



## Summary Report for Science Squad Sunday Playday – May 13, 2012

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[Cascades Science Center Foundation](#) is a non-profit organization with a mission to inspire enthusiasm for science, technology, engineering and mathematics through hands-on science education. Thank you for getting involved with the foundation by making your child part of the [Science Squad](#). The fifth session was held at [StudentRND](#) center, it was a mother's day and gorgeous weather outside. It was awesome to see the kids so engaged in all the activities. Thanks to Lee (one of the parent volunteers) for helping out throughout the day. Next session is on **Sunday, May 27, 2012 (Happy Memorial Day Weekend)**! You can find the photos from the event at the [Facebook page](#). While you are there, don't forget to [like Cascades Science Center Foundation](#) to support our cause.

### Hands-on Experience



What is smell?

<http://www.youtube.com/watch?v=NIO0gaO6fYY>



<http://www.youtube.com/watch?v=dhP3GOwrNDw>

#### Physical Science – Science of Smell      Lead: John Hormaechea

What is Smell? Why do things smell? How do we smell? Simple questions but with answers that can be challenging. We spent our chemistry session learning about smell, including:

- How items give off smell in the form of molecules (esters) that bind with a patch of neurons in the back of your nose that have hair like strands (cilia).
- How items from Scratch and Sniff paper (pizza, chocolate chip, donut) to bowling balls take esters and embed them (using microencapsulation) that holds the scent on the card, bowling ball, or other solid object. When you scratch or excite the item, the molecule is released.
- Smells boil down to 5 key ingredients: Carbon, Nitrogen, Hydrogen, Oxygen, and Sulfur. (Extra Note: These smells are not defined by the long held belief of their shape and size, but rather the vibration of the molecules).
- Making your own scent salve using beeswax, Jojoba oil, essential oil (cinnamon, lavender, or both). Great for Mother's Day! Some are quite powerful!

Watch the video of the session at [You Tube](#) and learn more at following links :

<http://health.howstuffworks.com/human-body/systems/nose-throat/question139.htm>

[http://www.ted.com/talks/luca\\_turin\\_on\\_the\\_science\\_of\\_scent.html](http://www.ted.com/talks/luca_turin_on_the_science_of_scent.html)

[http://www.ehow.com/how\\_4699700\\_making-perfume-kids.html](http://www.ehow.com/how_4699700_making-perfume-kids.html)

Chemistry activities provided courtesy of Oregon Museum of Science and Industry (OMSI) Chemistry Cookbook

### Learn



#### Modern Physics - Light and Matter      Presenter: Abhiram Chivukula

Did you know Physics was known as natural philosophy until the late 18<sup>th</sup> century? Physics is a general analysis of nature conducted in order to understand how the universe behaves. Abhiram led a lecture on "Modern Physics" and explained various rough various experiments conducted by scientists in 20<sup>th</sup> century to prove theories of Physics. The progress of scientific understanding follows the path of making better and better wrong guesses over time in hopes of getting closer and closer to the truth. In the words of [Richard Feynman](#), the modern physics deals with "nature as she is — absurd." Read about [Rutherford model of atom](#), [Gold Foil Experiment](#), [failure of Rutherford model](#) and [Double Slit Experiment](#). Kudos to Abhiram to explaining 'difficult' concepts to kids by using easy language and analogies.

### Apply

We were able to have time allocated to team projects in this session. In our individual teams, we discussed the question, came up with hypothesis and conducted experiments.

- **Team Bob (Daniel Lu, Daniel Hong, James Lai) – Door Alarm**
  - Question: How does a simple homemade door alarm work?
  - Hypothesis 1: Door alarm uses a switch to turn the alarm circuit on and off.
  - Hypothesis 2: If the voltage in circuit is too high, the door alarm won't work.
  - Hypothesis 3 : If there is a short circuit in the wire, then the wires are hot when you touch them.

#### Imaginative Playground

Helpers: Sonu Arora, Lee Bodin, John Hormaechea, Siren Hakimi, Erol Balevi

- **The Eaters of Pi (Patrick, Lucas, Daniel P, Ton) – Electric Circuit**
  - Question: How does the length of the wire in the circuit impact the flow of charge through the circuit?
  - Hypothesis: The length of the wire in the circuit does not impact how fast the charge flows.
- **The Idiots / The Sharks (Subarno, Dev, Jacob) – Lego Robotics**
  - Question: How does a computer program work with a robot?
  - Hypothesis: A computer program has a set of instructions that are followed by a robot.
- **Science People (Eric, Nicholas, Angelina, Joseph Li, Daniel Li) – Rollercoasters**
  - Question 1: How do you get more speed?
  - Question 2: How do you make a rollercoaster go through a loop?
  - Question 3: How do you make a rollercoaster turn?
  - Hypothesis 1: To make more speed, the ramp was made longer.
  - Hypothesis 2: You make the loop smaller
  - Hypothesis 3: You get just right angle for speed so it doesn't fly off.