

STEMEd Conference 2019: Future ImpACT Friday 5 April 2019 9-12pm program

Please bring your own device. Catering is not included.

<i>Who/Where</i>	<i>Event Description</i>	<i>Suitable for</i>
<p><u>CIT Bruce Campus</u> GF, K Block Purdie St, Bruce</p> <p>Presenters: Tony Cowlshaw Roisin Boadle & Joe Jennings</p>	<p><u>CIT Bridge Building Challenge and integration into the classroom</u> The Canberra Institute of Technology Construction and Engineering Bridge Challenge is for year 9-10 students and those enrolled in a certificate I or certificate II from relevant areas to design and build a bridge that meets the specifications provided and support a minimum static load of 40 kilograms. You will be guided through how your students can access the challenge with hands-on activities about selection of materials and how to test material strength. You will be shown how two high school teachers have integrated the challenge into their programs via the Achievement Standards and across learning areas.</p>	Years 7-12
<p><u>Canberra Deep Space Communication Complex</u> 421 Discovery Drive Paddy's River</p> <p>Presenters: Dr Korinne McDonnell Glen Nagle</p>	<p><u>Space... the final frontier. You and your students can help explore it!</u> The CSIRO managed, and NASA run, Canberra Deep Space Communication Complex provides communication with almost all of the spacecraft that are exploring the solar system at the Moon and beyond. Launches, landings, fly-bys, and everything in between, we make sure that the scientists send out their commands and receive their science back. Join us to learn about Australia's history in space exploration, discover space related resources that you can use in the class room, and find out how your students can explore galaxies, discover planets around other stars, and much more through citizen science.</p>	Years 5-12
<p><u>Geoscience Australia</u> Cnr Jerrabomberra Avenue and Hindmarsh Drive, Symonston</p> <p>Presenters: Shona Blewitt Ngairé Breen</p>	<p><u>Bringing geoscience into the classroom – a practical understanding of Earth processes</u> What goes on inside that big building in Symonston? This half-day visit will give you a behind-the-scenes look as some of the interdisciplinary work undertaken by Geoscience Australia. You will meet scientists, see facilities such as the Earthquake Alerts Centre and SHRIMP (absolute dating) in action, visit the hidden parts of our rock and fossil collections, learn about equipment used for seismic monitoring and stroll along our TimeWalk.</p> <p>The Education Team will also introduce you to our education facilities and products and all workshop participants will take away resources for their classrooms. Geoscience affects every part of our lives and we want to help you develop an improved understanding of earth science topics and enthusiasm to take back to your classrooms.</p>	Years 5-12
<p><u>Questacon</u> The Ian Potter Foundation Technology Learning Centre 60 Denison Street, Deakin</p> <p>Presenter: Alison McGregor</p>	<p><u>Design thinking process and user-centred design</u> Maker Space activities are fun ways to explore STEM, but to truly make the most of them we need to make making matter, by fostering a maker mindset, where students are inspired by others, willing to try (and fail!), and can feel both supported and challenged in the space. In this workshop, Ali McGregor from Questacon's Teacher Professional Learning Team will introduce the Design Thinking process and User-Centred Design. Through a series of hands-on experiences, Ali will support participants to understand how Design Thinking processes can be harnessed to develop a meaningful Maker Culture within schools.</p> <p><i>Please note: This is workshop is identical to the 1pm workshop</i></p>	Years P-12
<p><u>Questacon</u> King Edward Terrace, Parkes</p> <p>Presenter: Sam Hardwicke</p>	<p><u>From the Centre to the Classroom- Leveraging Questacon's exhibits for deep inquiry learning in the classroom</u> During this engaging hands-on exploration of Questacon, Sam Hardwicke, a presenter from Questacon's teacher professional learning team, will support participants to develop a range of classroom-based inquiries that leverage the concepts unearthed through a visit to Questacon - the National Science and Technology Centre. The experience will work to enhance an inquiry mindset, honing-in on building connections through inquiry pedagogy to multiple curriculum areas, the lives of their students and authentic real-world contexts. We will also look to develop contextualised assessment practices that support inquiry learning.</p> <p><i>Please note: This is workshop is identical to the 1pm workshop</i></p>	Years P-12

<p><u>ACT Education Directorate</u> Centre for Innovation and Learning 108 Hambidge Crescent Chisholm</p> <p>Presenter: Paula Taylor</p>	<p><u>Teaching STEM using the Australian Curriculum</u> STEM can be seen as a set of skills working in unison to create wonderful projects and a high level of student engagement. However, projects can be carefully planned and considered to meet many outcomes in the Australian Curriculum while providing opportunities for deep conceptual understanding in various subject areas. Paula Taylor, a long-time science teacher and the pedagogical leader at the ACT Education Directorate’s Centre for Innovation and Learning, will provide a hands on workshop to demonstrate how to get the most maths, science and technology learning embedded into your teaching programs.</p>	<p>Years 3-6</p>
<p><u>RobocupJunior Australia</u> Centre for Innovation and Learning</p> <p>Presenter: Jim Riley</p>	<p><u>Introduction to robotics</u> RobocupJunior Australia ACT workshop provides an introduction to Robotics in the Years 3-10 learning space and our challenges which open up some exciting opportunities in challenge and project based learning. The workshops are catered for teachers and students at any level of experience. While we focus on using the LEGO Mindstorms EV3 platform, the skills of problem solving through design thinking strategies for the engineering challenges and flow charting, testing and evaluation for the programming components can be translated to any robotics platform. <i>Please note: This is workshop is identical to the 1pm workshop</i></p>	<p>Years 3-10</p>
<p><u>InTEACT</u> Centre for Innovation and Learning</p> <p>Presenter: Toni Falusi</p>	<p><u>Early Childhood Coding</u> The roll out of the Digital Technologies Curriculum has meant that many early childhood teachers are teaching concepts that they are unfamiliar with. Toni will show you resources and strategies that support teachers with the implementation of the Digital Technologies Curriculum. <i>Please note: This is workshop is identical to the 1pm workshop</i></p>	<p>Years P-2</p>
<p><u>Canberra Mathematical Association</u> Hedley Beare Centre for Teaching and Learning (HBCTL) 51 Fremantle Drive Stirling</p> <p>Presenter: Bruce Ferrington</p>	<p><u>If we’ve all got the same answer, we must be asking the wrong question.</u> If we want to see students respond in creative and individual ways in our classrooms, we need to ask them the right questions. We need to be asking questions that provoke, questions that challenge assumptions, questions that take them from the known to the unknown, questions that are ambiguous and difficult. We need to prepare students for a world where mathematics can be used to sort out the confusion and chaos, to clarify the uncertain and to describe the unfamiliar. We need to prepare students for a world where mathematics certainly does not “stand alone” but is involved in the decisions we make each day. We need to move away from convergent thinking, where everyone produces the same answer, to a place that encourages divergent thinking, where students can explore and inquire, to find new and exciting possibilities that we may have never predicted. <i>Please note: This is workshop is identical to the 1pm workshop</i></p>	<p>Years 3-6</p>
<p><u>Primary Connections</u> Hedley Beare Centre for Teaching and Learning (HBCTL)</p> <p>Presenters: Nicola Dziadkiewics and Angela Gigliotti</p>	<p><u>Practical approaches to incorporating Design Technologies in primary science.</u> How might primary teachers create engaging STEM learning? Come along to this hands-on workshop to explore how Primary Connections incorporates Design and Technologies within science inquiry, in the context of a selection of Primary Connections units for Years 3-6. We offer and showcase an integrated approach which increases student engagement in STEM-related issues and supports the development of students’ problem solving and critical analysis skills. This approach to primary STEM Education provides opportunities for student development of General Capabilities such as Critical and Creative Thinking, and Personal and Social Capability.</p>	<p>Years 3-6</p>
<p><u>CSIRO</u> CSIRO Discovery Centre North-science Rd, Acton</p> <p>Presenters: CSIRO education and outreach officers</p>	<p><u>Workshop 1 Discover CSIRO, the Atlas of Living Australia and STEM Professionals in Schools</u> In this workshop you will be immersed in the world of CSIRO – find out about Australia’s innovation system via the CSIRO Discovery Centre; explore the Atlas of Living Australia and how you can use it in your own classroom; and discover how you can connect with a STEM Professional in your own school.</p>	<p>Years P-12</p>

<p><u>CSIRO</u> CSIRO Discovery Centre</p> <p>Presenters: CSIRO education and outreach officers</p>	<p><u>Workshop 2 Discover CSIRO, DNA to the Max and STEM Professionals in Schools</u></p> <p>In this workshop you will be immersed in the world of CSIRO – find out about Australia’s innovation system via the CSIRO Discovery Centre; put your investigative skills to work to uncover which cereal is a BARLEYmax scam; and discover how you can connect with a STEM Professional in your own school.</p>	<p>Years 10-12</p>
<p><u>Waterwatch</u> Cotter Avenue, below Cotter Dam</p> <p>Presenter: Martin Lind + co-presenters</p>	<p><u>From the puddle to the classroom</u></p> <p>Join experienced Waterwatch coordinators as they show you how to plan and conduct a range of field based water education activities. Waterwatch will showcase three of their educational programs including 1. Water analysis. 2. Water Bug surveying and 3. Waterway vegetation surveying using hands-on curriculum-linked activities and demonstrate how accessible and fun waterway education can be. Upper Murrumbidgee Waterwatch is now available to provide field-based education sessions with schools and youth groups, so come along to learn how you can access these great Canberra resources.</p> <p><i>Please note: This is workshop is identical to the 1pm workshop</i></p>	<p>Years K-12</p>
<p><u>St Francis Xavier College</u> Barnard Circuit, Florey</p> <p>Presenter: Graham Stock</p>	<p><u>Solar cars, STEM, upskilling and outreach</u></p> <p>In this workshop, educators will explore the use of project based learning to enrich student engagement in STEM, as well as look at how secondary school and primary school educators can work together to upskill in STEM. Participants will work through the Science, Engineering and Mathematics behind construction and operation of Solar Cars, looking at what St. Francis Xavier College delivered as a STEM PBL Outreach day with a Year 5 cohort from a Canberra Primary School, and how the expertise of primary and secondary educators was utilised in tandem to maximise student engagement and outcomes.</p> <p><i>Please note: This is workshop is identical to the 1pm workshop</i></p>	<p>Years P-10</p>
<p><u>Giralang Primary School</u> Atalumba Cl, Giralang</p> <p>Presenter: Josie Floyd</p>	<p><u>STEM to the stars</u></p> <p>2019 is the 50th anniversary of the Apollo 11 Moon landing! In this workshop you will participate in a range of practical STEM activities related to ‘up there’. The Giralang Primary School Planetarium is an amazing learning environment which will be showcased at this workshop. You will also be involved in the design process for paper/water rockets, collecting and displaying data using BBC Micro:Bits, Google Sheets and Google Slides, a Mars rover challenge using Edison robots, a static display about astronomy and teaching opportunities in 2019 and an ‘eggonaut’ challenge.</p>	<p>Years P-6</p>

STEMEd Conference 2019: Future ImpACT Friday 5 April 2019 1pm-4pm Program

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<u>Who/Where</u>	<u>Event Description</u>	<u>Suitable for</u>
<p><u>CIT Bruce Campus</u> Building E, room E030 (Crime Scene Facility) Purdie St, Bruce</p> <p>Presenter: Dr Kym Turnbull</p>	<p><u>Integrating practical crime scene activities and biometric technologies into the Science curricula</u> This workshop will explore difference forensic science and biometrics practical techniques that can be integrated in the science curricula. The practical activities covered will assist STEM teachers to use a scientific problem-based approach to the analysis of various evidence types. In addition, participants will be introduced to the world of biometric technologies, one of the fastest growing fields of forensic science.</p>	Years 9-12
<p><u>Questacon</u> The Ian Potter Foundation Technology Learning Centre 60 Denison Street, Deakin</p> <p>Presenter: Alison McGregor</p>	<p><u>Design thinking process and user-centred design</u> Maker Space activities are fun ways to explore STEM, but to truly make the most of them we need to make making matter, by fostering a maker mindset, where students are inspired by others, willing to try (and fail!), and can feel both supported and challenged in the space. In this workshop, Ali McGregor from Questacon's Teacher Professional Learning Team will introduce the Design Thinking process and User-Centred Design. Through a series of hands-on experiences, Ali will support participants to understand how Design Thinking processes can be harnessed to develop a meaningful Maker Culture within schools. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	Years P-12
<p><u>Questacon</u> King Edward Terrace, Parkes</p> <p>Presenter: Sam Hardwicke</p>	<p><u>From the Centre to the Classroom- Leveraging Questacon's exhibits for deep inquiry learning in the classroom</u> During this engaging hands-on exploration of Questacon, Sam Hardwicke, a presenter from Questacon's teacher professional learning team, will support participants to develop a range of classroom-based inquiries that leverage the concepts unearthed through a visit to Questacon - the National Science and Technology Centre. The experience will work to enhance an inquiry mindset, honing-in on building connections through inquiry pedagogy to multiple curriculum areas, the lives of their students and authentic real-world contexts. We will also look to develop contextualised assessment practices that support inquiry learning. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	Years P-12
<p><u>ACT Education Directorate</u> Centre for Innovation and Learning 108 Hambidge Crescent Chisholm</p> <p>Presenter: Paula Taylor</p>	<p><u>Teaching STEM in high school science classes</u> STEM can be seen as a set of skills working in unison to create wonderful projects that are often used as summative tasks. In this workshop, you will be shown how to provide scaffolded inquiries to maximise student engagement, differentiation and achievement through the phase of the project. With careful consideration, projects can also provide deep conceptual understanding of the Australian Curriculum while also developing strong inquiry skills with a gradual release of responsibility. Paula Taylor, a long-time science teacher and the pedagogical leader at the ACT Education Directorate's Centre for Innovation and Learning, will provide a hands on workshop to demonstrate how to get the most success in covering content while maximising STEM skills with your classroom projects.</p>	Years 7-10
<p><u>RobocupJunior Australia</u> Centre for Innovation and Learning</p> <p>Presenter: Jim Riley</p>	<p><u>Introduction to robotics</u> RobocupJunior Australia ACT workshop provides an introduction to Robotics in the Years 3-10 learning space and our challenges which open up some exciting opportunities in challenge and project based learning. The workshops are catered for teachers and students at any level of experience. While we focus on using the LEGO Mindstorms EV3 platform, the skills of problem solving through design thinking strategies for the engineering challenges and flow charting, testing and evaluation for the programming components can be translated to any robotics platform. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	Years 3-10
<p><u>InTEACT</u> Centre for Innovation and Learning</p> <p>Presenter: Toni Falusi</p>	<p><u>Early Childhood coding</u> The roll out of the Digital Technologies Curriculum has meant that many early childhood teachers are teaching concepts that they are unfamiliar with. Toni will show you resources and strategies that support teachers with the implementation of the Digital Technologies Curriculum. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	Years P-2

<p><u>Canberra Mathematical Association</u> Hedley Beare Centre for Teaching and Learning (HBCTL) 51 Fremantle Drive Stirling</p> <p>Presenter: Bruce Ferrington</p>	<p><u>If we've all got the same answer, we must be asking the wrong question.</u> If we want to see students respond in creative and individual ways in our classrooms, we need to ask them the right questions. We need to be asking questions that provoke, questions that challenge assumptions, questions that take them from the known to the unknown, questions that are ambiguous and difficult. We need to prepare students for a world where mathematics can be used to sort out the confusion and chaos, to clarify the uncertain and to describe the unfamiliar. We need to prepare students for a world where mathematics certainly does not "stand alone" but is involved in the decisions we make each day. We need to move away from convergent thinking, where everyone produces the same answer, to a place that encourages divergent thinking, where students can explore and inquire, to find new and exciting possibilities that we may have never predicted. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	<p>Years 3-6</p>
<p><u>Primary Connections</u> Hedley Beare Centre for Teaching and Learning (HBCTL)</p> <p>Presenters: Nicola Dziadkiewicz and Angela Gigliotti</p>	<p><u>Incorporating Design Technologies in Science inquiry in F-2</u> Come along to this hands-on workshop for an in-depth exploration of the 3 newest Primary Connections STEM units: 'That's My Hat' (Chemical Sciences, Foundation Year), 'Changes all around' (Earth and Space Sciences, Year 1), 'Machine Makers' (Physical Sciences, Year 2). Participants will walk away with knowledge and understanding of resources which exemplify an investigative and inquiry-based teaching and learning approach including hands-on investigations, collaborative group work and evidence-based reasoning, and support the development of students' problem solving and critical analysis skills.</p>	<p>Years P-2</p>
<p><u>CSIRO</u> CSIRO Discovery Centre North-science Rd, Acton</p> <p>Presenters: CSIRO education and outreach officers</p>	<p><u>Workshop 3 Discover CSIRO, Robot Rescue and STEM Professionals in Schools</u> In this workshop you will be immersed in the world of CSIRO – find out about Australia's innovation system via the CSIRO Discovery Centre; use old technology in a new way in Robot Rescue; and discover how you can connect with a STEM Professional in your own school.</p>	<p>Years 5-10</p>
<p><u>CSIRO</u> CSIRO Discovery Centre North-science Rd, Acton</p> <p>Presenters: CSIRO education and outreach officers</p>	<p><u>Workshop 4 Discover CSIRO, Atlas of Living Australia and STEM Professionals in Schools</u> In this workshop you will be immersed in the world of CSIRO – find out about Australia's innovation system via the CSIRO Discovery Centre; explore the Atlas of Living Australia and how you can use it in your own classroom; and discover how you can connect with a STEM Professional in your own school. <i>Please note: This is workshop is identical to the 9am CSIRO Workshop 1</i></p>	<p>Years P-12</p>
<p><u>Waterwatch</u> Cotter Avenue, below Cotter Dam</p> <p>Presenter: Martin Lind + co-presenters</p>	<p><u>From the puddle to the classroom</u> Join experienced Waterwatch coordinators as they show you how to plan and conduct a range of field based water education activities. Waterwatch will showcase three of their educational programs including 1. Water analysis. 2. Water Bug surveying and 3. Waterway vegetation surveying using hands-on, curriculum-linked activities, and demonstrate how accessible and fun waterway education can be. Upper Murrumbidgee Waterwatch is now available to provide field-based education sessions with schools and youth groups, so come along to learn how you can access these great Canberra resources. <i>Please note: This is workshop is identical to the 9am workshop</i></p>	<p>Years K-12</p>

<p><u>ACT NoWaste</u> The Recycling Discovery Hub Materials Recovery Facility Mugga Lane, Symonston</p> <p>Presenter: Robbie Ladbrook</p>	<p><u>It's only waste if we waste it!</u></p> <p>A visit to the Recycling Discovery Hub is a chance to see how science and technology play a vital role in managing the impact we have on our planet. Hands on interactives, virtual reality and the inspiring innovation wall provide the spark to ignite rich inquiry learning programs.</p> <p>Participants will gain a broad understanding of how science and technology are used for the environmental management of waste and recycling in the ACT, and they will explore a range of options for including recycling and waste projects into units of inquiry and letting students set the agenda for change.</p> <p>Participants will also gain an understanding of how natural resource management can be explored across the curriculum.</p>	<p>Years 2-10</p>
<p><u>St Francis Xavier College</u> Barnard Circuit, Florey</p> <p>Presenter: Graham Stock</p>	<p><u>Solar cars, STEM, upskilling and outreach</u></p> <p>In this workshop, educators will explore the use of project based learning to enrich student engagement in STEM, as well as look at how secondary school and primary school educators can work together to upskill in STEM. Participants will work through the Science, Engineering and Mathematics behind construction and operation of Solar Cars, looking at what St. Francis Xavier College delivered as a STEM PBL Outreach day with a Year 5 cohort from a Canberra Primary School, and how the expertise of primary and secondary educators was utilised in tandem to maximise student engagement and outcomes.</p> <p><i>Please note: This is workshop is identical to the 9am workshop</i></p>	<p>Years P-10</p>