

Tasmanian Science Talent Search

Newsletter No 1 – 2007

ABN – 97 660 939 433

Welcome to the 1st TSTS Newsletter for 2007.

Important dates, and how to get started.

Another school year is beginning, and the Science Teachers Assoc of Tasmania is finalising the many awards for the successful students from TSTS 2006, to be presented at the Wrest Point, Hobart on March 18.

Meanwhile, we look forward to another keen group of teachers and students eager to use TSTS 2007 as a forum to encourage creative science teaching and learning, and to reward enthusiasm and interest in science through the various sections, which cover the many learning styles preferred by different students.

The TSTS booklet will be available on March 18, at the Presentation Day, and will be distributed to schools soon after.

It will also be available soon online through the STAT website:

<http://www.key.org.au/stat/>

Meanwhile, all necessary information is included below, or for further enquiries contact The Director, TSTS (Margaret Hosford)
at: stsearch@bigpond.net.au

Theme 2007: “Antarctica...really cool science”

With 2007 being The International Polar Year, and the current debates on climate change being very much in the news, teachers will find this to be a stimulating and interesting topic for students of all ages, with lots of embedded pure science as well as vital links to world futures problems. As in the past, TSTS provides different sections for students with different learning styles. A dedicated classroom unit linked to some aspect of Antarctica, can then be followed by a student task involving a poster, creative writing piece, computer presentation, or photographic essay or tackling the Technology Challenge. The sections for science games, working models and research investigations can be centred around any topic: not restricted to the Antarctica theme.

Closing dates for the Sections are as follows:

- May 18 Posters and Creative Writing
- July 27 Computer Presentations, Science Games,
Working Models, Photographic Essays
- August 6 Details and payments due for Technology
- August 12 Judging of Technology section (South) in conjunction with National Science Week
Judging date for North and NW TBC
- October 16 Research Investigations (As in 2006, all major winners will automatically be entered in the BHP Billiton national science competition)

In 2007 entries are to be forwarded to:

THE DIRECTOR
TASMANIAN SCIENCE TALENT SEARCH

- **Personal delivery** to : Cosgrove High School, 286 Main Rd Glenorchy (Attention: Rob Thomas) or: Launceston Church Grammar, Button St., Mowbray Heights (Attention: Marg Hosford)
- **OR**
- **via Redline** (delivery pre-paid by you includes pick-up from your school and delivery to 454 Windermere Rd, Windermere) or
- **via mail** c/- TSTS, P.O.Box 3053, Launceston Delivery Centre, Canning St., Launceston 7250

Remember: Watch Infostream and SciNet for further newsletters.

For those who are not registered with SciNet, an excellent science email network, follow the steps below to join and get ALL the TSTS information before even Infostream comes out!

This is how you can join up:

Go to this page: <http://lyris.education.tas.gov.au:8080/read/about/?forum=sci-net>

Click on the subscribe button

Enter your email address and name (optional)

Click on Subscribe button

On the new screen that appears click OK

Drop in on March 18 and view the display of winning entries at the Presentation Day in Hobart. Come along to CONSTAT March 30/31 which will include workshops and hints on involving TSTS in your science program.

And now some ideas and resources: re-printed from STATIC Nov. 2006

TSTS 2007 and the International Polar Year (IPY)

TSTS 2007 theme “Antarctica”.....really cool science!

IPY will be a \$2.5 billion investment (over the next three years) highlighting the significance of the polar regions to our planet. This reflects a totally different opinion to that of Captain James Cook who, after circumnavigating this vast and treacherous wasteland, predicted it was doomed to stay undiscovered forever!

Antarctica is one of the world’s last frontiers, an inhospitable place of extreme cold, devastating winds and isolation.

Yet its scientific, political and economic importance in the international context is undeniable.

It is the centre of so many of the “world futures” issues which will impact greatly on the tomorrows of today’s students:

- i. sea level rise and icecap melting through global warming
- ii. effects of whaling
- iii. effects of tourism on the fragile ecology of Antarctica
- iv. the hole in the ozone layer
- v. mineral and natural resource exploitation

The recent new-release DVDs “The March of the Penguins” and “Happy Feet” rely on the universal appeal of love and survival against all odds. Students relate easily and enthusiastically to the well-known wildlife of Antarctica, but what other “science” can we introduce and integrate through this theme, and how can we get students involved in TSTS?

Consider the range of science units which can incorporate the Antarctic theme, with a full range of appropriateness for both differing ages, and scientific discipline.

A TSTS poster, creative writing or computer presentation would make an excellent assessment tool for students to show their endpoint understanding.

- i. The greenhouse effect and polar icecap melting / sea-level rise
- ii. Density, floating and icebergs
- iii. Insulation. How do Antarctic animals keep warm? Wind chill factor.
- iv. Food web of Antarctica. The importance of microscopic krill and the dangers of over-fishing of a particular species.
- v. The physics of ocean convection currents, temperature changes and nutrient circulation
- vi. The anatomy/ physiology of any particular species: eg Humpback whales, Adele Penguins, krill..Look at distribution, anatomy, behaviour, reproduction,...excellent examples of adaptation, and the relationship between structure and function.
- vii. Mineral resources and responsible international agreements. Geology!
- viii. Effects of tourism on the ecology of Antarctica
- ix. The expanding hole in the ozone layer over the poles
- x. The chemistry of nutrient solubility at low temperatures
- xi. Alternative energy sources. Go to “Classroom Antarctica” website (see below) for live weather reports via webcam, giving information of the current % wind-power generation for Mawson base, updated every 5 minutes! If wind strength is sufficient, it might provide 90% of energy, with 10% diesel, and the amount of fuel saved and CO₂ production prevented is constantly updated!

What about Photographic Essays?

“I don’t have easy access to a penguin or humpback whale” I hear you mutter.

With a little time devoted to planning, and a knowledge of the vast resources available, you can create the situation to investigate many aspects photographically.

Let’s look at some of these resources and the contacts to access them

- i. Tasmanian Museum and Art Gallery Hobart has an on-going exhibition called “Islands to Ice: The Great Southern Ocean and Antarctica” Well worth a visit if at all possible. Different programs suitable for grades K – 12.
Education Officer Andy Baird Email: Andy.Baird@tmag.tas.gov.au
Excellent website with extensive teachers’ notes and background information
<http://www.tmag.tas.gov.au/education/i2i.html>
- ii. Australian Antarctic Division Kingston. Not available for full group visits, but interested individuals or small groups are welcome to visit their great displays in the reception area. Great photo opportunities. They also have 2 Kitbags available for loan to schools, with dress-ups to demonstrate the insulation properties of Polar clothes.
Education Officer Nick Lovibond (ph 62323209)
Email: Nick.Lovibond@aad.gov.au
Website www.aad.gov.au warrants a day’s exploration !
“Experience Antarctica” link will take you to “In the Field” and “At the station” with facts about shelter, food, transport etc
“Science projects” link outlines current projects, classified by both topic (discipline) or location (eg. Mawson base) And so much more...
“Classroom Antarctica” www.classroomantarctica.aad.gov.au has so much valuable information and links to hundreds of other exciting Antarctic resources, it’s worth locking yourself in the study with a pot of coffee for hours!
- iii. Bureau of Meteorology www.bom.gov.au/lam/gpage.shtml has great teaching resources for Greenhouse effect and Climate Change.

- iv. The Ice Box is a packaged set of learning materials including books, maps, CD's, teacher resources, and Antarctic clothing available FOC from Gordon Bain, an ex Antarctic traveler and AAD employee. He is also available for school visits.
Email: HausBain@bigpond.net.au Ph: 62672134
- v. Tasmania Parks and Wildlife Service have fact sheets about Macquarie Island and Tasmania's wildlife, eg albatross data on chick hatching (a great graphing and analysis exercise).
- vi. Antarctic Climate and Ecosystems Co-operative Research Centre (ACE CRC)
www.acecrc.org.au A wealth of information on atmospheric and oceanic processes and their role in global climate change and sustainable management of Antarctic marine ecosystems.
- vii. www.antarctica.ac.uk/Resources/schoolzone/resources/SchoolsPack/index.html A comprehensive British site designed for Senior students.
- vii. Any others you know of? Share them through Sci-Net network.

All STAT members (school and individual) have received a range of excellent printed resources with the final edition of STATIC for 2006, just a handful of the wealth of teaching resources available in this area. These included:

“Antarctica: Valued, protected and understood” (incl. 1:20M map) AAD

“Who's Eating Who?” (Fauna and foodwebs) AAD

“Classroom Antarctica” flier AAD

“Stronger Evidence but New Challenges: Climate Change Science 2001-2005 (Australian Greenhouse Office) Excellent senior level resource

The Ice Box (flier)

I still have a few extra copies if anyone else is interested.

So start saving your large chunks of polystyrene for simulated icebergs, and prepare to head south!
2007....TSTS Year of Antarctica. Enjoy it!

Margaret Hosford
Director TSTS.

Need help? Contact stsearch@bigpond.net.au