



Tasmanian Science Talent Search (an initiative of the Science Teachers' Association of Tasmania)



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50 Years On. Launching into TSTS 2009: Time to plan the blast-off.

Despite our best intentions, sometimes we need a “prod” to forge off on a new road, to jolt ourselves out of our accustomed routine (rut?), to come out as a “born again teacher”. Returning from an inspiring conference, or commencing to teach a new subject, sometimes gets us kick-started afresh, but just the year 2009 in itself might be as good a reason as any to get our students actively involved with TSTS...

2009 is the International Year of Astronomy celebrating 400 years since Galileo Galilei first made observations of the skies using a telescope, as well as 40 years since the world stood in awe of Neil Armstrong, the first man to walk on the moon.

Today’s students have lived their whole lifetime knowing Man has conquered space flight, landed successfully on the moon, and sent spacecraft to the planets and beyond.

Their everyday lives have been inextricably interwoven with the spin-offs of space exploration. Travelling beyond earth’s gravitational pull demanded the development of new technology related to the need for lighter and stronger materials, and smaller and more efficient communication systems, to make long-distance space travel a reality.

2009 is also the celebration of 50 years of Tasmanian Science Talent Search, showcasing 50 years of creative science teaching and learning. It is fitting therefore that

The theme for TSTS 2009 is
“Astronomy: science without limits”.

PEANUTS...by Schultz



There is a wide range of topics which could be investigated, depending on students' age, interests and past studies, including:

Earth and Space;

Stars and Beyond

The Solar System

Earth and Its Moon (tides, seasons, day/night...)

Astronomical Time

Satellites (natural and man-made)

Space Exploration..history and current

Spin-offs of Space Research

Telescopes ("Eyes on the Skies")

Theories of formation of the Universe

And also to the opposite extreme of "Science without limits"... nanotechnology

A quick Google search reveals that there are about as many Astronomy sites on the net as there are stars in the skies! If you know of any excellent ones you would recommend, please email me on stsearch@bigpond.net.au and I'll put them up on our website for others to share. Earmark a lazy Sunday or a day in the holidays to enjoy surfing the universe!

Some good ones I have used are:

<http://www.nasa.gov/>

An excellent, extensive and interactive site with resources for educators, students and the general public, including podcasts and eClips (videos highlighting current research) along with lesson plans for varying age groups. There's also an email newsletter "Imagine Mars" you can register for, a weekly Space Maths problem, and NASA Kids Club.

<http://www.nasa.gov/audience/foreducators/nasaclips/index.html>

The International Year of Astronomy (IYA) website:

www.astronomy2009.org/ has resources and educational materials to download/buy.

Two sites accessible only by Departmental staff:

<http://www.student.education.tas.gov.au/C2/Find%20Information/SearchPages/space.aspx>

<http://www.ecentre.education.tas.gov.au/C8/Find/Searches/space.aspx>

Wikipedia Info and topics <http://en.wikipedia.org/wiki/Astronomy>

Did you know that the technology originally developed to detect the birth of stars led to the development of the digital ear thermometer! Check out:

<http://spaceplace.jpl.nasa.gov/en/kids/spinoffs2.shtml>

"Space spin-offs" makes a fascinating study, and adds a lot of enlightenment to the inevitable debate on the value of space research.

Also go to

<http://www.thespaceplace.com/nasa/spinoffs.html>

for many more excellent "spin-offs" in the following categories:

1. **Computer Technology**
2. **Consumer/Home/Recreation**
3. **Environmental and Resource Management**
4. **Health and Medicine**
5. **Industrial Productivity/Manufacturing Technology**
6. **Public Safety**
7. **Transportation**

Space Pens

The Fisher Space Pen was developed for use in space. Most pens depend on gravity to make the ink flow into the ball point. For this space pen, the ink cartridge contains pressured gas to push the ink toward the ball point. That means, you can lie in bed and write upside down with this pen! Also, it uses a special ink that works in very hot and very cold environments

Joystick Controllers

Joystick controllers are used for lots of things now, including computer games and vehicles for people with disabilities. These devices evolved from research to develop a controller for the Apollo Lunar Rover, and from other NASA research into how humans actually operate (called "human factors").

How much would you weigh on different planets? The following is an interactive site which is the perfect way to learn about gravity, mass and weight.

<http://www.exploratorium.edu/ronh/weight/>

Similarly, if you want to enhance your students understanding of the earth's revolution and rotation ("year" length as opposed to "day" length) try the interactive "My age on different planets" at:

<http://www.exploratorium.edu/ronh/age/>

The best site for finding out when to see the International Space Station and other satellites:
<http://www.heavens-above.com/>

<http://www.astronomy.org.au/ngn/engine.php?SID=1000009>

has links for activities at all school levels, including even space jokes and games!

<http://www.kidsastronomy.com/>

<http://cnr2.kent.edu/~manley/astronomers.html> offers 8 pages with a short paragraph on each of a full range of Astronomers and Astrophysicists.

http://www.amazon.com/dp/0152053727/ref=pe_606_10420730_pe_ar_t1

This might be a useful book to give people ideas for Astronomy Creative writing.

For non-specialist science teachers who might be uncertain about basic astronomy concepts, check the Earth and Space section contained within the CD found at the back of every Primary Connections unit.

This can also be located on the net at:

<http://www.climatechangematters.net.au/LOTS/Earth/menu/national.htm>

So, plan now to include some night-time star-gazing during your grade camp early in the year , or organize an evening star party. If you don't own a telescope, you could approach a local astronomical society about running a session for you.

Margaret Hosford Director TSTS