



The intricate pattern found on pollen grains, each plant species produces different shapes and sizes

In a partnership between the University of Queensland, Adelaide based company NewSpec and Hitachi High Technologies a new initiative has been launched to inspire and enrich learning experiences for students in Australia.

Career Awareness & STEM Learning

Nano-technology is expected to impact every part of our modern lives. It is a field that most students, teachers and adults know little about despite its key role in such things as cleaning our water, defence, mining, developing cleaner energy sources, drug treatments, targeted determination of diseases, development of smaller smart telecommunications electronics and many other industries.



The gap between the technical skills available for STEM related careers and the technical skills required will impact directly upon our ability to find solutions for many of the world's problems (Hitachi, 2017).

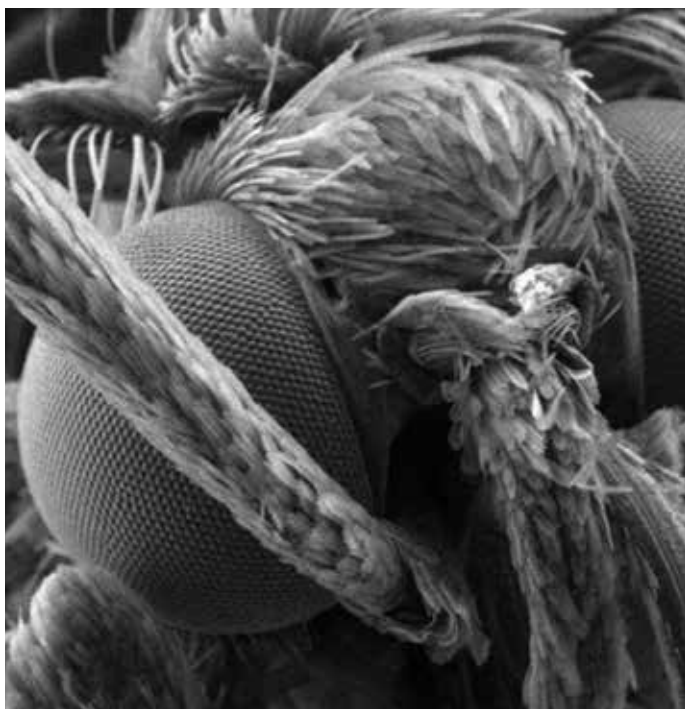
Bottle brush pollen



Student Engagement

The Hitachi TM4000 is a desktop sized scanning electron microscope (SEM), making it perfect for students to gain hands on access to research-grade technology. The easy transport and operation of this instrument makes it ideal to install and leave at school sites for weeks at a time.

The "Inspire STEM Education" initiative builds connections to the world around us through experiential and discovery learning, forging strong and genuine learning outcomes. When used in philosophically sound, high quality programs, technology can ignite, enhance and fortify learning pathways and inspire curious minds to explore further, question more and deeply enrich our experience of the world.



A new world is discovered when you look at something on a micro level. The learning experience is undisputedly enriched through utilising this technology.

Moth head

Inspiring our Future



The TM4000 illustrates to all age groups, abilities and fields of interests that there is more to our surroundings than what we can see with the naked eye – to explore our surroundings in more detail, for example, to find and examine a bug, a leaf or a flower, is planting the seed for curiosities to grow. To put objects that children discover, are drawn to and collect into the SEM is to feed these curiosities, watch them take root and flourish. A whole new world is opened up when you take something of interest and look at it on different scale. The learning experience is undisputedly enriched through utilising this technology.

Vital Connections



Becoming familiar with nanotechnology is of significant importance when we consider the breadth of its real world applications, including biological research, industrial manufacturing, medicine, aerospace research, geology, food industry, cosmetics, archaeology, forensics, materials research, oceanography, entomology, the list goes on. So whatever the topic, whatever the interest, this technology is relevant and can be applied in a way that enriches the learning experience and enhances learners' connections to our incredible world.

Bookings



Contact on the details provided below or email outreach@newspec.com.au to choose an available week for your booking.

Once a booking period has been negotiated, confirmation of the booking details will be e-mailed directly including password set up instructions to access the teaching support resources on our website.

The SEM learning lab will be installed at your site on the Friday afternoon preceding your confirmed hire period. Collection of the instrument will occur at 1pm on the final Friday of your hire period.

Investment

Microscope for the week - \$750

SEM Teacher Training - \$150 (per staff member)

Requirements from your site:

- One designated, secure set-up space, where the SEM will remain for the full hire period. N.B. the machine cannot be moved once set-up and must be locked away securely out of school hours
 - Wheelchair access to the set up space
 - An ambient room temperature of 15 to 30 degrees Celsius
 - Humidity level of less than 70%, no condensation
 - Single phase power supply AC100-240V
 - Minimum recommendation 2 trained staff per site
- A trained teacher can run the instrument autonomously on each day of the hire.

Training Details

Nominated staff will be fully trained on the mechanics, capabilities and operational procedures of the Hitachi TM4000 Desktop SEM.

Training participants will be confident in supporting students to collect and effectively image their own samples. Trainees will be provided with best practice examples of working with the SEM in classroom settings. Support and recommendations are provided to create a site specific plan tailored to best support individual learning requirements and goals.

Usually, this day will take place on the final Friday of the school holiday period preceding your booking to allow all staff to access the training.

Contact Details

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