ROOMS	Workshop C 10:45 – 11:30am	Workshop D 11:40 – 12:25pm
F	**Arduino for Beginners – Years 7-10** Presenter: *Perry O'Connor (St Mary Mackillop College)* The development in digital technology skills to code using Arduino and develop design solutions for real world projects. Participants will understand the importance of renewable energy sources: • to develop digital technology skills, • to apply understanding and skills to a design project	
U	**Visualising Student Performance – Years 7-10** Presenter: *Jay Atwood (EdTechTeam)* How do you best represent student data so that it's easy to communicate and easy for all to understand? Together we will explore how spreadsheets can work for you to help tell a more complete picture of your students and their learning. We will use sample data to create a data dashboard using a variety of advanced Sheets skills and a little magic. Looking for patterns, trends, and answers with pivot tables and advanced conditional formatting. Introducing Data Studio to build visualisations to clearly communicate student performance to teachers, students and parents.	**Using free (open-source) software for STEM projects – Years 7-12** Presenter: *Nicholas West (Gungahlin College)* Many "education" oriented tools suffer from vendor lock-in, expensive licenses, or simply fail when school IT policy or equipment changes. This seminar looks at free alternatives and presents a case study of a 100% free and open-source year 11 mechatronics project. NB: Participants may bring 1x 4GB USB for copies of resources
N	**Have we reached the tipping point? – Years 7-10** Presenter: *Robbie Ladbrook (NoWaste)* How do we engage students with a topic like waste? This workshop will explore ideas and provocations designed to help students understand the growing impact of waste and waste disposal on our environment and economy through: • examining issues and posing solutions through exploration of waste as a resource, • designing for future sustainability. Explore how contemporary trends in packaging design are impacting waste and recycling in this era of globalisation. Objectives: 1. Participants will gain a broad understanding of how science and technology impact packaging design and recyclability. 2. Participants will explore a range of options for including problem solving and design challenges into their programming. 3. Participants will gain skills in implementing Rapid Idea Generation tools (RIGS) to explore design solutions to the current waste and packaging problems. It's only waste if we waste it!	**Supporting senior science students to undertake open inquiry through CREST awards – Years 7-12** Presenter: *Trish Morton (CSIRO)* Senior secondary Science subjects across all states and territories require students to acquire, practise and demonstrate Science Inquiry Skills by performing empirical inquiries of their own design. The CREST Awards Program provides support for teachers to facilitate open inquiry in their classrooms through the provision of AITSL aligned targeted professional learning, resources for facilitating student inquiries, and recognition of the completion of inquiries through awards. Over the past twelve months, Year 11 and Year 12 Science students in six NSW schools have completed Advanced CREST Awards during class time, as part of their assessment requirements, demonstrating the effective role that CREST Award can play in supporting teachers and students to undertake open inquiry and reward these efforts. In this workshop we will outline the requirements for Advanced CREST Awards Program and show how these can be aligned with assessment requirements. You will also be guided through the student proposal process for undertaking an Advanced CREST Award.
O	**Plate tectonics: misconceptions and new understandings – Years 7-12** Presenter: *Lara Sharp (Geoscience)* Teachers will consider common misconceptions and practical ways to address them through the use of the latest scientific learning, and teaching resources from Geoscience Australia's Education Centre.	
K	**Creative Thinking for Student Excellence – Years P-12** Presenter: *Nicole Fetchet (Questacon)* The Questacon Smart Skills Initiative (QSSI) engages with young people through a range of national programs to develop innovation and enterprise skills in young Australians. QSSI offers a significant skills development pathway for participants. Each step along the pathway brings greater skill development in design thinking, ideation, prototyping and working with technologies. The presenters at this session are excited to share some of the facilitation techniques that QSSI has used with young people across Australia. Creative thinking has been highlighted as an enterprise skill that students need to develop for future careers. Participants will engage in a series of creative thinking exercises based around Questacon's cycle of Innovation: need, think, make, try, refine. Each activity will explore a different aspect involved in facilitating innovation, including promoting ideation, creativity and prototyping.	
H	**Music Across the Curriculum – STEM connections – Years P-6** Presenters: *Laura Aksila and Thomas Mulquiney (Harrison School)* Laura and Thomas will share a sequence of four carefully structured and scaffolded lessons that were implemented with Year 1/2 multi-age classes. Participants will learn how to provide their students with a series of learning experiences to enable their students to compose their own songs, and in the process integrate skills from Maths, Design Technology to English and The Arts.	**Exploring the Universe of STEM in Primary Schools - Years P-6** Presenter: *Nicole Zimmer (Evatt Primary School)* This workshop will explore how to develop an Integrated inquiry approach to STEM involving the whole community. Describing Evatt School's journey, research based strategies, a whole school approach and the collaboration with other stakeholders. Participants will learn about: • STEM as an integrated inquiry. • What are STEM skills and why are they important? • How to establish a whole community approach and why it is important.
I	**Using Coding in the integrated classroom – Years P-6** Presenters: *David Witte and Steven Landman (Palmerston District Primary School)* Teaching coding in isolation is a missed opportunity. This workshop presents practical examples of how to use the free Scratch programming website to develop engaging, integrated lessons across the curriculum.	
B	**From the Centre to the Classroom – Leveraging Questacon's exhibits for deep inquiry learning in the classroom – Years P-12** Presenters: *Sam Hardwicke and Alison McGregor (Questacon)* During this engaging hands-on workshop Sam and Ali, two presenters from Questacon's teacher professional learning team, will take participants through a range of classroom-based inquiries that leverage the concepts unearthed through Questacon's exhibits. 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.	

ROOM	Workshop E 2:00 – 2:45pm	Workshop F 2:55 – 3:40pm
F	**Inquiry Through a STEM lens – Years P-6** Presenter: *Michelle Gee (Charnwood Dunlop School)* Designed for the novice, this interactive workshop encourages participants to engage in an activity where all relevant concepts and skills are introduced and developed.	
U	**Yurbay Bush Food and Medicine Plants – Years P-12** Presenter: *Adam Shipp (Yurbay)* Adam Shipp is a proud Wiradjuri man with a passion for native food and medicine plants. He works with many schools incorporating this knowledge through connection to country and culture programs. Adam will cover information on Aboriginal plants and plant use, provide tasting samples of local foods and discuss how this information can be incorporated in classroom learning.	**F1 in Schools – Years 7-10** Presenter: *Jo Hopman (Alfred Deakin)* This workshop is designed to improve your skills in computer aided design. Jo Hopman, a long-time expert in the F1 in Schools Program, will introduce you to the software to specifically design a Formula 1 car. You will learn more about the F1 Challenge and how it can extend your students. The F1 Challenge aims to develop problem solving, research, communication, collaboration and teamwork skills through developing, designing, testing and racing miniature Formula One vehicles. This workshop will support teachers who wish to refresh their understanding of using digital design software or who are starting out for the first time. This will also be an opportunity to learn more about the F1 in Schools Program which has many links to the Australian Curriculum and general capabilities.
N	**Weather Station project using Raspberry Pi – Years 7-12** Presenter: *Sanjay Sharma (Canberra College)* Overview of the project undertaken by Sanjay's students, integrating a number of STEM disciplines in building a Raspberry Pi controlled weather station. Share Sanjay's experience in developing and running this unit of work. Participants should be able to leave with a tried and tested unit that they can use in their own schools and classrooms, complete with a list of parts and components, material, space and tool resources, program and code resources, assessment materials, etc.	**Science and STEM in a special education setting – Years P-10** Presenters: *Alison Moore, Rebecca Andrews and Tarana Anand (Black Mountain School)* Supporting all students to access STEM learning independent of literacy ability. Empowering teachers to differentiate the curriculum to cater for diverse learning needs. Differentiation of programming, lessons and resources for students with diverse learning needs. Using alternative methods to assess achievement against the curriculum. Integration of students with varying ability levels into core lessons to achieve similar outcomes in individualised ways.
O	**What is big data and machine learning? Hands on with the new BSSS Data Science course – Years 11-12** Presenter: *Matthew Phillips (UCSSC Lake Ginninderra)* Teachers will gain an understanding of the scope, goals, and content of the new BSSS Data Science Course, and develop ideas for course adoption and delivery, including teaching resources and learning activities.	
K	**Building a Culture of Scientific Literacy in a Primary School – Years P-6** Presenters: *Margo Donaldson and Corrinne Hoorweg (Canberra Grammar School)* How can we use STEM/STEAM as a vehicle to empower students as active citizens? We will explore contemporary methods and interactive resources which support students and teachers in their scientific literacy.	
H	**A multi-age/whole school approach to integrating STEM into your school – Years P-6** Presenter: *Emma Young (Holy Family Primary School)* After taking an interest in STEM, Emma attended various conferences across ACT and NSW to develop her knowledge and exposure to 21st pedagogy. As the digital technologies curriculum is beginning to be rolled out in educational settings, she dedicated her action research into exposing staff and students to the possibilities of STEM and how to authentically integrate the technology stream into the curriculum. Emma designed and implemented a school wide Peer Support program where multi aged groups across the school participated in activities that were designed to be linked to the technologies stream and assist to integrate resources into their subject areas. Year 6 leaders were trained in the technologies and facilitated small groups under supervision of teachers, exposing teachers across the school to resources and possibilities of activities to implement with students. A practical look into the journey Holy Family Primary School went on in 2018 to expose staff and students to the possibilities of STEM and authentic use of technologies.	**reSolve: Mathematics by Inquiry – Years P-12** Presenters: *Kristen Tripet (Academy of Science), Steve Thornton (Academy of Science), Trish Foster (Chapman Primary School) and Joshua Gurr (Hughes Primary School)* A practical workshop with a focus on inquiry mathematics. Participants will be engaged in exploring the reSolve: Mathematics by Inquiry protocol and freely available resources and professional learning. Trish and Josh will discuss their journey as reSolve Champions and how they have implemented the protocol, resources and professional learning within their schools.
I	**Robotics and Computational Thinking for Primary Teachers – Years P-6** Presenters: *Sarah Fletcher (SEAACT) and Morgan Marshall (Robogals)* A session designed to provide primary school teachers with a grounding in using scientific working and thinking skills to introduce robotics, coding and computational thinking to their students. Participants will work with EV3 robots during this hands on workshop and gain valuable information around pedagogical approaches in the field. In addition, teachers will be given information around a variety of Robotics resources with the aim of supporting a range of educational settings. NB: Please not more than one person per school – PLC offers.	
B	**Thinking about your school – using design thinking processes to drive student-led innovation and school improvement – Years P-12** Presenters: *Sam Hardwicke and Alison McGregor (Questacon)* During this engaging 80 minute workshop Sam and Ali, two presenters from Questacon's teacher professional learning team, will support participants to uncover ways that Design Thinking, Systems Thinking and Computational Thinking can be utilized by leadership teams for school improvement and by classroom teachers to empower students.	