The Gene Technology Access Centre

Strategic Plan 2016 – 2019

Our Mission

To excite Victorian students and teachers in STEM by providing equitable access to leading life science expertise, practices and technologies

Our Vision

Victorian students inspired to engage with STEM through innovation in Life Science education

Our Values:

- Inclusive and encouraging learning environments
- Innovative thinking
- High expectations of selves and others
- Critical reflection and continuous improvement
- Positive communication, collaboration and consideration of ideas
- Sharing our joy and wonder of the life sciences

Context

Science, Technology, Engineering and Mathematics (STEM) are seen as key to future productivity in Australia. To inspire the next generation of science practitioners, innovators and entrepreneurs, it is important that Victoria's youth are exposed to STEM-related career paths and the opportunity to practice STEM-related skills. It is a challenge for schools to equip themselves with the technology and expertise to provide these opportunities to students, and for teachers to keep abreast of the rapid and breathtaking advances in STEM in the field of Life Sciences.

GTAC is one of the six Science and Mathematics Specialist Centres established by the Victorian Department of Education and Training (DET). This network of six Centres aims to improve student experience and achievement in STEM by providing learning programs that encompass new and emerging scientific thinking, state of the art facilities and cutting edge technologies. The Centres provide specialised programs for all Victorian students and teachers. They have an equity focus on rural and disadvantaged metropolitan schools.

Introduction

With 15,000 Victorian students and 1,500 Victorian teachers attending a GTAC program in 2015, GTAC is a leading provider of Life Science Education to primary and secondary schools throughout Victoria. We offer immersive experiences that combine current and emerging themes in the Life Sciences with contemporary approaches to teaching drawn from the latest research. A unique feature of our programs is the opportunity for students and teachers to collaborate with practicing scientists.

The Centre is hosted by the University High School located in Parkville. This situates GTAC in the heart of the major biomedical sciences precinct in Australia and amongst the top 3 world-wide for medical and biosciences research that underpins the biotechnology industry. Our science and education partners are the Walter and Eliza Hall Institute of Medical Research and The University of Melbourne. Our location and partnerships facilitate access to world-class practicing scientists and education experts and strengthen our standing in the Science and Education communities.

Statement of intent

We offer engaging and immersive programs to inspire Victorian students from years 5 – 12 in the life sciences. Key to inspiration is the provision of programs that foster the *ability* and *desire* to explore the Life Sciences. Ability is supported by implementing pedagogies that scaffold students in building new understandings and skills and by providing access to cutting edge research facilities and technologies. Desire is heightened as students collaborate with young practicing scientists to explore contemporary issues, practices and careers in life sciences.

Our scope to inspire extends beyond student programs to providing professional learning programs for teachers. These programs reconnect teachers with their discipline and enrich their pedagogy, through insights into the technology and knowledge driving recent advances in life sciences.

GTAC programs are guided by the DET funding model, which determines the number of students who attend onsite and outreach programs. To provide equity across schools, the funding model also favours disadvantaged students by providing rural government schools with free programs and travel assistance, and metropolitan disadvantaged schools with free programs.

To enhance GTAC programs within the parameters of the Victorian Government (DET) funding model the following areas have been identified in this strategic plan for implementation:

Strategic priority 1: Inspire students and teachers in STEM through exposure to contemporary life sciences and practicing scientists

GTAC is a leading provider of programs that support Victorian teachers in the delivery of the VCAA Biology curriculum through offering student programs as well as programs for teachers and laboratory technicians. In 2015, 50% of our programs were for VCE Biology students and teachers. This strong focus on VCE Biology is driven by teacher demand and an emphasis on inspiring students to enter tertiary studies in the Life Sciences. In support of the DET priority to increase numbers of

students enrolling in VCE and tertiary science and mathematics subjects, GTAC will pursue the following strategic objectives:

- Design and deliver programs in which students and teachers actively participate, collaborate and engage in dialogue to:
    - apply STEM knowledge and skills
    - explore case studies of positive change involving the application of STEM
    - think critically around social, moral and ethical issues in STEM for active citizenship
- Employ young scientists to mentor small groups of students as they use cutting-edge research facilities and technologies
- Offer special events in collaboration with science, maths and education institutions to showcase entrepreneurial pursuits and convergence of STEM in the life sciences in Victoria
- Develop online teaching resources and student courses that support student learning, increase awareness of STEM career pathways in life sciences and enhance engagement in STEM.
- Feature methods of using maths and digital technologies to study life sciences
- Increase the number of year 5 – 8 students participating in Centre programs.

Strategic priority 2: Sustain an environment that supports innovation in life science education in STEM

Innovation is driven by our staff, teaching facilities and technologies. To sustain innovation in inspiring students and teachers in STEM GTAC will pursue the following strategic objectives:

- Nurture a strong staff capability by bringing together individuals with diverse skills and expertise in STEM and education, who are dedicated to professional growth and embrace a culture of collaboration within the GTAC team and with education and STEM experts.
- Identify and provide professional learning opportunities to strengthen the skills and expertise of the GTAC team.
- Ensure that GTAC's teaching and learning spaces incorporate evolving technologies to support innovative education of STEM students and teachers.
- Collaborate and consult with STEM and Education research institutions and industry
- Build connections with National and International STEM education providers and industry
- Interact effectively with the GTAC Advisory Board to promote GTAC, identify opportunities and seek external funding for new collaborations and innovations
- Participate in the Victorian Specialist Science and Mathematics Centre network to identify innovative practices, share expertise and collaborate on programs

GTAC strategic priority 3: Enable increased reach and impact on student outcomes in STEM, with a particular focus on equity for disadvantaged students.

As current GTAC programs are oversubscribed and annual demand for programs exceeds our funding scope, we must explore novel avenues for program delivery. In addition, we aim to improve equity by focusing on disadvantaged students. GTAC will pursue the following strategic objectives:

- Extend our reach by offering online access to life science programs and resources for all Victorian students and teachers
- Provide disadvantaged schools with outreach programs through school visits and videoconferencing
- Design and deliver professional learning for primary and secondary teachers and laboratory technicians, to enhance student experience
- Empower teachers with contemporary STEM knowledge, skills and pedagogies to invigorate classroom practice
- Collaborate on programs that engage Indigenous students in STEM

Implementation

- Design new programs and update current programs in reference to the strategic priorities
- Appoint the following committees and establish annual outcomes, modes of communication, reporting and measurement for enacting the 2016 – 2019 strategic priorities:
    - Curriculum committee with a strong focus on strategic priorities 1 and 3
    - Professional learning and Performance Development committee with a strong focus on strategic priority 2
    - Innovations committee with a strong focus on strategic priority 2
- Hold a meeting of committee leaders quarterly
- Hold an annual staff retreat in December to identify focus areas for innovation for the year ahead.
- Establish achievable and measurable outcomes that are clearly communicated to all staff and stakeholders