Early Career Teachers Conference

SASTA South Australian Science Teachers Association

Leading learning within and beyond the classroom

13 October 2023

Nazareth College

Conference Program

8.00am	Registration
8.30am	Opening and Welcome
9.00am - 10.10am	Session 1
10.10am	Morning Tea
10.30am - 11.40am	Session 2
11.45am - 12.55pm	Session 3
1.00pm	Lunch
1.30pm - 2.40pm	Session 4
2.45pm - 3.55pm	Share-a-thon
4.00pm	Close and Happy Hour

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Key: Primary Years | All Years | Primary & Junior Secondary | Junior & Senior Secondary

Workshop Sessions

Session 1

S1.1 SmartScience - How can I get the most out of 50 minutes a week?
Sarah Todd , Coromandel Valley Primary School

S1.2 Teaching Tomorrow: Merging Design Thinking, Problem-Based Learning, and Gamified instruction for Inspired Education
Ross Riach, Gleeson College

S1.3 Designing and Building with STEM - Utilising Design and Build Activities in your STEM Lessons
Michelle McLeod, RiAus Education (The Royal Institution of Australia)

S1.4 Transition from Provisional to Full Registration
Adrian Dilger & Belinda Radcliffe, CESA

Session 2

S2.1 Empowering Future Innovators
Claire Hughes, The University of Adelaide

S2.2 Promoting "Design Thinking" through flipping the Senior Science classroom
Carly Conlan, MeriSTEM

S2.3 Changing the world with STEM - Sharing how STEM changes our world
Michelle McLeod, RiAus Education (The Royal Institution of Australia)

S2.4 Sharing early career teacher strategies and experiences for supporting personal & professional wellbeing
Lizzy Mann & Katie Sandow, Sacred Heart College (Marcellin)

Session 3

S3.1 Integrating ChatGPT in Science Education: A Practical Guide for Early Career Teachers
Jarrod Johnson, Pulteney Grammar School

S3.2 Mystery Box Science Lessons
Lara Lang, ASMS and Angeline Buckler, Aldinga Payinthi College

S3.3 Practical Science Classes - Achieving the best outcome for you and your students
Jane Hosking, St Francis de Sales College and Laboratory Managers Association of SA

S3.4 Connection V's Attention
Andrea Richardson, CESA

Session 4

S4.1 Reframing Design Think for active STEM engagement
Mel O'Leary CESA

S4.2 Getting Quicker and More Consistent at Assessment - Rubrics and Feedback
Jason Greenslade, Westminster School

S4.3 Concept Mapping for students and staff
Paul Gavini, Modbury High School

S4.4 Teacher Fatigue, Burnout and Resilience
Ms. Shaheen Ali, University of Technology Sydney

Session 5

Share-a-thon
An informal setting for multiple presenters to share innovative teaching ideas. Each presenter will share astrategy or tool during a 10-minute presentation and delegates will rotate around the room.

Workshop Abstracts

Session 1

S1.1 SmartScience - How can I get the most out of 50 minutes a week?

Sarah Todd, Coromandel Valley Primary School

How can you fit the designated curriculum, scientific inquiry skills and reporting and assessment into 50 minutes a week? As a science specialist teacher, you need to work smarter!

Come along and participate in a set of rotational activities, aimed at junior primary and primary school teachers to get the most out of your one lesson a week.

Can you predict, test and record results and upload this learning to document understanding?

Come along and find out how you can use hands on learning and digital technologies to enhance the science classroom.

S1.2 Teaching Tomorrow: Merging Design Thinking, Problem-Based Learning, and Gamified instruction for Inspired Education

Ross Riach, Gleeson College

Welcome, new educators, to a realm of exciting possibilities in teaching! In this presentation, we'll embark on a journey that merges three game-changing strategies: Design Thinking, Problem-Based Learning (PBL), and Gamification.

Demystifying Design Thinking and PBL:

Imagine teaching where curiosity leads, and problems are gateways to learning. Design Thinking is a simple yet powerful tool that encourages understanding and empathy. You'll learn how it effortlessly blends with Problem-Based Learning, offering a way to nurture 21st-century skills without overwhelming your students' or you!

Practical Strategies for New Teachers:

In this adventure, you'll see some practical ways to seamlessly introduce PBL and Design Thinking. From real-world problems that resonate with your students to fostering a class culture of high expectations, working under pressure and ensuring you know where every student is at. (APST 2.2)

Injecting fun into your lessons doesn't require reinventing the wheel. We'll explore how even small elements of gamification and the use of AI can turn your lessons into captivating journeys. Simple challenges, interactive quizzes, and rewards can transform learning into an exciting adventure your students will love. (APST 2.6, 3.1, 4.1)

Innovative Assessment for Instant Impact: Formative assessment doesn't have to be dull'it can be a dynamic part of your teaching toolkit. Learn how to leverage technology for live feedback during lessons, gauging your students' understanding in real-time. We'll explore interactive platforms and strategies that make assessment a valuable part of the learning process. (APST 5.1, 5.2)

Together, we'll demystify these concepts and equip you with practical, approachable techniques. No need to be overwhelmed'instead, be excited about the enriching journey you're about to embark on. Let's make your early teaching years a time of boundless inspiration and student engagement.

S1.3 Designing and Building with STEM - Utilising Design and Build Activities in your STEM Lessons

Michelle McLeod, RiAus Education (The Royal Institution of Australia)

Design and build activities can be integrated in to almost any STEM content outcome and can be adapted to suit the needs of all learners. The strength of these activities is the ability to integrate S, T, E and M whilst incorporating hands-on learning and delivering STEM in Action contexts. This workshop will provide you with suggestions on the types of design and build activities connected with Australian Curriculum STEM related subject concepts, cross-curricular priorities, and capabilities. Included will be tips on how to incorporate career information, as well as advice on how to differentiate activities to suit a range of learners. We will also explore how these activities can be used in your classroom to assess types of thinking and formative learning.

S1.4 Transition from Provisional to Full Registration

Adrian Dilger & Belinda Radcliffe CESA

Teaching is a dynamic and challenging profession. Teachers have a professional obligation to develop and maintain professional relationships with a diverse range of learners, communicate with parents, act ethically, promote positive values and maintain and raise professional standards. Moving to (full) registration is a continuum of professional growth for a teacher as they transition from the Graduate level of the Australian Professional Standards for Teachers to the Proficient career stage. During this session you will learn about the process to transition to (full) registration, gathering evidence and the role of the evaluator.

Session 2

S2.1 Empowering Future Innovators

Claire Hughes, The University of Adelaide

In an evolving world where STEM skills are essential for the jobs of the future, this dynamic workshop is designed exclusively for early career teachers. Discover the art of seamlessly integrating STEM pedagogies into the Curriculum, harnessing the potential to ignite curiosity and innovation in your students. Through practical insights and interactive strategies, learn how to inspire the next generation of problem solvers, critical thinkers, and creators.

Explore the significance of nurturing STEM skills early on, equipping students with the toolkit they need to thrive in a rapidly changing world. Don't miss this opportunity to unlock the potential of STEM education and transform your teaching approach for a brighter future.

S2.2 Promoting "Design Thinking" through flipping the Senior Science classroom

Carly Conlan, MeriSTEM

Design thinking is a process akin to the scientific process, but with greater emphasis on solving user-specific real-world problems and developing testing and evaluating prototypes. Using design thinking models is an ideal way to provide a scaffold for students to apply their learning to real-world problems, while developing their creative and critical thinking. With investigation, analysis and evaluation being key achievement outcomes in the South Australian syllabus for the senior sciences, design thinking-driven projects within a flipped classroom environment allow educators to develop and assess these key skills in their students while they independently learn critical content. MeriSTEM and partners have developed and collated hundreds of resources to support flipped classrooms, allowing teachers to grow the essential skills of investigation, analysis and evaluation within the classroom. This workshop will showcase MeriSTEM resources and provide the basics for practitioners to be successful in applying this approach in their classroom.

S2.3 Changing the world with STEM - Sharing how STEM changes our world

Michelle McLeod, RiAus Education (The Royal Institution of Australia)

Interested in connecting your classroom and learning activities with current and emerging STEM research? Looking to utilise resources and activities that incorporate STEM in Action examples from across the STEM fields? Come along to learn about the FREE Australian Curriculum connected resources available through The Royal Institution of Australia's (RiAus) STEM Education Platform. Utilising content from Cosmos Magazine, and a range of partnerships including the Australian Antarctic Division, the Minderoo Flourishing Oceans project and other Australian institutions, our resources provide learning activities connected with science as a human endeavour examples, cross-curricular priorities and subject content topics, whilst also incorporating hands-on activities and conceptualising links between research and curriculum. Join this session to explore available resources and activities, suggest new ideas, explore research examples, and network with colleagues.

S2.4 Sharing early career teacher strategies and experiences for supporting personal & professional wellbeing.

Lizzy Mann, Stef Hutchings & Katie Sandow, Sacred Heart College (Marcellin)

The first five years of a professional teaching career can be exciting, complex, and demanding. The meaningful positives of our work, of building connections with students and celebrating their learning growth, are often overshadowed by the increasing demands and expectations on teachers. While establishing their professional identity and pedagogical efficacy, early career teachers juggle planning, preparation, marking, assessment, administrative tasks - the stressful workload impacting their wellbeing (AITSL, 2021). It is essential to support early career teachers to flourish and thrive, and not languish or barely cope. This workshop will present both evidence-based strategies to support the professional and personal wellbeing of early career teachers, as well as share the teaching experiences of early career Science teachers and how they have navigated their personal and professional wellbeing.

Workshop Abstracts

Session 3

S3.1 Integrating ChatGPT in Science Education: A Practical Guide for Early Career Teachers

Jarrod Johnson, Pulteney Grammar School

This presentation explores the use of ChatGPT, a language model by OpenAI, in Science education. It will explain how ChatGPT works, its classroom applications, and its benefits, including personalized learning and administrative efficiency.

The session also acknowledges the limitations of ChatGPT, such as its inability to fully grasp context and the occasional inaccuracies in its responses. Ethical implications, including privacy issues and the risk of AI dependency, will also be discussed.

Practical examples of how AI can be integrated into the classroom will be provided, along with strategies to balance traditional teaching methods with this new technology. The ultimate goal is to help early career Science teachers harness the power of AI while maintaining a critical and ethical perspective.

S3.2 Mystery Box Science Lessons

Lara Lang and Angeline Buckler, ASMS & Aldinga Payinthi College

Limited resources? No time? Still want amazingly effective lessons?

This workshop will showcase a range of tools for hooking learners in, delivering content, making links to prior learning, and checking for understanding. But there's a twist - we only have 5 minutes to plan the lesson from a random mystery box of resources. The only limit is your imagination!

S3.3 Practical Science Classes - Achieving the best outcome for you and your students

Jane Hosking, St Francis de Sales College and Laboratory Managers Association of SA

As a newly qualified, or 'early in your career' teacher of Science, the thought of those first practical lessons can be quite daunting.

Practical science lessons are a necessary part of daily school life, but an aspect of the profession that is not covered in detail during teacher training. This presentation aims to provide information to assist you in negotiating a range of skills, such as risk assessment, managing practical equipment and classes, student engagement in the laboratory, and will also offer many hints and tips to help you achieve the best outcomes possible from these lessons.

S3.4 Connection V's Attention

Andrea Richardson, CESA

This session will explore the use of language and how we can change our perception about a child or young person. We will also look at different strategies to engage and connect with our students.

Workshop Abstracts

Session 4

S4.1 Reframing Design Think for active STEM engagement

Mel O'Leary, CESA

In our rapidly evolving educational landscape, Design Thinking has emerged as a powerful tool for nurturing innovation among students. Yet, the challenge lies in how to seamlessly integrate Design Thinking principles into the classroom.

Our workshop,' aims to bridge this gap by equipping educators with the essential skills and knowledge they need. Throughout the workshop, participants will delve into Catholic Education South Australiaâ€™s redefined model of Design Thinking, which organises design thinking into key actions to be undertaken by students. Teacher will develop a driving question aligned with the Australian curriculum and learn how to map their curriculum to the various stages of the Design Thinking process. Moreover, they will gain hands-on experience in crafting engaging learning experiences that enable students to actively practice Design Thinking. By the end of this workshop, teachers will leave feeling empowered and prepared to foster innovation and problem-solving skills within their classrooms.

S4.2 Getting Quicker and More Consistent at Assessment - Rubrics and Feedback

Jason Greenslade, Westminster School

One of the biggest jobs we have as teachers is to ensure we make consistent and comparable judgements of student work - not only against the achievement standard (or performance standards) but also making sure we adhere to school policies and procedures.

This often takes a large amount of our time and this session will also examine some ways you might become quicker at the process.

In this session we will look at the following:

* Use of rubrics to make judgements of 7-10 student work

* Tips and tricks to quicken marking and to ensure you are giving quality, timely feedback

**Work samples, rubrics and other resources will be provided electronically so you can take them back to school and use them.

S4.3 Concept Mapping for students and staff

Paul Gavini, Modbury High School

This hands-on experience is designed for educators seeking to enhance pedagogical strategies and improve student literacy and conceptual development of subject content.

Concept mapping isn't just about diagrams; it's a transformative tool that fosters deeper understanding, stimulates critical thinking, and enhances literacy. In this workshop, explore how to harness this powerful technique in your lesson planning and learn to create vibrant, interconnected idea landscapes that resonate with students of all literacy levels.

S4.4 Teacher Fatigue, Burnout and Resilience

Ms. Shaheen Ali, University of Technology Sydney

The onset of the COVID-19 pandemic has seen unparalleled effects on the pedagogical practices and ultimately, neurological health of teachers in a secondary context. Over the course of the pandemic, the nature of teaching has manifested and changed. There has been exponential data suggesting that teachers are facing fatigue and thus leaving the profession.

In the wake of the digital revolution, technological advances have seen greater access to online learning and the austerity around teaching. The changing nature of the world and the conditions around teaching have created greater strain on a multitude of factors that affect an educator's ability to teach effectively. Teacher fatigue and burnout has been met with teachers experiencing negative emotional states and psychological discomfort.

Teachers have been found to have a higher-than-normal risk of developing voice disorders and burnout dimensions. Vocal fatigue index has been used to correlate teacher fatigue with voice disorders. This can be further explored with voice amplification, energy expenditure and the teacher learning process. Studies have shown the need for action to curb teacher fatigue to retain workers in the profession.

The multifaceted nature of the transdisciplinary methods would stand to benefit from the research of this project. A range of qualitative and quantitative analysis will occur with data collection to deepen understanding of the long term effects of the COVID pandemic and the impact on teachers. Analysis will be made to argue the consequences of stress during the pandemic and the consequential need to promote proactive approach for cultivating emotional intelligence and socioemotional competencies.

Greater understanding of the neurological effects on teachers may better prepare and inform programs and policies. The preventative measures may assist in the retention of teachers within the profession.

An informal setting for multiple presenters to share innovative teaching ideas. Each presenter will share astrategy or tool during a 10-minute presentation and delegates will rotate around the room.

Session 5: Share-a-thon

The non-worksheet for mastery and feedback

Lara Lang, ASMS

This share-a-thon session will showcase a strategy that promotes engagement, collaboration, feedback, confidence and mastery all in one. Use it for practice, use it for assessment, use it differently each time with little effort.

Structuring Prac Reports in the Middle School (7-10)

Jason Greenslade, Westminster School

Practical reports and quality error analysis are what we want but how often do we get it from year 7-10 students? This 10 minute session will discuss some of the tools I use to try and scaffold these tasks to make them more accessible to a wider variety of learners.

Breaking or Teasing the Brain

Dina Matheson, Woodville High School

Brain break, brain teaser... Here's a fun way to get your students engaged in scientific thinking and problem solving. Make it a competition for added fun and drama!

During this Share-a-thon Session, participants will be invited to have a go at some short science brain break activities, suitable for all ages. These are a great way to break up a lesson, or to use as a warm-up at the beginning of a lesson. And the best thing is, they don't require a lot of prep. Can be done with easily accessible materials. No Risk Assess required!

Soda water - Particle Theory and Gas Pressure

Jane Hosking, St Francis de Sales College and Laboratory Managers Association of SA

An exercise in investigation of the ordinary! Bottles of Soda water at room temperature and when refrigerated can be used to demonstrate the particle theory and gas pressure to students, and get them thinking scientifically about why things happen as they do in everyday situations.

Exploring Whiteboard

Pete Beveridge, Pennington R-7 School

Using the Microsoft Whiteboard application, we will explore how you can create a space that enables you to have all your lesson resources in one place, and allows you to get on with the thing you are greatest at; TEACHING!

A space to embed videos, create notes, record student ideas, draw diagrams and much more is now right at your fingertips!

STEM in FILM - Showcasing and celebrating the vision of STEM with SCINEMA Junior and Oliphant Science Awards

Michelle McLeod, RiAus Education (The Royal Institution of Australia)

Join this session to amplify STEM and multimedia connections in your classroom, including enhancing your use of film as a teaching tool, supporting your students to create STEM multimedia showcasing their interests and understanding, and encouraging your school community to participate in free STEM multimedia challenges. Come along to learn about FREE classroom content that utilises SCINEMA International Science Film Festival entries to explain and explore STEM concepts and innovations. Discover how to inspire your students to become STEM communicators and storytellers by supporting them to create and share multimedia content that celebrates the power of the moving image, satisfies the curious, explains the baffling and ask the impossible.

Teaching Tour and Podsmash

Jarrod Johnson, Pulteney Grammar School

This is a very quick way to cover a lot of material in a small amount of time with little effort on the part of the teacher. Simply set it up, and allow the students to do the work, while the teacher manages behaviour. The students research, prepare, practice, present, review and recap.