



## Science in the news!



Picture description: Aaron Kosminski, who is believed to be "Jack the Ripper".

### DNA testing reportedly reveals identity of Jack the Ripper.

A self-described "armchair detective" and Finnish molecular biologist have claimed to have discovered the identity of the serial killer known as Jack the Ripper, who brutally murdered at least 5 women in East London in 1888.

A report in the Mail on Sunday Sep 7, 2014 names the killer as Aaron Kosminski, a Jewish Polish-born immigrant who lived in the area and would have been 23 years old at the time of the murders. He was committed to an insane asylum, where he died of complications from gangrene.

Molecular biologist Dr. Jari Louhelainen talks about how he used a technique called "vacuuming" to remove DNA from a stained shawl purportedly belonging to one of the victims. He used infrared imaging that reveal stains on the shawl were blood and semen and is now claiming that the DNA from the semen is a match for Kosminski.

### What we believe

We believe that all students may be motivated to succeed in science. It is our commitment to excite and support students in this process. We will use a multifaceted instructional program to accomplish these goals. This will include:

- Creating a **safe** learning environment.
- Recognizing and supporting the individual needs of **each** student.
- Providing hands-on demonstrations and laboratory experiences.
- Bringing the science of **today** into the classroom on a **daily** basis.
- Meeting the Utah Core Curriculum Standards.
- Using a range of student evaluation techniques.
- Interfacing with parents on a regular basis through both a science newsletter and periodic phone calls.
- Constantly challenging our students to push the envelope of their abilities.
- Showing each student that we **care** about their success.

### What we offer

#### Currently we are teaching:

- Energy Foundations A
- Astronomy
- Great Scientists
- Biology A- Cells

#### Classes to look forward to next term:

- Biology B- Genetics
- Earth Systems A
- Physics A

### Contact us

We'd love to hear from you! Share with us any thoughts or questions you have!



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## Species spotlight

The deep-sea animal species *Dendrogramma enigmatica* resembles a chanterelle mushroom. Upon closer inspection the creatures seem to belong to the animal, not fungi, kingdom. And yet they cannot be classified under any existing animal group, perhaps requiring an entire rewrite of the tree of life. This may also have an impact on how neurosystems, and tissues evolved over time.

*Dendrogramma* are less than an inch long and sport a flat disc that houses a forked digestive canal and a stalk with a hole at the end for food to enter and exit.

They were found in 1986 in the Pacific ocean at a depth of 3,000 ft near Tasmania. No other dive has been able to find them. Unfortunately they were preserved in formaldehyde so running genetic tests to determine their closest relatives is difficult if not impossible.



## Extend your learning

### Utah State University "Science Unwrapped"

Each Science Unwrapped event begins with a lecture and is followed by hands-on learning activities and exhibits. Each gathering begins at 7 pm in the Eccles Science Learning Center Auditorium (Room 130) on the USU campus. Each event is free and open to all ages.

#### "Matter of Patterns in Science" Series

Friday, Sept. 12: "Chemical Attractions"

Friday, Oct. 10: "Seeing the Forest for the Trees"

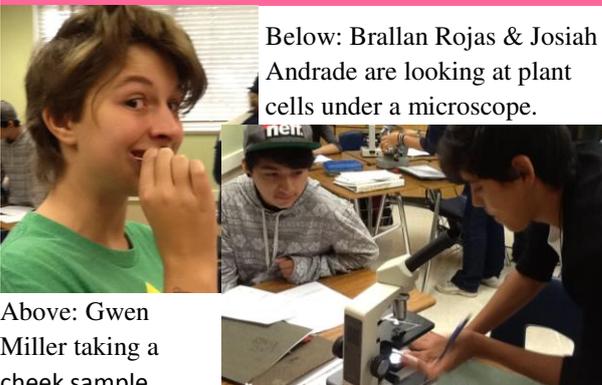
Friday, Nov. 14: "Unwrapped Science on the Radio"

## Mariah's class

Welcome to Biology! I am excited to be a part of such a strong science team here at Fast Forward. It has been a great start to a new year! Come visit our new science classroom and say "Hi" to Bonzo our boa constrictor.

Thus far we have looked at plant and human cheek cells with the microscope. We extracted DNA from split peas, and saw how a semipermeable membrane works with eggs. We also played with H<sub>2</sub>O and were able to float paperclips. Sounds easy, right? Go try it ☺

In the next three weeks we will finish up Photosynthesis and cellular respiration. We will then study how DNA was discovered and learn about cellular division (remember your meiosis and mitosis). Students will understand how cells reproduce themselves which is the secret to life.



Below: Brallan Rojas & Josiah Andrade are looking at plant cells under a microscope.

Above: Gwen Miller taking a cheek sample.

It doesn't seem possible but we are almost three weeks into the school year already. Three Physics classes are being taught this term by Rich and Rob (student Teacher from Utah State). Students are enjoying the fast paced classes and for many it is the first time science has been fun for them.

In first period, Energy Foundations A, students have already learned about velocity, acceleration and Newton's Laws. They are currently learning about gravity. Students were surprised to learn that the Moon falls to the Earth just as an apple falls from a tree. Also students were able to experience through demonstrations some of the most important principle of Physics. Their favorite was the penny and the feather, where they were able to see these two objects fall at the same rate (accelerate) through a vacuum (Aristotle was wrong). They will be learning about momentum and energy in the coming units.

In second period, Astronomy students learned about the history of Astronomy and followed the path of the ancient Greeks as well as such great astronomers as Galileo and Kepler. They plotted (lab) the motion of Mars in the heavens and learned that planets do a quirky loop in the heavens when their position is plotted over several months (retrograde motion). They also learned how Galileo's observations that Venus (like the Moon) had phases, proved that the Sun (and not the Earth) was the center of the solar system.

Finally in third period, Great Scientists, students learned about the Manhattan Project and how the atomic age came to be. We learned about such great scientists as Oppenheimer, Feynman and Heisenberg. Students found their common sense challenged by the discoveries of Quantum physics where particle (both with mass and without) can be in an infinity of locations simultaneously. Students will be able to experience a sample of the important metal, Uranium and observe how a Geiger counter reacted to it (alpha particle emissions).

