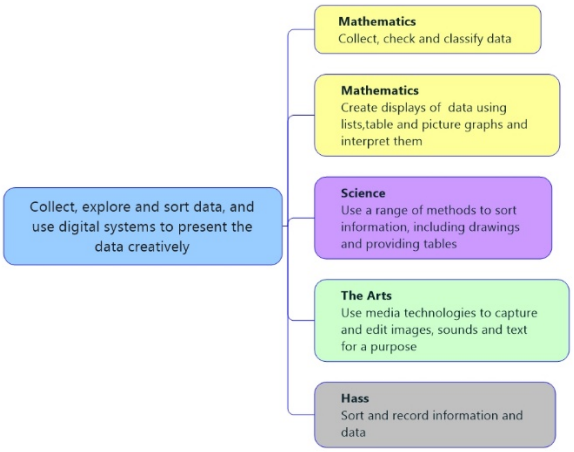
Webinar Handout

Session 2, 2018: Scope and sequence Q & A

Presented by: Paula Christophersen and Martin Richards

	**How do you design a smart garden?** Collect data using sensors: soil moisture temperature light. Refer to: Data and information **How do you create a positive learning environment?** Collect data temperature, light and sound. Refer to: Learning environments **What materials conduct electricity?** Makey makey board: conductors and insulators and circuits. Refer to: Makey Makey boards **Robotics science related questions** Sphero: How fast can it travel? How much mass can it pull? Can it climb an incline? What effect does surface type have on speed?
	**How has technology changed over time?** Create a timeline of events. Refer to: Changes in technology **Select a person from a particular time period –** If they had the technology we have today, what would they be saying? Who would they connect with and how? What apps might they use? What clues might be on the smartphone that identifies them? Leads to creating your own app.
Concepts **Geometry and programming / computational thinking**	**Polygons** **(Instructions to code a 2 D shape)** DIGI TECH: Introduce repetition (loops). Maths: Describe and draw a 2 D shape with/without technology. Use pencil code, a turtle drawing program. Here's the code for a Pentagon At Years 7 expect a bit of complexity. A polygon is created based on user input. Here's an example Polygon in text based programming. Explore other shapes and then design.

Probability and randomising	**BBC Microbit** **Here's an example Dice roll** If you want to bring maths into it (probability etc), you can show students how to use the randomise function. Or on Scratch here's an example: Two dice probability. You can also look at randomising in game development, or in storytelling a random event occurs etc
User interface and solving a nutrition related problem	**Design Thinking Process - Ideation** Health and Physical Education. This particular lesson explores healthy eating and the design process.
The Arts and Binary representation **- Pixels**	**Representing images using binary** Students learn about pixels and the way computers store an image as an array of individual pixels, each of which has a particular colour. Students create their own artwork made up of pixels.
Featured event Commonwealth Games and robotics	Sue Carter, NT Digital Tech specialist and CSER Project Officer, created a fabulous Comm games lesson plan. In this lesson, Sue uses the Sphero as an example how you might engage students in the design, creation and participation of a robotic games event.
	**F—2: DATA focus in scope and sequence** **DATA IS ALL AROUND US** **EXPLORING DATA**

F–2 related DT + lessons	**About me** Order images to show a sequence of personal events or milestones such as birth, first tooth, beginning to crawl. **Fairytale fun** Use the slide sorter function to arrange a set of presentation slides in correct sequence to retell a fairytale. **First to finish** Compare algorithms designed to complete the same task, and evaluate each for efficiency. **Unifix block models** Create a model using Unifix blocks 1 block high and create a code so someone else can build your model. **Three little pigs** Retell the story of the Three Little pigs using a light sensing robot such as Ozobot.
Years 3–4 DT + lessons	**Design a quiz – Convicts: crime and punishment** Students design and create a simple game/quiz to demonstrate convict crimes and punishments. **Have fun with flowcharts** Create a flowchart to represent a sequence of (branching) steps and decisions needed to solve a mathematical problem. **Create a language-learning program** Create a computer program to learn a traditional Aboriginal or Torres Strait Islander language. **Take a LEGO® building challenge** In pairs, explore giving and following a sequence of steps and decisions to build a LEGO® toy.
Years 5–6 DT + lessons	**Creating my own spreadsheet to convert binary to decimal** A spreadsheet can be used to do calculations quickly using formulas. How can we make a spreadsheet that converts a binary number to a decimal number? This lesson provides some guidance and Excel files for student and teacher use.

	Design a flag with Pencil Code Design your own Australian flag by firstly examining common elements of flags, creating a step by step process (algorithm) to program your design after exploring a 'block-based' turtle drawing program such as Pencil Code. **Storm survivor: Input, decision-making and loops** Students use a visual programming language to create a game or quiz to help members of a community prepare for a severe weather event. **When I post something online how permanent is it?** Students engage in a photo rip up activity to emphasize the permanency of online information, they explore factor trees, doubling and line graphs through the lens of sharing information, and they collaboratively develop a set of protocols around sharing information online.
Years 7–8 **Civics and citizenship and programming**	**There can only be one** In this lesson sequence students write a simple suite of programs that can be used to facilitate an S.R.C. election though the collection and processing of data. It assumes that students have been introduced to Python programming language.

To find out more about Programming languages, read this article by James Curran:
A guide to programming languages for coding in class

Research on Assessment and reporting:
Literature review: Supporting teachers to assess F–10 Digital Technologies