

TeacherLINK TechBytes

June/July 2015 Newsletter
Volume 2: Issue 6

In This Issue!

New Horizon's Spacecraft to Arrive at Pluto on July 14, 2015

Educational Resources from NASA About Pluto

New STEM on Station Website Brings the Space Station Into the Classroom

Free Education Webinars From NASA Educator Professional Development

Future Engineers: 3-D Space Container Challenge

International Observe the Moon Night

Students who are making a difference in the world!

Big Think – Browse videos featuring experts across a wide range of disciplines

MIT Video - Over 12,000 Educational Videos

MIT OpenCourseware

Eric Whitacre's Virtual Youth Choir - What If

CosmoLearning: a free educational website for students and teachers.

Free Stock Photo Sites

DrawSpace - Now Everyone Can Draw

Veritasium

Check These Sites Out...

Gear Up, Edith Bowen Laboratory School, and GreenPower USA Team Up to Give Students an Opportunity to Build an Electric Car.

Visit the Teacherlink Blog
<http://teacherlinkyetc.blogspot.com>



New Horizons Spacecraft to Arrive at Pluto July 14, 2015

After a more than nine-year, three-billion-mile journey to Pluto, it's show time for NASA's New Horizons spacecraft, as the flyby sequence of science observations is officially underway.

In the early morning hours of July 8, mission scientists received this new view of Pluto—the most detailed yet returned by the Long Range Reconnaissance Imager (LORRI) aboard New Horizons. The image was taken on July 7, when the spacecraft was just under 5 million miles (8 million kilometers) from Pluto, and is the first to be received since the July 4 anomaly that sent the spacecraft into safe mode.

This view is centered roughly on the area that will be seen close-up during New Horizons' July 14 closest approach. This side of Pluto is dominated by three broad regions of varying brightness. Most prominent are an elongated dark feature at the equator, informally known as "the whale," and a large heart-shaped bright area measuring some 1,200 miles (2,000 kilometers) across on the right. Above those features is a polar region that is intermediate in brightness.

"The next time we see this part of Pluto at closest approach, a portion of this region will be imaged at about 500 times better resolution than we see today," said Jeff Moore, Geology, Geophysics and Imaging Team Leader of NASA's Ames Research Center. "It will be incredible!"

Editor: Tricia Talbert, NASA



Educational Resources from NASA about Pluto

Discovering Planet X (Grades 3-5): An activity exploring parallax and then simulating the discovery of Pluto with a [Blink Comparator](#) via an [online interactive](#).

What is a Planet? Students learn about the characteristics of planets, comets, asteroids, and trans-Neptunian objects through a classification activity.

New Horizons Space Academy The "Space Academy" series takes students behind the scenes of actual space missions and introduces them to engineers and scientists working on some of NASA's most exciting projects.

Orbit and Spin (Grades 3-5) - A whole-body activity that explores the relative sizes, distances, orbit, and spin of the Sun, Earth, and Moon.

New STEM on Station Website Brings the Space Station Into the Classroom

NASA Education is celebrating the yearlong mission to the International Space Station with the launch of the new STEM on Station website!

The website features lesson plans, videos and up-to-the-minute education news. Learn more about the crew that is living and working on the space station for a whole year and what we hope to learn from their extended mission. Get to know the International Space Station, and find out what a typical day for an astronaut on board is like.

The STEM on Station website also features Learning Launchers. These "Teacher Toolkits" focus on research and activities related to the space station. Each month will feature a One-Year Mission research theme or other topic related to the space station. Use lesson plans, videos and related resources to bring the International Space Station into your classroom. More topics will be featured, so check back often to learn about what's coming next.

To check out the new website, visit http://www.nasa.gov/audience/foreducators/stem_on_station/index.html.

Free Education Webinars From NASA Educator Professional Development

NASA Educator Professional Development is presenting a series of free webinars open to all educators. Join NASA education specialists to learn about activities, lesson plans, educator guides and resources that bring NASA into your classroom. Registration is required to participate. Simply click on the link provided beneath the webinar description to register.

Rockets 2 Racecars: May the Force Uplift You ... Or Not!

Audience: Pre-service, In-service, Home School/Informal Educators of Grades 3-9
Event Date: July 13, 2015, at 4 p.m. EDT

Get your students revved up about science, technology, engineering and mathematics with NASA's Rockets 2 Racecars (R2R) STEM Education series. When you're traveling at speeds of 200 miles an hour, it's important to understand that faster moving air creates lower pressure! Air that travels around a curved surface speeds up, which creates an area of low pressure. Discover NASA-inspired hands-on activities about air pressure and air flow to help students understand Bernoulli's principles. Register online to participate. <https://www.etches.com/133117>

Exploring Strange New Worlds Series — New Horizons

Audience: Pre-service, In-service, Home School and Informal Educators of Grades 4-8
Event Date: July 14, 2015, at 6 p.m. EDT

Celebrate New Horizons' arrival at Pluto after a nine-year journey through our solar system. What is Pluto? How is Pluto both different from and like other objects in our solar system? These are some of the questions to be investigated by NASA's first robotic mission to Pluto, New Horizons. This webinar will help answer these questions by discussing the New Horizon mission, NASA STEM education curriculum and online resources. Join us to learn exciting ways to bring the fascination of Pluto into your classroom. Register online to participate. <https://www.etches.com/133063>

Hubble Math

Audience: Pre-service, In-service, Home School/Informal Educators of Grades 5-12
Event Date: July 15, 2015, at Noon EDT

Participants will review resources focused on Hubble Space Telescope imagery, basic operations of the telescope and the science behind it. Resources introduced here will address operations and algebraic thinking, measurement and data, geometry, expressions and equations, and statistics and probability at multiple levels for grades 5-12. Register online to participate. <https://www.etches.com/130157>

Eating Math and Science With Servings of Space Food and Nutrition

Audience: Pre-service, In-service, Home School/Informal Educators of Grades 5-12
Event Date: July 16, 2015, at 6 p.m. EDT

Eat your way through math and science. This webinar will explore NASA STEM curriculum designed to investigate space food and nutrition for astronauts. Participants will investigate NASA resources related to the caloric content and nutritional value of space foods and the nutritional needs of astronauts. Using these resources, learn how to construct sample space food menus as a way of better understanding space food and nutrition for human space exploration. Come explore a menu of inquiry activities and other resources integrating this exciting topic and satisfy your STEM appetite. Register online to participate. <https://www.etches.com/133862>

For a full schedule of upcoming NASA Educator Professional Development webinars, visit <http://www.txstate-epdc.net/events/>. Please direct questions about this series of webinars to Steve Culivan at stephen.p.culivan@nasa.gov.



Future Engineers: 3-D Space Container Challenge

NASA and the American Society of Mechanical Engineers Foundation are challenging K-12 students to create a model of a container for space using 3-D modeling software. Astronauts need containers of all kinds — from advanced containers for studying fruit flies to simple containers for collecting Mars rocks or storing an astronaut's food. The ability to 3-D print containers in space — on demand — will let humans venture farther into space. That's why we are challenging students to start designing for space now.

Design entries could be for a container designed for microgravity on the International Space Station or a container designed for future astronauts on Mars! Space is a big place, but your imagination is even bigger. Multiple prizes, based on age groups, are available.

Entries must be submitted by Aug. 2, 2015.

The Design a Space Tool Challenge is the second in a series of challenges where students in grades K-12 create and submit a digital 3-D model of a container that they think astronauts might need in space. Future Engineers is a multiyear education initiative that consists of 3-D space challenges and curriculum videos that parents and educators can use to get kids designing today.

For more information about the challenge and to watch an introductory video, visit <http://www.nasa.gov/feature/nasa-challenges-students-to-design-3-d-space-containers>. If you have any questions about the 3-D Space Container Challenge, please email info@futureengineers.org.

International Observe the Moon Night

On Sept. 19, 2015, the whole world has the chance to admire and celebrate our moon on International Observe the Moon Night. And you can join in the fun!

Check the map of registered observation events at <http://observethemoonnight.org> to see if an event is being held near you. If not, please consider registering and hosting one and inviting your community.

You don't know where to start?

This link walks you through the process of planning an event of any size. See how to host an event in six easy steps: <http://observethemoonnight.org/getInvolved/>.

Do you need suggestions for hands-on activities?

Visit <http://observethemoonnight.org/activities/> for ideas.

Are you worried about cloudy weather obscuring your view of the moon?

The "Moon as Art" collection, chosen by the Lunar Reconnaissance Orbiter, or LRO, team, gives the public the opportunity to see the moon as others have seen it for centuries — as an inspirational muse. But this time, also see the moon from the perspective of being in orbit with a series of eyes that see different parts of the electromagnetic spectrum. Learn more at <http://lunar.gsfc.nasa.gov/moonartgallery.html>.

Additional beautiful, high-resolution images of the moon's surface taken by LRO's cameras are available at <http://lroc.sese.asu.edu>.

Questions about this opportunity should be directed to Lora.V.Bleacher@nasa.gov.



Students who are making a difference in the world!



SOPHIE, CIARA & EMER
AGE 17
Kinsale, Ireland

Sophie, Ciara & Emer - Age 17 - Kinsale, Ireland

Ciara Judge, Émer Hickey and Sophie Healy-Thow became interested in addressing the global food crisis after learning about the Horn of Africa famine in 2011. When a gardening project went awry, they discovered a naturally occurring bacteria in soil called Diazotroph. The girls determined that the bacteria could be used to speed up the germination process of certain crops, like barley and oats, by 50 percent, potentially helping fulfill the rising demand for food worldwide.

<https://www.youtube.com/watch?v=MQEeEGvLzIU>

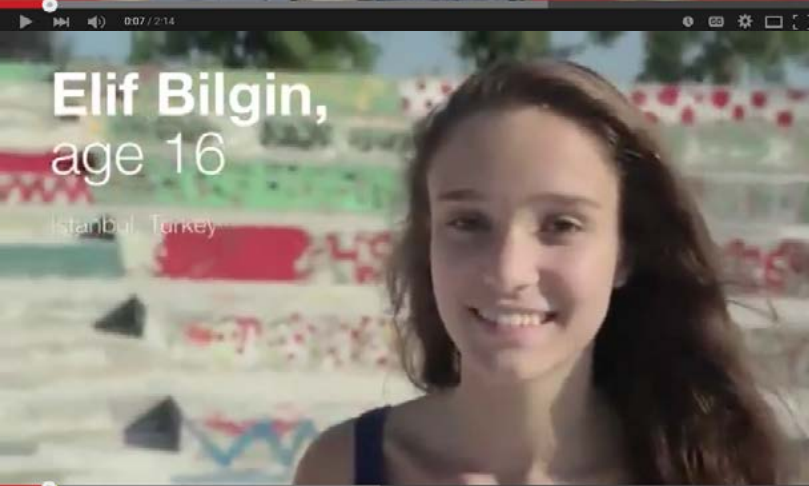


MIHIR GARIMELLA
AGE 15
Pittsburgh, USA

Mihir Garimella - Age 15 - Pittsburgh, PA

Meet Mihir Garimella, the 13-14 age category winner for his project "Mimicking Fruit Fly Response Patterns for Threat Evasion." Like many boys his age, Mihir is fascinated with robots. But he took it to the next level and actually built a flying robot, much like the ones used in search and rescue missions, that was inspired by the way fruit flies detect and respond to threats. Mihir is also the winner of the very first Computer Science award, sponsored by Google.

<https://www.youtube.com/watch?v=PszuBGqLCew>



Elif Bilgin,
age 16
Istanbul, Turkey

Elif Bilgin - Age 16 - Istanbul, Turkey

Elif Bilgin, age 16, is from the large city of Istanbul, Turkey. She is worried about environmental pollution, particularly from the use of petroleum based plastics. Elif is studying how to create biodegradable plastics from waste materials, such as banana peelings. After many experiments and failures, she has come up with a biodegradable banana peeling plastic. Watch her story on YouTube.

<https://www.youtube.com/watch?v=aExmHRJ-y94>



Jonah Kohn - Age 14 - USA

At the age of 14, Jonah Kohn has made great progress in helping the hearing impaired experience music. Through his passion for music, Jonah realized that by utilizing tactile sound, he could invent a device that transmits sound directly into the human body by contact, instead of by sound waves. Specifically, his invention converts sound into vibrations that are applied to different body parts. Jonah was the winner of the 13-14 age group in the 2012 Google Science for his project.

<https://www.youtube.com/watch?v=l80bxaFrQuM&spfreload=10>

Big Think – Browse videos featuring experts across a wide range of disciplines

<http://bigthink.com>

From their website: “Big Think is a knowledge forum.

In our digital age, we’re drowning in information. The web offers us infinite data points—news stories, tweets, wikis, status updates, etc—but very little to connect the dots or illuminate the larger patterns linking them together. Here at Big Think, we believe that success in the future is about knowing the ideas that allow you to manage and master this universe of information. Therefore, we aim to help you move above and beyond random information, toward real knowledge, offering big ideas from fields outside your own that you can apply toward the questions and challenges in your own life.

Every idea on Big Think comes from our ever-growing network of 2,000 Big Think fellows and guest speakers, who comprise the top thinkers and doers from around the globe. Our editorial team regularly sources ideas from these experts, asking them about the most important ideas in their respective fields. Our editors then sift through the submitted ideas and determine which qualify to appear on Big Think, subjecting each to our simple, three-pronged standard geared to your interests:

- a) significance — how will this idea change the world and impact your life?
- b) relevance — what groups and individuals does this idea most affect?
- c) application — how can this idea change the way you think or act?

Big Think’s editorial team then packages and presents these ideas to you, our users, using the range of multimedia tools the Internet makes possible, with the aim of distilling each idea to its essence. We think of it as optimizing the “speed of knowledge,” conveying ideas’ value as efficiently and effectively as possible, so you have the time to explore, and absorb, more of them.

Because as we move from the information age to the knowledge era, the more ideas you command, the more you will be able to guide the course of your own life and positively impact the lives of those around you.

That’s our big idea”

MIT Video - Over 12,000 Educational Videos

<http://video.mit.edu>

The MIT Video website aggregates and curates video produced by MIT’s offices, laboratories, centers and administration. This includes feature and editorial videos, event recordings, academic content and more. Each day, the editorial team at MIT Video selects one or more videos to “spotlight” based on the videos’ content, production value and timeliness. We hope you enjoy MIT Video and welcome your feedback.

MIT OpenCourseware

<http://ocw.mit.edu>

MIT OpenCourseWare (OCW) is a web-based publication of virtually all MIT course content. OCW is open and available to the world and is a permanent MIT activity.

Through OCW, educators improve courses and curricula, making their schools more effective; students find additional resources to help them succeed; and independent learners enrich their lives and use the content to tackle some of our world’s most difficult challenges, including sustainable development, climate change, and cancer eradication.

Eric Whitacre’s Virtual Youth Choir - What If

2,292 singers aged 18 and under from 80 countries across the globe joined together to sing What If, from the musical Paradise Lost. It’s a virtual choir, created from YouTube videos the youth posted. <https://www.youtube.com/watch?v=DmJBJV0i928>

CosmoLearning: a free educational website for students and teachers.

<http://cosmolearning.org>

From their website: “Created with the goal to provide a free online school, CosmoLearning (CL) is a non-profit educational website committed to improving the quality of homeschooling, teaching and student excellence.

Collecting the top educational videos on the web, generously offered by hundreds of universities, educators, and professionals, we share their passion for teaching by providing a platform for world-class education free of charge. CosmoLearning project offers a platform dedicated to all these individuals to post their materials for free. Always crediting the original educators and institutions, we encourage users to show their gratitude and donate directly to the original creators.

We strive to make CosmoLearning the best place for educators to display their contributions to education, helping them to reach millions of students from around the world.”

The screenshot shows the Big Think website interface. At the top, there is a navigation bar with categories: VIDEOS, ARTICLES, PLAYLISTS, EXPERTS, and FOR ENTERPRISE. A search bar is located to the right of the navigation. The main content area features a large video player for the video "Obama's Environmental Legacy, with EPA Chief Gina McCarthy". The video player includes a play button, a progress bar, and a timestamp of 02:48. Below the video player, there is a caption: "EPA administrator Gina McCarthy relays some of her proudest accomplishments working in the Obama administration: reducing carbon emissions, successfully pushing for more efficient vehicles, and championing renewable energy." To the right of the video player, there is a sidebar with three article recommendations. The first article is "IDEAFEED: B12 Vitamin Supplements Fail to Help Improve Cognitive Function" by NATALIE SHOEMAKER. The second article is "BIG THINK EDGE: Everyone's a Salesperson. So Why Not Be a Great One?" by VICTORIA RACHEL MONTGOMERY BROWN. The third article is partially visible and appears to be "The Power of...".



Free Stock Photo Sites

<http://www.publicdomainpictures.net>

PublicDomainPictures.net is a repository for free public domain images. Download high quality HD photos or upload your own. Make money from your hobby, gain popularity and improve your photographic and graphic skills.

If you intend to use an image you find here for commercial use, please be aware that some photos do require a model or property release. Pictures featuring products should be used with care.

The pictures are free for you to use and you should feel good about doing so. If you enjoy your visit, please tell your friends about Public Domain Pictures.net.

<http://www.freeimages.com>

Freeimages was launched in February 2001 as an alternative for expensive stock photography. The idea was to create a site where creative people could exchange their photos for inspiration or work. The site has evolved into the massive community you see today — there are over 2,500,000 registered users and around 400,000 photos online.

<http://www.rgbstock.com>

All images on Rgbstock are free for personal and some commercial use. You may use them in digital format on websites, blogs, multimedia presentations, broadcast film and video or in printed material such as magazines, books, brochures, flyers and text books. Please read the license agreement.

<https://stocksnap.io>

Beautiful free stock photos. Hundreds of high resolution images added weekly. All photos are free from copyright restrictions - No attribution required

Here are some others to peek at...

<http://deathtothestockphoto.com>

<http://www.pexels.com>

<http://littlevisuals.co>

<http://www.lifeofpix.com>

<https://unsplash.com/grid/>

<https://picjumbo.com>

<http://www.gratisography.com>

<http://www.splitshire.com>

<http://startupstockphotos.com>

<http://fancycrave.com>

<http://www.sitebuilderreport.com/stock-up>

When having students create - websites, stories, graphic designs, it's helpful to find just the right image to use. These stock photo sites will be very helpful. At left are some images from the sites listed above.

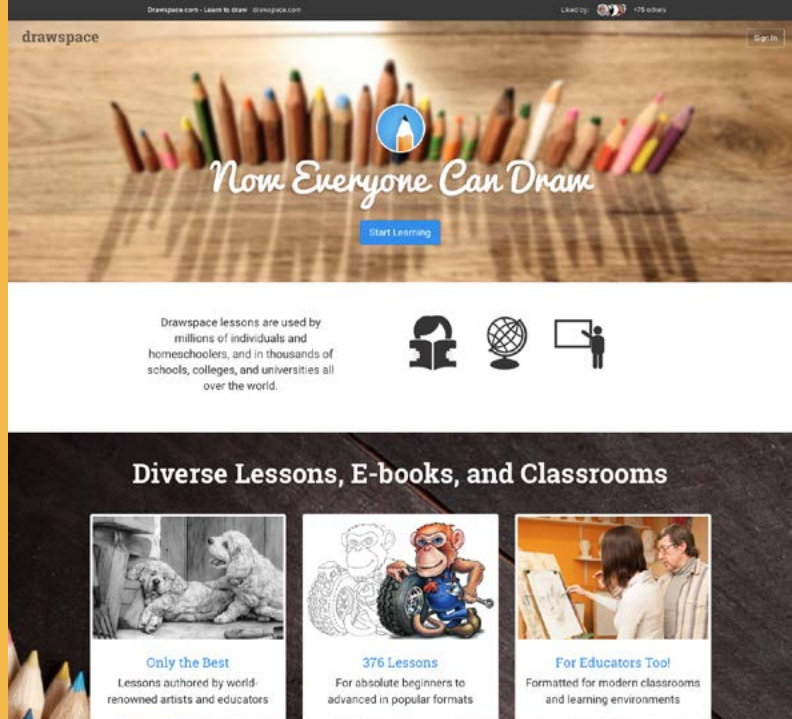
Drawspace - Now Everyone Can Draw

www.drawspace.com

From the website: "Drawspace was launched in 2001 by award winning developer Jeff Baur and world renowned artist and educator Brenda Hoddinott, and has been growing steadily ever since. Today, Drawspace is internationally respected as one of the largest and most comprehensive art education websites in the world.

Many of the best of the best artists, authors, and educators on the planet are publishing new lessons, courses, and books with Drawspace Publishing. As our roster of authors and teachers increases, the repertoire of lessons, courses, and books naturally expands to include new visual art disciplines.

Approximately 15% of the content on Drawspace.com is free. Authors receive royalty payments for their content - hence, not all lessons, books, and classes can be free. However, we strive to keep fees low in order to reach as wide an audience as possible."



Veritasium

<https://www.youtube.com/user/1veritasium?spfreload=10>

Hosted by Derek Muller, Veritasium is a channel of science and engineering videos featuring experiments, expert interviews, cool demos, and discussions with the public about everything science.

Some of the newest videos are *World's Roundest Object!*; *The Most Radioactive Places on Earth*; *Can You Solve This?*; and *Anti-Gravity Wheel?...*

Very interesting, and thought provoking videos.

Check these sites out!...

[Project Based Learning Science - Lesson Plans for PBL](#)

[20 Productivity-Boosting Smartphone Apps](#)

[Reflections of a High School Math Teacher: Awesome Color Graphing Calculator ONLINE](#)

[Show What You Know Using Web & Mobile Apps - Version 4](#)

[Rubrics to Measure Student Learning with Technology](#)

[Get More Out of Google](#)

[25 Google Search tricks you won't know how you ever lived without](#)

[Transforming Education : Will Richardson](#)

[Creating Innovators : Tony Wagner](#)

[Amputee Makes History with APL's Modular Prosthetic Limb](#)

[Reinventing Education for the 21st Century : Tony Wagner](#)



Gear Up, Edith Bowen Laboratory School, and GreenPower USA Team Up to Give Students an Opportunity to Build an Electric Car.

July 7-9, 2015. Green Power USA, Utah State University's Gear Up program, and teachers from the Edith Bowen Laboratory School met to learn how to build electric cars so they could take those engineering skills back to the classroom and have their students take on the same project.

The Greenpower USA Foundation's objective is to advance education in the subjects of sustainable engineering and technology to young people. Greenpower runs engineering challenges for schools based around designing and building a single seat electric powered race car. Their goals are

- To change current views about engineering, presenting it as a fascinating, relevant and dynamic career choice for any young person. The project strengthens college and career readiness.
- To demonstrate the importance of engineering, and associated STEM subjects, to solve the problems faced by societies today particularly in the areas of sustainability.
- To link education, industry and community through inspirational engineering projects.
- To promote social inclusion through engaging with vulnerable and economically disadvantaged young people.

It was a great experience for all involved, and the teachers are excited to have their students participate in the electric powered race car project.

GreenPower USA - <http://www.greenpowerusa.net/>

USU's Gear Up Program - <http://utahstars.usu.edu/students/>

Edith Bowen Laboratory School - <http://edithbowen.usu.edu/>

