

Science Information for Teachers 1~15~2012

Nocturnal: Scenes from the Southern Night

Have you ever seen the night sky change? It does -- sometimes in beautiful and unexpected ways. To see it, though, usually requires patience. The above award winning video shows several of the possible changes in dramatic fashion with a time lapse video. Visible are sunset-illuminated clouds moving, stars of vivid colors rising, the long tail of a Comet Lovejoy rising, bright satellites crossing, a meteor exploding, a distant lightning storm approaching, skiescapes including the Magellanic Clouds rotating, and a fisheye sky rotating while the foreground becomes illuminated by moonlight. Frequently featuring an artistic human sculpture in the foreground and the southern sky in the background, the video closes with a time lapse clip of a total lunar eclipse.

<http://apod.nasa.gov/apod/ap120806.html>

History of our world in 2 minutes

Although the ending is NOT history, there is a lot of real history packed in this 2 minute wild ride.

<http://marcbrecy.perso.neuf.fr/history.html>

We're NASA and We Know It

Science and rap. But the kids do like it.

<http://www.youtube.com/watch?v=QFvNhsWMU0c>

The Known Universe

What would it look like to travel across the known universe? To help humanity visualize this, the American Museum of Natural History has produced a modern movie featuring many visual highlights of such a trip. The video starts in Earth's Himalayan Mountains and then dramatically zooms out, showing the orbits of Earth's satellites, the Sun, the Solar System, the extent of humanities first radio signals, the Milky Way Galaxy, galaxies nearby, distant galaxies, and quasars. As the distant surface of the microwave background is finally reached, radiation is depicted that was emitted billions of light years away and less than one million years after the Big Bang. Frequently using the Digital Universe Atlas, every object in the video has been rendered to scale given the best scientific research in 2009, when the video was produced.

<http://apod.nasa.gov/apod/ap100120.html>

Curiosity's first look at Mars

On 5 August NASA successfully landed its rover, Curiosity, on Mars. Since landing, the rover has captured some striking images of the red planet. In this video, NASA scientists John Grotzinger and Joy Crisp talk about what we've seen so far, and what we might encounter when Curiosity drives towards Mount Sharp -- where we hope to find signs of water.

http://www.youtube.com/watch?v=3iKrn_CNZpo&feature=relmfu

ENCODE: Encyclopedia Of DNA Elements

ENCODE, the Encyclopedia of DNA Elements, is the most ambitious human genetics project to date. It takes the 3 billion letters described by the Human Genome Project in 2000, and tries to explain them. Remarkably, ENCODE scientists have managed to assign a biochemical function to 80% of the genome, including the genes and the parts of the genome that tell those genes what to do. This information is helping us understand how genomes are interpreted to make different types of cells and different people -- and crucially, how mistakes can lead to disease. In this video, ENCODE's lead coordinator, Ewan Birney, and Nature editor Magdalena Skipper talk about the challenges of managing this colossal project and what we've learnt about our genomes.

<http://www.youtube.com/watch?v=Y3V2thsJ1Wc&feature=relmfu>

Understanding ENCODE

The Encyclopedia of DNA Elements (ENCODE) Consortium is an international collaboration of research groups funded by the National Human Genome Research Institute (NHGRI). The goal of ENCODE is to build a comprehensive parts list of functional elements in the human genome, including elements that act at the protein and RNA levels, and regulatory elements that control cells and circumstances in which a gene is active.

<http://www.youtube.com/watch?v=yjpW30z-SB8&feature=related>

No science content - Just cute

A Snoring Dormouse

http://www.youtube.com/watch?v=DIS3w1GGE8g&feature=player_detailpage

The Story of You

Ever since a monk called Mendel started breeding pea plants we've been learning about our genomes. In 1953, Watson, Crick and Franklin described the structure of the molecule that makes up our genomes: the DNA double helix. Then, in 2001, scientists wrote down the entire 3-billion letter code contained in the average human genome. Now they're trying to interpret that code; to work out how it's used to make different types of cells and different people. The ENCODE project, as it's called, is the latest chapter in the story of you.

<http://www.youtube.com/watch?v=TwXXgEz9o4w>

Magnificent CME Erupts on the Sun

On August 31, 2012 a long filament of solar material that had been hovering in the sun's atmosphere, the corona, erupted out into space at 4:36 p.m. EDT. The coronal mass ejection, or CME, traveled at over 900 miles per second. The CME did not travel directly toward Earth, but did connect with Earth's magnetic environment, or magnetosphere, causing aurora to appear on the night of Monday, September 3.

<http://www.flickr.com/photos/gsfcr/7936905134/in/photostream>

Puppets Teaching Lab Safety

After years of suffering through dull lab safety videos, a group of Berkeley students have made a film that could spare a younger generation from watching humorless people with 80's hair explain the dangers of wearing open-toed shoes while working with chemicals.

Their music video evokes the Muppets while conveying several important messages that can keep kids from getting hurt.

<http://www.wired.com/wiredscience/2009/10/puppet-lab-safety-video/>

"It's ONLY A Theory!" - The Scientific Method

There are those who call evolution "only a theory". This belies a complete ignorance of what a theory is or how it is arrived at. In this video, you walk through the scientific method, from the observations that lead to scientific laws (which have no explanatory power) to theories (which is the highest standing an idea can achieve in science).

<http://www.youtube.com/watch?v=9Re8QxKZdm0>

Is Biomedical Research Really Close to Curing Anything?

A century ago, people would suffer and die from what we now consider routine bacterial infections. With the discovery of penicillin, a miracle occurred where it became possible to cure people who previously had been left for dead. We're now at the edge of a similar revolution due to remarkable innovations in the field of regenerative biology. In What's Up, Doc? Is Biomedical Research Really Close to Curing Anything?, Professor Douglas Melton introduces the astounding advances being made today to unlock the powerful potential hidden within our own cells

<http://floatinguniversity.com/lectures-melton>

The trip of your life

What would it be like to fly through the universe? Possibly the best simulated video of this yet has been composed from recently-released galaxy data from the Sloan Digital Sky Survey. Every spot in the video is a galaxy containing billions of stars.

<http://apod.nasa.gov/apod/ap120813.html>

How Pandemics Spread

In our increasingly globalized world, a single infected person can board a plane and spread a virus across continents. Mark Honigsbaum describes the history of pandemics and how that knowledge can help halt future outbreaks.

<http://ed.ted.com/lessons/how-pandemics-spread>
