



Science EXPOsed Event (Proof)

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SCIENCE EXPOSED EVENT

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The Hon. PENNY SHARPE (Parliamentary Secretary) [4.32 p.m.]: I move:

That this House:

(1) congratulates the New South Wales Department of Education and Training, and the New South Wales Department of State and Regional Development on the annual Science EXPOsed event held on 23 and 24 October at this Parliament, the Mint, Hyde Park Barracks and the Australian Museum,

(2) notes the importance of this free event for New South Wales high school students to explore the latest in science and technology and careers in science,

(3) notes the importance of science and engineering training provided to school students in New South Wales, and

(4) thanks the participants from the CSIRO, Questacon and other agencies who are participating in this event for the benefit of the students of this State.

For members who are not familiar with Science EXPOsed, it is an annual event organised by the New South Wales Government's Office for Science and Medical Research in the Department of State and Regional Development, in collaboration with the New South Wales Department of Education and Training. Science EXPOsed has brought excitement with scientific activity and young people through this building for the past four years. Science EXPOsed is a free, two-day science careers event for New South Wales students in years 8 and 9. This year more than 1,800 students from 55 schools participated. The event aims to encourage young people to study science subjects in their senior years and, hopefully, to go on to science-related careers. Programs like this are an essential part of preparing Australia for the challenges that we face not just today but into the future.

This year at Science EXPOsed at Hyde Park Barracks, students had the opportunity to talk with and ask questions of scientific researchers at an expo that included 18 interactive exhibits from leading science and technology institutions. Students were able to interact with an award-winning robot that plays a clarinet—probably much better than I am able to—and they saw a giant cockroach, which also happens to be the world's heaviest insect. They witnessed a computer lab simulation of Sydney's growth, and they viewed the latest in-ground penetrating radar used to locate buried archaeological sites.

At The Mint, students learnt about astronomy from an indigenous Australian point of view. They solved crimes at a Forensic Frenzy Workshop and took part in a discussion on nanotechnology with James O'Loghlin and a panel of experts. At the Australian Museum, celebrity scientist Dr Karl Kruszelnicki highlighted some great moments in science. Students were treated to science spectaculars presented by Questacon, as well as Smart Entertainment from the University of Newcastle, whose presenters described the science behind the special effects used in movies. Students participated in a careers panel hosted by Jonica Newby from the ABC *Catalyst* program, with a panel of experts from a wide range of science careers.

The Science and Engineering Challenge was held at Parliament House. The challenge is a fun and interactive activity that this year simulated the technical requirements for managing a rail network and the skills of signal engineering. The Science and Engineering Challenge provides a demonstration of the types of skills that science and engineering careers rely upon: technical training, teamwork, creativity, problem solving, and innovation. Science EXPOsed illustrates to students at an influential point in their school careers that science, far from being nerdy, can be fun and inspiring. Members may be aware that I am a failed science student. The reason I failed in science was not because I was not interested in it, but because my passion for politics overtook my ability to spend lots of time in a laboratory. However, my interest in science continues and that is fundamentally driven by the fact that science gives me answers to the questions that I have about the world. It would help to start from that background to encourage students into science.

It is exciting to see New South Wales at the forefront of new approaches to science education. To be successful

our society relies on having a strong knowledge base around science. The key challenges faced by our society, be it climate change, water, food, energy, security or population, will all rely on science to find solutions into the future. Our strength as a nation lies in having trained science-savvy workers who will be a key factor in our future economic prosperity and, ultimately, in the quality of life in our communities. The building of a science-savvy workforce deserves higher priority than it currently receives.

Developed countries all over the world are experiencing disturbing downward trends in high school, tertiary and vocational enrolments in science, engineering, and technology-related areas. Australia is not immune from these developments. Research conducted by the Federal Government shows that the number of Australian year-12 students undertaking physical sciences has declined from 45 per cent in 1991 to 36 per cent in 2000. There is no single reason for this but it needs to be turned around. There are also challenges in getting more kids to take up science, particularly for our science-teaching workforce. Many of our most experienced teachers will be retiring in the next decade. We need to be preparing for this now.

In recent times our knowledge about science has exploded. New developments are happening all the time across all disciplines. This complexity brings with it challenges in curriculum design and delivery as well as professional development for teachers in our schools. Despite these challenges it is imperative that at this time New South Wales school students develop an appreciation for science, engineering and technology and are encouraged to consider a scientific career. We should more than encourage We need our people to be passionate about science; we need our people to be able to access quality education and training in science; we need to elevate the teachers of science; and we need to build an innovative and intelligent population that embraces research and development as a fundamental part of the economy.

Finally, we also need to make sure that we support employment and careers in science so that our best and brightest can contribute their intellect and work to their own country. In the future we may see shortages of skilled workers in both industry and scientific research sectors unless we pay more attention to this looming issue. Qualified scientists, engineers and a technically proficient workforce are crucial to ensuring our nation's wellbeing, prosperity and global competitiveness in the future. I am pleased to report to the House that there is evidence that New South Wales is working hard to turn around the drift away from science. There is good news in this area. The New South Wales Board of Studies reports that senior science enrolments in this State have increased by 15 per cent since 2004. This is a great achievement and would be in no small part due to the many strategic school science initiatives introduced by the New South Wales Government, including Science EXPOsed.

It is also important to acknowledge the fantastic contribution being made by science teachers in New South Wales. I take this opportunity to refer to a couple of our science teachers. One is a current teacher and the other is now retired. The first is Dr Mark Butler, who is the head science teacher at Gosford High School. He was the 2008 winner of the Leadership in Secondary Science Teaching at New South Wales Scientist of the Year Awards. This remarkable teacher also won the Prime Minister's Prize for Excellence in Science Teaching in 2004. The website for the awards states:

Dr Butler realised he had a passion for teaching while researching high power lasers and lecturing at Macquarie University. But he didn't want to preach to the converted, such as physics undergraduates. So, he turned his back on the possibility of working at Bell Laboratories on ultraviolet lasers and instead pursued a career in secondary school science teaching.

He was nominated for this award by a group of grateful PhD students who were influenced by his classroom teaching and enthusiasms during their time at Gosford High.

The programs introduced by Dr Butler have led to a 50 per cent increase in the number of students at his school taking senior science over the past decade.

The award website also quoted a former student who is now studying medicine in the following terms:

Thank you for your passion for life and enthusiasm for teaching us kids about the mysteries of the world. Thanks for the crazy experiments, for not just teaching us to do well in the HSC, but something deeper than that. You've taught us the importance of asking questions, searching for answers and the joy of learning.

The second teacher I bring to the attention of the House is a former head science, technology and marine studies teacher at Ballina High School. Mick O'Connor taught at Ballina High School for many years. He recognised that his students lived in a beautiful area where they were engaged in activities such as surfing, snorkelling, fishing and boating and that that offered an opportunity to use their interests to promote learning and understanding of science. In collaboration with other energetic staff and the local community, the Ballina High School Marine and Resource Centre took its first step in the mid 1980s. Between 1985 and 1989 Mick O'Connor fought many battles to establish a marine studies curriculum in New South Wales. He also helped to establish a marine teachers association to network science teachers in marine environment across the State. Mick's work went from strength to strength until the centre was officially opened by this Government in 1999. Mick O'Connor's work means that kids at Ballina High School learn boat handling skills and water safety and monitor

water quality and marine ecosystems. He constantly looked for ways to make learning about the marine environment fun.

As just one example of Mick's many projects, when one visits the school—which I have been fortunate to do—there are giant whale skeletons hanging from the science laboratory roof. This is because Mick organised for the school to get a licence from the National Parks and Wildlife Service to collect, dissect and preserve for educational purposes the skeletons of whales that had beached themselves and died. The school also has an aquaculture laboratory where the students grow silver perch, crayfish and barcoo grunter, and their own algae and aquaculture food. The students and staff also maintain the school's two ex-Army trucks, which run on recycled vegetable oil from the local takeaway stores.

Our community is lucky to have teachers like Mick O'Connor and Mark Butler. It is teachers like them who are laying the foundation for our future scientific success. There is much more work to be done to elevate science within our community and to encourage more young people into scientific careers. Science EXPOsed is one small part of that campaign. I congratulate the New South Wales Office for Science and Medical Research in the Department of State and Regional Development and the Department of Education and Training on the outstanding job they do in staging this event. Finally, I take this opportunity to thank the participants from the CSIRO, Questacon, RailCorp, the New South Wales Police Forensics Team, the Sydney Observatory, universities and all the other agencies that participate in Science EXPOsed. I commend this motion to the House.