Hosted by

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

School of Education

8:30am - registration meet on level 5 of Bldg 24, Social Sciences bldg., UQ St Lucia		
9am sessions A	1a Visualisation of 3D models in GeoGebra - Xena Irvin	2a Building a conceptual understanding of probability distributions using CODAP - Tessa Buzzo
10am MT		
10:30 sessions B	1b GeoGebra: An introduction to vectors in 2D, their operations, and properties - Joshua Smith	2b Decreasing students' ani-Desmos-ity towards transforming functions - Bryn Jenkins
11:30 sessions C	1c Circle theorems and proofs in GeoGebra - Gwendolen Gillespie	2c Giving life to two-dimensional characters: Animating functions in the cartesian plane - Susan Gillingham
12:30 event ends		

Abstracts

1a Visualisation of 3D models in GeoGebra - Xena Irvin
We will explore modelling applications of the sine rule, cosine rule, and bearings in 3D contexts through building the models in GeoGebra. Introducing these applications through 3D modelling to students builds their understanding of the construction of these models. Students then can apply this understanding to technology free scenarios as they have built connections between 3D representations and their applications.

1b GeoGebra: An introduction to vectors in 2D, their operations, and properties - Joshua Smith
An introduction to vectors in two dimensions with use of visualisations and interactive properties of dynamic geometry tool GeoGebra. We will overview operations, parallel and perpendicular vectors, projection of vectors, and vector representations (standard form, polar coordinates and unit vectors) in relation to geometric meaning of the vector parameters.

1c Circle theorems and proofs in GeoGebra - Gwendolen Gillespie
The session will focus on circle theorems and the notion of visual verification of ideas in the dynamic geometry environment. We will discuss the idea of dependency of geometric elements and how this needs to be used in construction of examples of circle theorems to make them sturdy for student experimentation with them.

2a Building a conceptual understanding of probability distributions using CODAP - Tessa Buzzo
CODAP is a free online data visualisation, simulation, and analysis tool for teaching statistics and data science. This session will involve a quick introduction to CODAP and demonstration of utilisation of the tool to notice patterns and generalise the concepts of probability distributions (MM Unit 4).

2b Decreasing students' ani-Desmos-ity towards transforming functions - Bryn Jenkins
Integrating Desmos into the classroom setting as a game and a tool for understanding transformations of exponential and trigonometric functions. In this workshop we will cover the motivation for learning function transformations, an overview of Desmos' practical use, and possibilities for using it in unique ways to develop students' ability to visualise and conceptualise these transformations.

2c Giving life to two-dimensional characters: Animating functions in the cartesian plane - Sue Gillingham
Visualisation is a vital aid to understanding in many areas of mathematics. In analysis - functions, limits, calculus, series - visualisation is very often a first step. But this area of mathematics is fundamentally entwined with change. This session will develop a broadly applicable technique for animating functions in the cartesian plane, with a view to helping our students establish a conceptual understanding of these relationships of change.