

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Explanation of Scientific Concept or Engineering:

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