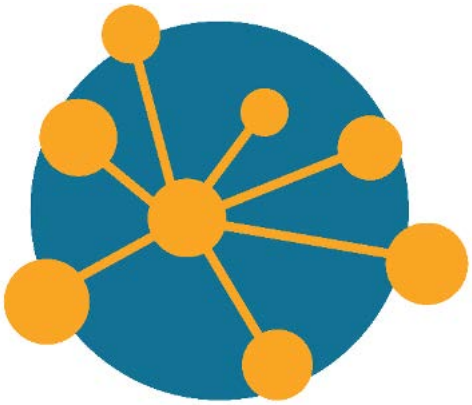
Digital Technologies in focus:

Supporting implementation of Digital Technologies



South Kalgoorlie Primary School

Western Australia

Final project report

acara AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

Initiative of and funded by the Australian Government Department of Education and Training

DIGITAL TECHNOLOGES IN FOCUS FINAL REPORT	
School name	South Kalgoorlie Primary School (SKPS)
School team members	1. ICT Coordinator/Teacher 2. Principal
School profile	Number of students <600 Location Provincial Sector Government School type Co-educational Year range F-6 Proportion of students who are Indigenous: 24% Proportion of students with disability: 24% Proportion of students who have EAL/D: 0%
Year level(s) involved in project and reason for choice	Pre-Primary to Year 6 As the Digital Technologies curriculum is compulsory for all our year levels, and as our research question was aimed at staff, we decided to focus on the entire school.
No. of students involved	395
No. of teachers involved	~20

INVESTIGATING AND DEFINING

Research question

Will improving teachers' Digital Technologies and ICT capacity and confidence in delivering content increase student computer science knowledge and skills, particularly in the area of Digital Literacy?

Digital Literacy encompasses the skills needed for students to find, share and create content using digital technologies. Several learning areas such as English, Mathematics and Digital Technologies stipulate that students must use digital tools to solve problems or publish information.

How has the research question evolved over time?

We included the teachers' confidence aspect into our research question as we realised that increasing teachers' knowledge of the content only played a small part in the delivery of the curriculum. Teachers were feeling the pressure of delivering content to students that they felt possibly had more knowledge than them and would possibly correct them or ask questions that they would be unable to answer.

How has your understanding of the question evolved over time?

- Many teachers were also mistakenly under the impression that the students were 'digital natives' and therefore did not need to be explicitly taught Digital Literacy skills. This belief has stemmed from students being comfortable and showing little fear when using technology; however, this is not the same as having the skills needed to complete tasks.
- As students have had more exposure to the Digital Technologies curriculum, they have enjoyed the lessons and it has helped to increase student engagement. This has also led to students requesting to learn specific areas, e.g. Scratch or using the robotics.

Aims: Reflection

Have the aims changed? If so, how and why?

- While we have not reduced our aims, we have placed more emphasis on increasing staff confidence, knowledge and understanding of the Digital Technologies curriculum and ICT Capability.

Research

If you conducted research describe it.

Two of our proposed research ideas were:

Teachers – To allow our students to become effective citizens of the 21st century in all areas of digital citizenship, teachers must overcome all barriers and explicitly teach digital literacy.

Students – Regardless of location or socioeconomic status, students are growing up in a digital world and, as such, need to be educated to prepare for their future. As technology is dynamic and ever-changing, it is not a requirement, nor is it possible, to teach students all the 'key strokes', but rather the knowledge needed to apply the skills in various contexts and its role in society (Foulger, Graziano, Slykhuis, Schmidt-Crawford & Trust 2016; Lankshear & Knobel 2008).

We collected a variety of data to try to ascertain if SKPS was successful in assisting students and teachers with improving their overall digital skills.

Data included initial student and teacher surveys and a range of end-of-project surveys created by ACARA and the school. NAP–ICT Literacy 2017 results have assisted in initial data.

Initial staff surveys showed that:

- About a quarter of the staff had not even looked at the Digital Technologies curriculum; if they were even aware of its existence.
- Around 90 per cent of staff had little to no confidence in teaching the Digital Technologies curriculum.
- Just over a quarter of staff admitted to having no interest in the Digital Technologies curriculum; while nearly half were worried that they would not know how to teach it.
- Teachers are concerned that limited numbers of iPads will restrict their ability to teach the Digital Technologies curriculum.

The NAP–ICT Literacy data showed that:

- Students were able to select the most appropriate search term for a topic; however, they have difficulty when selecting the search result that is most likely to provide suitable information.
- Students had difficulty creating a presentation with some control over layout of text and images.
- Students were able to recognise and use hyperlinks.
- Students were able to adjust settings to reduce the size of files to upload to a video sharing site.
- Students had some degree of success in using sorting tools to order and filter data.
- Students are able to create a new specified folder.
- Students had some degree of success in selecting the strongest password.
- Students were able to use tools to adjust the orientation and brightness of the screen.

How has your project improved implementation of the Australian Curriculum: Digital Technologies?

Staff survey results below show how Digital Technologies is being implemented.

Completely integrated		0.00%
Once a week for the entire year		0.00%
Once a week for an entire semester		12.50%
Once a week for rotating blocks of time throughout the year		25.00%
Several days a week for rotating blocks of time throughout the year		37.50%
Other (please specify)	Responses	25.00%

The Digital Technologies curriculum is being taught in all classes from Kindergarten to Year 6. As well as one (40-minute) to two (80-minute) period per week stand-alone lessons, teachers are also integrating Digital Technologies into other learning areas. Many of the classes, especially Middle and Upper Primary, are integrating theory content from 'Knowledge and Understanding' into Guided Reading and Reading Rotations. As a way of integrating and showing purpose for Data Representation, students would represent their spelling words using secret codes, braille and binary. As a school, we have begun to incorporate activities developed by the STEM Learning Project; several of these integrate 'Digital Implementation' with Science and/or Mathematics.

The Notational Time Allocation Guidelines: Pre-Primary to Year 10, as outlined by the School Curriculum and Standards Authority, recommend that two hours per week over 40 weeks per year is allocated to the Technologies Curriculum; this time is to be spent equally between Digital Technologies and Design and Technologies.

Criteria for success: Evaluating

Comment on progress against each criteria for success.

- Staff portfolios of teaching activities and reflections – only a few staff have shared these. The teachers who have been utilising ClassDojo to share student portfolios and class stories with families have been collecting digital evidence and regularly include Digital Technologies activities.
- Staff to share ideas – we did not continue with the PBL planning template; however, staff are regularly planning collaboratively and sharing ideas within year levels.
- Staff were surveyed on how confident they felt in accessing resources for the Digital Technologies curriculum.

NOT CONFIDENT AT ALL	DEPENDS ON THE CONTENT	CONFIDENT	EXTREMELY CONFIDENT
12.50%	37.50%	25.00%	25.00%

- Staff need to know where to locate online resources and activities to support the implementation of the Digital Technologies curriculum; use school Connect page to share resources.
- Students increased digital literacy knowledge.

GENERATING AND DESIGNING

What actions/steps were undertaken?

- Timetabled additional support into Junior Primary classes for Semester One 2018
- Timetabled additional support into Senior Primary classes for Semester Two 2018
- Whole school unplugged Computational Thinking Activity challenge – similar to Bebras Challenge
- As many staff as possible to complete the CSER MOOCs
- Partner coaching – staff to work in collaborative phases to program units of work together
- Increase library/computer lab time for all Pre-Primary to Year 6 classes to 1 hour
- Develop a Digital Technologies curriculum scope and sequence
- All teaching and admin staff to complete Teachers Can Code modules
- Ongoing and high-level Digital Technologies and ICT PL offered throughout the project with support by admin

To what extent have the proposed actions been implemented?

- 2018 – Support time, provided by Nicole Pestell, was timetabled into all classes.
- 2019 – At the start of the year, planning time was timetabled with Nicole Pestell and each year group to enable collaborative planning for the semester; this was repeated at the start of Semester 2. Support time for teaching, additional planning and moderating of assessments was offered for two days a week.
- Individual classes have completed the Bebras 365 challenges online; not as registered participants but utilising the challenges that are available year round.
- Eleven staff have completed the CSER MOOC Foundation Course.
- Two staff have also completed the CSER MOOC Extended Course.
- Library/Computer Lab time has been increased for all classes to one hour per week; a second Technology Lab is currently being finalised. We expect this to be ready for Term 1, 2020.
- Library/Computer Lab (16 computers) – students learn how to use MS Office, Scratch, internet search tools; younger students also access old keyboards to practise keyboard skills such as locating the letters to help them with logging onto the computers.
- Technology Lab (20 computers) – half of the room is set up for students to access computers, while the other half is open plan, allowing students to have room to use the robotics, digital technologies and ICT displays (including posters and old forms of technology), old computers to pull apart to study the internal components, green screen etc.
- Digital Technologies curriculum scope and sequence – while our school-specific scope and sequence is being finalised, teachers have been directed towards the Digital Technologies Hub.
- Staff have completed at least six Teachers Can Code modules. In partnership with the University of Sydney and the Australian Computing Academy, the Western Australian Education Department selected 105 teachers (Years 3–10) from all phases of schooling and across all regional districts, to upskill them as Lead Teachers in the Digital Technologies curriculum. Their role was to then provide professional learning within their own school and across their network. Nicole Pestell provided the modules at SKPS through a combination of whole school presentations and small groups, which allowed for information to be targeted to specific year levels.

What are the effects of these actions?

- Digital Technologies is being taught in all classes – including Kindergarten from Semester Two. Although each class teacher has the overall responsible for selecting their content focus, a general guide that we have followed is:
  - During Semester One, classes focus on Knowledge and Understanding and Online Safety.
  - During Semester Two, classes focus on Process and Production Skills – starting with unplugged activities.
- Over 60 per cent of staff surveyed indicate that they now have, or are gaining, confidence to take an active role in delivering or engaging in the Digital Technologies curriculum; compared with 10 per cent at beginning of the project.
- Up to 40 per cent of staff now feel confident in their abilities to help colleagues with understanding design thinking, abstraction, data collection, data representation, data interpretation, algorithms, implementation and digital systems.
- Ninety per cent of staff feel confident in locating or engaging with resources.
- Teachers are utilising students to help teach content in areas that students may be more familiar/confident.
  - Year 3 and Year 5 students have been working with the Year 1 and Pre-Primary students to help them learn how to instruct robotic devices such as the Blue-Bots.
  - A couple of Year 6 students, who have been attending the extracurricular coding club for the past two years, have been leading their class by delivering the instructions to teach them how to use the visual programming language, Scratch, to create digital games.

Were there any challenges which arose in negotiating actions with others, or in negotiating time and resources?

- Initially it was difficult to get staff on board with the Digital Technologies curriculum as it was being taught in a separate class while class teachers had their duties other than teaching (DOTT) time; they were reluctant to spend time on an additional learning area that they did not see as relevant to their classroom. However, this changed in 2018 when staff became aware that they were going to be expected to teach it the following year; therefore, they were able to make valid and purposeful connections.
- Allocating robotics through a timetable which relied on classrooms sticking to the schedule and planning accordingly

What were the intended and unintended effects of your actions? Explain why they may have occurred.

Intended:

These are described in actions above.

Unintended:

For our whole-school Enterprise Day (students design products to sell and activities), a Year 2 teacher worked with her class to make a micro:bit target game. Students programmed two lots of three micro:bits to display targets after the previous target is hit by the Nerf Gun. Other micro:bits were programmed to act as a game reset switch and an announcer of the winning set of three. Although the teacher was not confident in her ability to help her students as she had limited experience with the micro:bits, she did not let this prevent her in challenging her students. See Appendix 4.

- One of our Coding Club participants had been learning the keyboard shortcuts. He regularly likes to include a 'help' option in his Scratch games. It took several different games before the entire Coding Club also learnt that 'ctrl + F4' will close the tab of the internet program that they are running; meanwhile, the 'game maker' would be sitting there laughing while waiting for them to reach that point of the game.

Data collection: Evaluating

What strategies are being used to collect data and monitor progress?

- Collecting student work samples
- Staff portfolios of teaching activities and reflections on Digital Technologies lessons; based on content that has been explored in PL and how they have further explored the ideas
- Staff and student surveys
- 2017 NAP – ICT Literacy

Were there any ethical problems which arose in negotiating access to, and release of, information? How was this resolved?

Nil

COLLABORATING AND MANAGING

Resources

Identify the resources used in the implementation of the project.

- Professional learning
  - Teachers Can Code professional learning modules (Digital Technologies vs ICT; abstraction, data representation, implementation, algorithms, Digital Systems)
  - CSER MOOC
- People
  - Support time with Nicole Pestell (Teachers Can Code Lead Teacher)
  - ACARA Curriculum Officer – Deanne Poole
  - Australian Computing Academy
- Online digital resources
  - Australian Computing Academy
  - GROK Learning
  - Digital Technologies Hub
  - CS Unplugged
  - ACARA DTiF resources
  - Code.org
- Physical resources
  - iPads (school owned) – distributed between year groups so that they have enough for 1:1 if they pool them into one room and timetable the iPads between their cohort
  - 18 x Blue-Bots
  - 3 x Dash and Dot
  - 6 x Spheros
  - 15 x Edisons
  - 2 x Lego Mindstorms
  - 3 x Osmos
  - Robot Turtle
  - Code Master

Challenges

If there were challenges, what were they and what were the causes?

- When Digital Technologies was taught as a specialist subject it was difficult to get some staff to see learning the content and skills of the Digital Technologies curriculum as a priority when it was not the focus of their planning and teaching.
- Classes were structured so that each year group had at least one teacher who was confident in using ICT; this often meant that they felt the burden to lead their cohort when it may not necessarily have meant their ICT confidence matched their Digital Technologies curriculum confidence.

How have you handled these implementation challenges?

During 2018, while going into classrooms to provide support for Digital Technologies activities, which was often difficult especially when classroom teachers were not having to report on the subject, it was noted that many classrooms were not using any form of technology outside of the computer lab aside from teacher use. Therefore, we changed the support focus to the ICT general capability. This mainly consisted of substitution type of activities using the iPads; e.g. using Book Creator to record collections of coins that represented equivalent amounts. While in the classrooms, it would be highlighted to teachers which work displayed in their room could also be adapted to meet the Digital Technologies curriculum and therefore allow integration of learning areas, e.g. sequencing of events in stories.

Milestones and deliverables

Provide revised milestones and deliverables for the sustainable implementation of Digital Technologies in your school.

2020

- Continue with ICT/Digital Technologies support time; this is dependent on 2020 budget
- Class/Teacher restructure – ensure that at least one teacher remains in current year level so that they can assist those new to the cohort
- Opening of Technologies Lab
- Whole School Scope and Sequence to be finalised – with whole school assessments developed
- Sign up all Year 4–6 students with Grok Learning
- Bebras Challenge (9–23 March)

PRODUCING AND IMPLEMENTING

Describe how Digital Technologies is being implemented in your school.

- 2017 – Digital Technologies was introduced and implemented as a specialist learning area (stand-alone subject) to the whole school (K–6) throughout the whole year, for a minimum of one semester each class. Classes that do not have this as a specialist subject will be taught the curriculum in their class by their classroom teacher for a minimum of one semester throughout the year.
- 2018 – Digital Technologies was taught as a specialist learning area to all classes for the entire year. Support was provided to Year 1–3 classes to integrate the ICT general capability and Digital Technologies curriculum into the general classroom.
- 2019 – Digital Technologies is taught in general classrooms throughout the whole year; teachers must report on it during at least one semester. Support was available two days a week for teachers to seek support with planning, accessing resources, teaching, assessing and moderating.

How does this differ from your original plans? What contributed to this change?

Originally Digital Technologies was going to be offered as a specialist learning area until all staff felt comfortable to teach it; however, due to student numbers the DOTT allocation was not required. As Digital Technologies is able to be largely integrated into other learning areas, this was the subject that was selected to become the responsibility of the classroom teachers. To compensate for this, support for planning, accessing/creating resources, teaching, assessing and moderating was offered to classroom teachers for two days a week.

If you intend making further changes to your implementation plans, please describe.

Depending on the budget allocation, it is hoped that one day a week of support will continue to be offered to teachers during 2020; this will mainly be offering support with the initial development of programs for the semester/year and creating/moderating assessments.

EVALUATING

Evidence of student engagement

Appendix 4: Year 2s created ‘Scoring with micro:bits’ for school Enterprise Day

Appendix 5: The Year 6 students have been disassembling some of our old computer towers to give them real-world experience to make connections with their research of the internal components of a digital system.

Appendix 6: Year 3 students teaching Year 1 students how to use ScratchJr

Appendix 7: Create a bitmap image made up of pixels

Appendix 8: Creating using Lego Mindstorms

Appendix 10: Electronic Project Snap-On Kit

Appendix 11: Cosmos Computing – Students act as the different components of a computer, working together to work through a ‘program’ (algorithm) to produce an image on a display.

Appendix 12: Creating challenges with Blue-Bots

Appendix 13: Virtual reality

Appendix 14: Coding Chat Bots

Appendix 15: Using Scratch and Makey Makey

Appendix 16: Year 5s working with Pre-Primary students on Book Creator

Appendix 17: Students working collaboratively to code using Scratch

Appendix 19: Designing challenges using Blue-Bots

Appendix 20: Using OzBots

Appendix 21: Using technology in Mathematics

Appendix 22: Recording interviews

Evidence of action research achievements

Appendix 1: Portfolio from a PP/Year 1 teacher

Appendix 2: Evidence of PP/Year 1 teacher planning for a term

Appendix 3: Sample Year 5 class timetable

Appendix 9: Staff at professional learning

Appendix 18: Staff at professional learning

Appendix 23: Staff survey results

Appendix 24: Staff completed CSER MOOC

Next steps

What goals do you need to set as the next step as you work towards achieving sustainable implementation of Digital Technologies in 2020–23?

	Action	Who?	When?	How?
Short term	Update MDM Systems at SKPS to Apple School Manager	Nicole Pestell	By end of Term 4, 2019	• Enrol in Apple School Manager
	Finish developing new Technologies Lab	Nicole Pestell	By Week 2, Term 1 2020	• Room to be painted • Install computers • Put up displays
Mid term	Continue to provide support to classroom teachers with Digital Technologies planning, teaching & assessing	Nicole Pestell (& other staff who are confident in specific content areas)	2020	• Initial planning at start of year • Creating and moderating assessments
	Continue with Digital Technologies Professional Learning – Teachers Can Code modules	Nicole Pestell	2020	• After school PL
	Develop an integrated STEM Scope and Sequence	STEM Committee	2020	• Connecting STEM Learning Project activities and Digital Technologies curriculum

	Action	Who?	When?	How?
Long term	Ensure each Phase (or Year Level) has at least one teacher confident in providing support with Digital Technologies curriculum	Whole school level	2020 onwards	• Individual staff to be recognised for their ability to provide support to others
	Digital Technologies curriculum assessment moderation	Nicole Pestell	2020 onwards	• Create whole school assessments that are monitored via whole school tracking document

Thank you for your time and commitment to the Digital Technologies in focus project.

Appendices: Evidence of student engagement and action research achievements

Appendix 1: Portfolio from a PP/Year 1 teacher

Digital Systems (hardware and software) are used in everyday life and have specific features.	*Recognising that digital systems follow instructions or commands, e.g. creating a pathway and instructing others to move through the system following specific commands.* 
Representations of Data Data can have patterns and can be represented as pictures, symbols and diagrams.	*Representing data using a coded colour system or glyph. Or organising data in tables and representing this data using symbols or stickers.* 
Investigating and Defining Explore opportunities for design. Develop and communicate design ideas through describing, drawing, modelling & a sequence of steps	*Creating design solutions. Communicating design ideas through drawing, modelling or construction.* 
Exploring a range of digital systems.	*Using different peripheral devices to display information to others, e.g. using iPad apps to present sight words or interactive whiteboards to sequence narratives.* 

Appendix 2: Evidence of PP/Year 1 Teacher planning for a term based on the content descriptions listed in SCSA Digital Technologies curriculum

Digital Technology	
Week Two *Differentiated support: adult to support students in groups with developing the sets of data to be collected. Support IEP & GEP Literacy students with the comprehension questions.*	**Use Data to Solve a Simple task (ACTDIP003) - Comprehension Glyph** Students to create a series of comprehension questions to determine the data to be collected. Students then decide on an image to use. Students work through the series of data collection questions to complete the colouring task.
Week Three *Differentiated support: work with PP students to help them read the instructions. Yr 1 students can independently complete.*	**Representing Data (ACTDIK002)—Drawing a House** Follow a series of steps to create an illustration of a house, using a variety of colours and objects to represent specific information; e.g. draw a square, draw a triangle on top, colour the roof yellow if you are a boy or red if you are a girl, how many brothers and sisters do you have? Draw that many windows etc. Develop an instructional key for students to follow to develop their designs.
Week Four *Differentiated support: divide students in mixed ability groups. Provide adult*	**Digital Systems (ACTDIK001)** Students to use Doodle Buddy to transfer the house they created in Week Three using the collaboratively designed *Data Collection Comprehension Questions.*
Week Five *Differentiated support: mixed ability groups, adult support, reduce the components of the narrative.*	**Digital Systems (ACTDIK001) & (ACTDIK007)** Students to work in small groups to use Interactive Whiteboard to sequence the narrative of Goldilocks and the Three Bears. Students to use their narrative construction to retell the narrative and then capture their retell on video using the iPads.
Week Six *Differentiation support: ensure students are in mixed ability groups to provide scaffolds.*	**Designing (WATPPS07)** Students work in small groups to design a road way using drawings and then modelling. Students then design a series of steps or instructions to allow their partner to move a car or action figure along the pathway/network to get to the end.
Week Seven *Differentiated support: students requiring support follow command last. To allow more opportunity for modelling*	**Digital Systems (ACTDIK001)** Constructing an imaginary systems and create a series of commands in a role -play scenario. Students work in small groups to create a pathway across the playground and develop a code (or series of instructions) to move between locations.
Week Eight *Differentiated support: ask Yr2 to buddy younger students to provide 1 on 1 support*	**Digital Systems (ACTDIK001)** Recognise that digital systems follow instructions or commands. Students work with Scratch Jr—programming. Students are able to practise and experiment giving codes and successfully directing their sprite.
Week Nine *Differentiated support: Teacher & EA to support less confident students.*	**Digital Systems (ACTDIK001)** Recognise that digital systems follow instructions or commands. Students work with Scratch Jr—programming. Students code sprite to move. Students estimate where the spite will end up and explain their answer.

Appendix 3: Sample Year 5 class timetable

	Monday	Tuesday	Wednesday	Thursday	Friday
1a	Fitness and Roll	Fitness and Roll	Fitness and Roll	Fitness and Roll	Fitness and Roll
1b	Spelling Mastery. Phonics focus lesson Phase 2.	Spelling. Phonics focus lesson Phase 4	Spelling. Phonics focus lesson Phase 5	Music	Assembly or spelling. Phonics focus lesson Phase 6
2	Writing	Writing	Writing	Music	Phonics focus lesson Phase 6. Writing.
3	Guided Reading Rotations	PE	Health even weeks, DT odd weeks.	Spelling. Phonics.	Guided Reading Rotations
RECI	RECESS	RECESS	RECESS	RECESS	RECESS
4	Mental Math/ Whole class teaching.	PE	Mental Math/ Whole class teaching.	Mental Math/ Whole class teaching.	Mental Math/ Whole class teaching.
5	Top Ten	Top Ten	Top Ten	Top Ten	STEM
6	Math Rotations	Math Rotations	Math Rotations	Math Rotations	STEM
LUN LUN	LUNCH 1	LUNCH 1	LUNCH 1	LUNCH 1	LUNCH 1
	LUNCH 2	LUNCH 2	LUNCH 2	LUNCH 2	LUNCH 2
7	Art	Geography	Circus / Guided Reading Rotations	Library	Choir. Fun Finishing off Friday
8	Art	Geography	Circus / Digital Technology	Library / Digital Technology	

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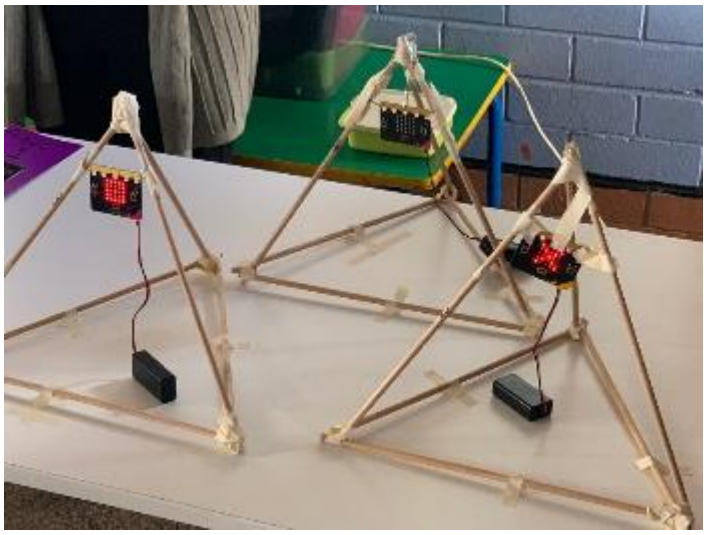

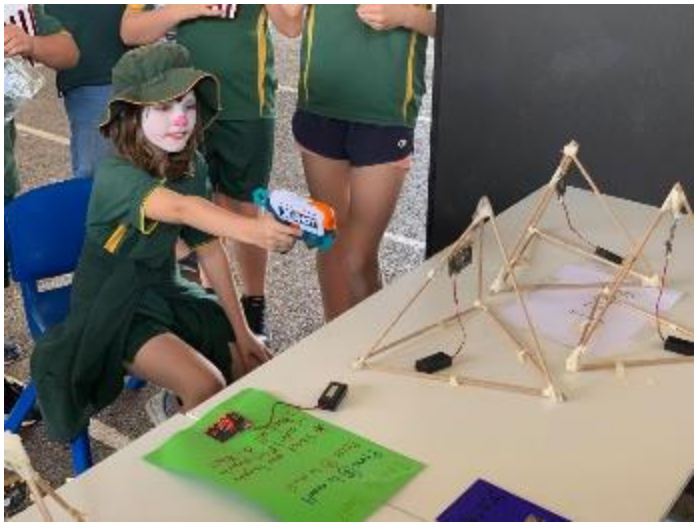

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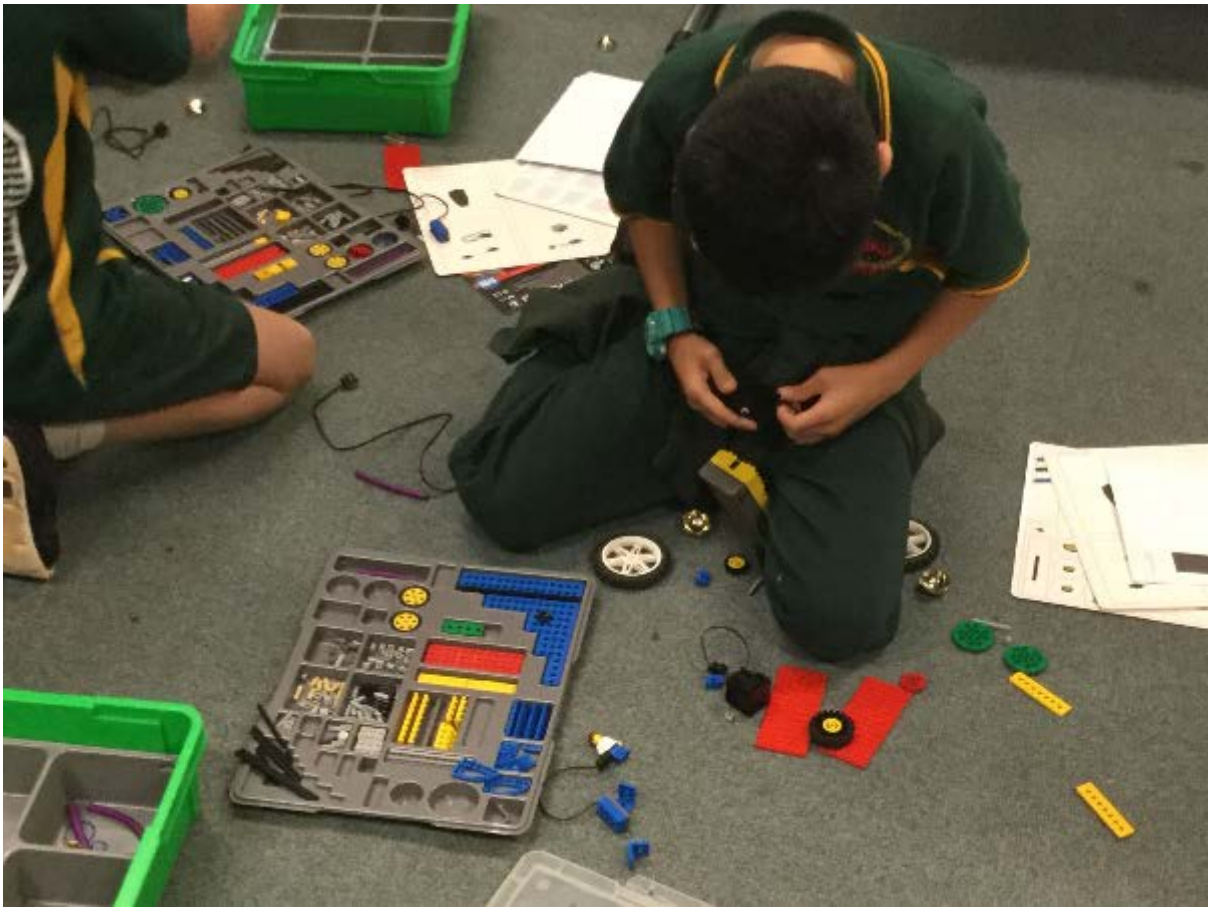

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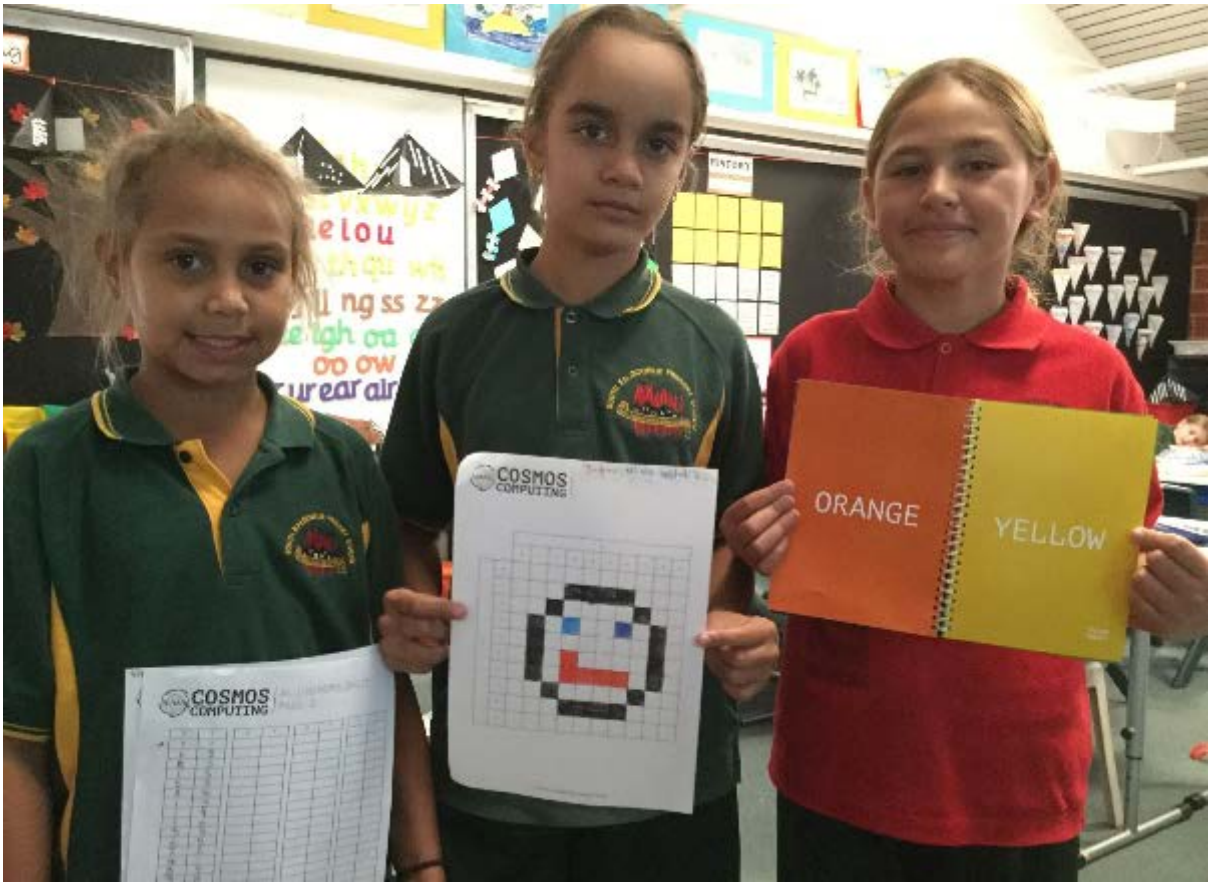
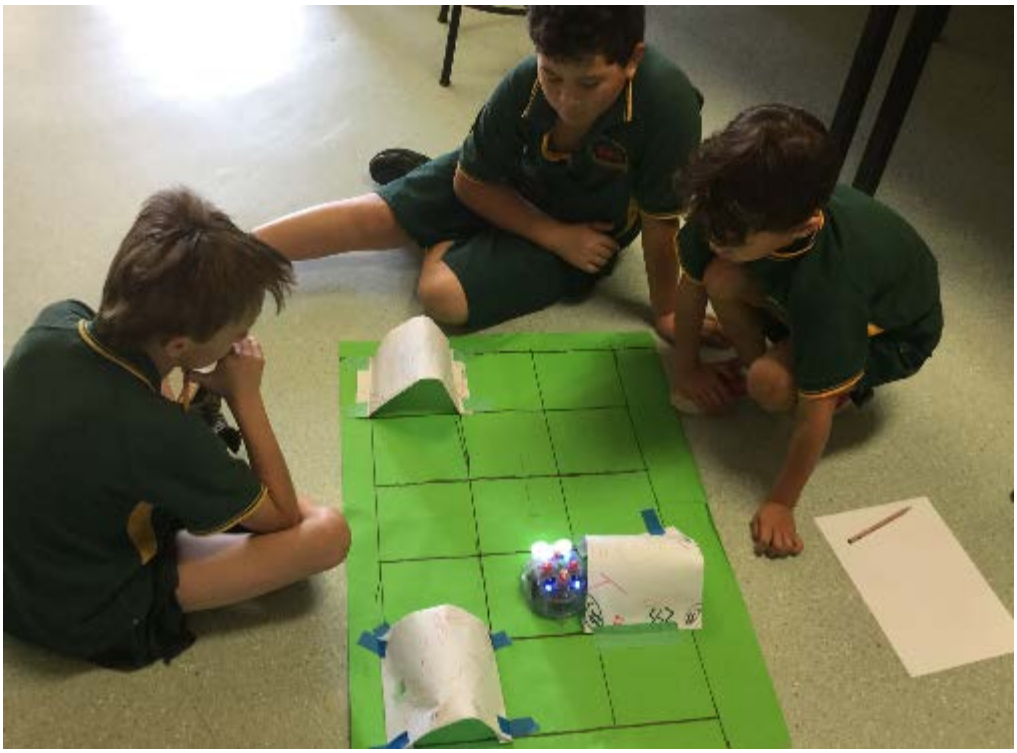


Appendix 12: Creating challenges with Blue-Bots



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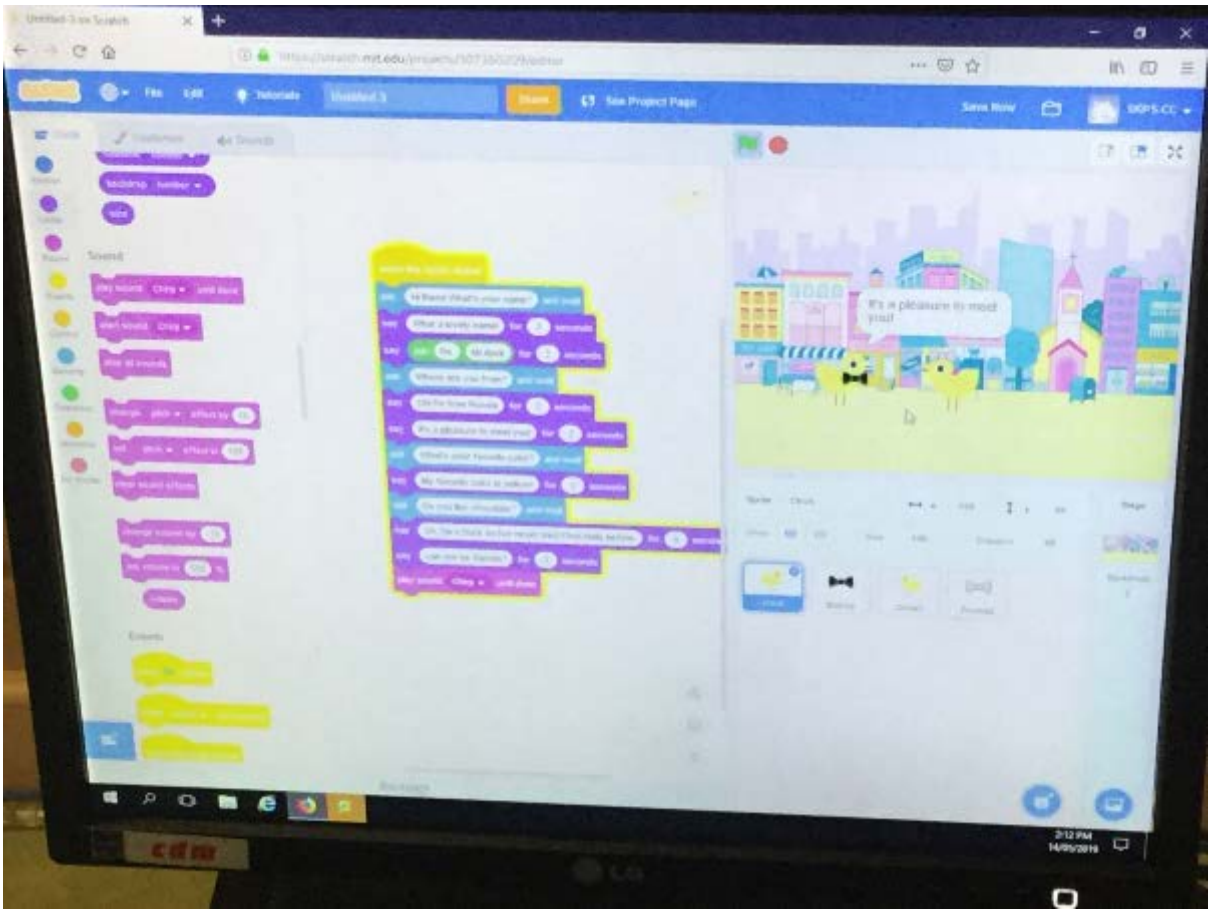

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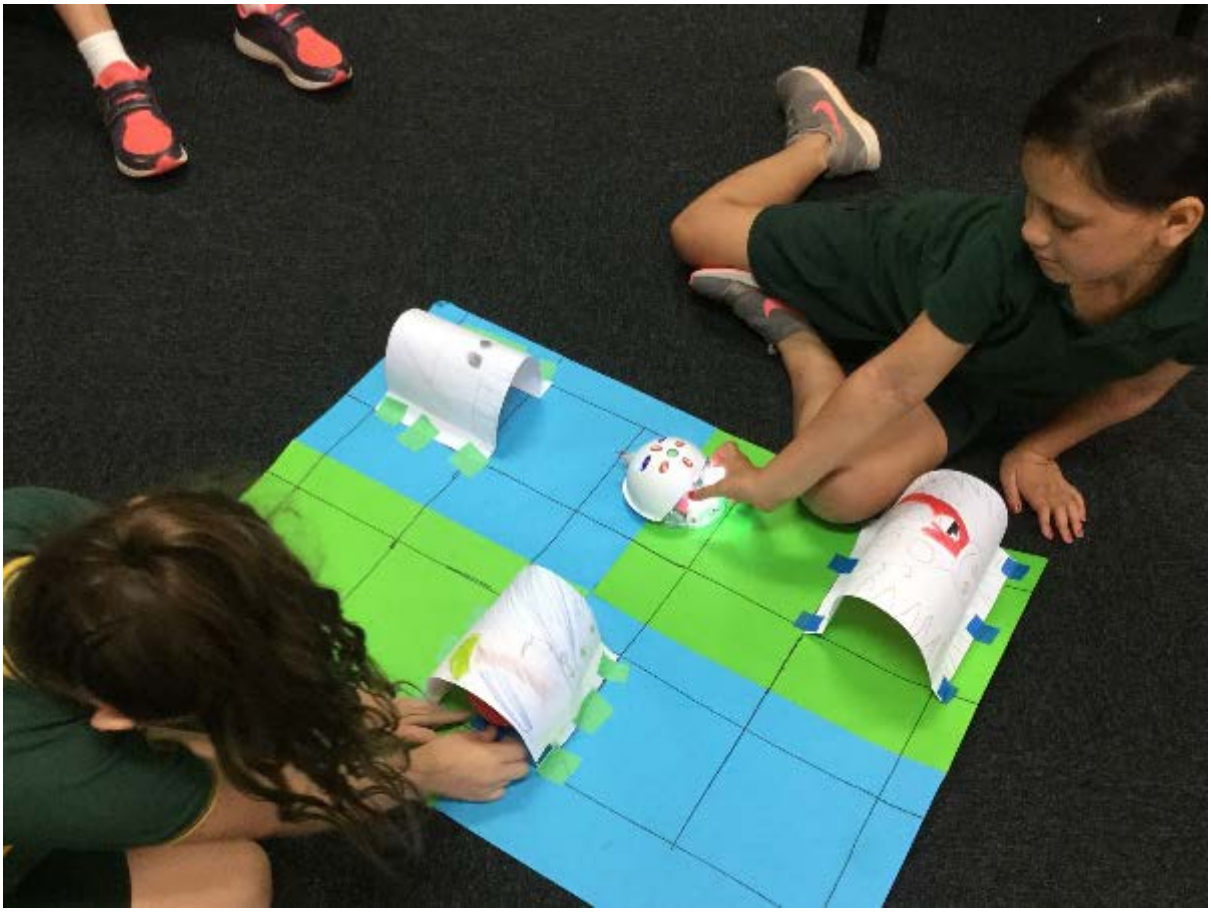

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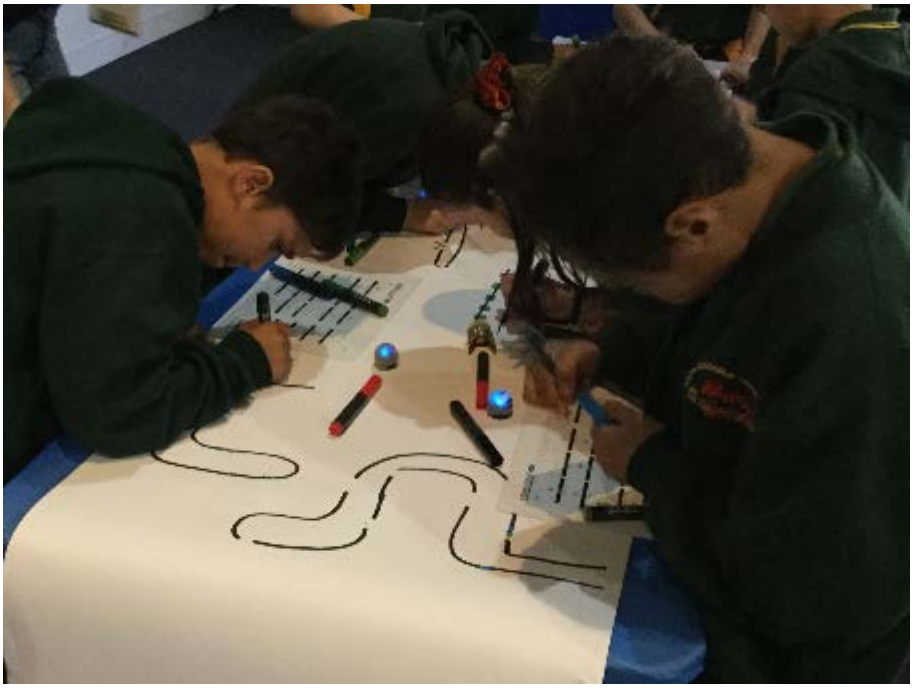
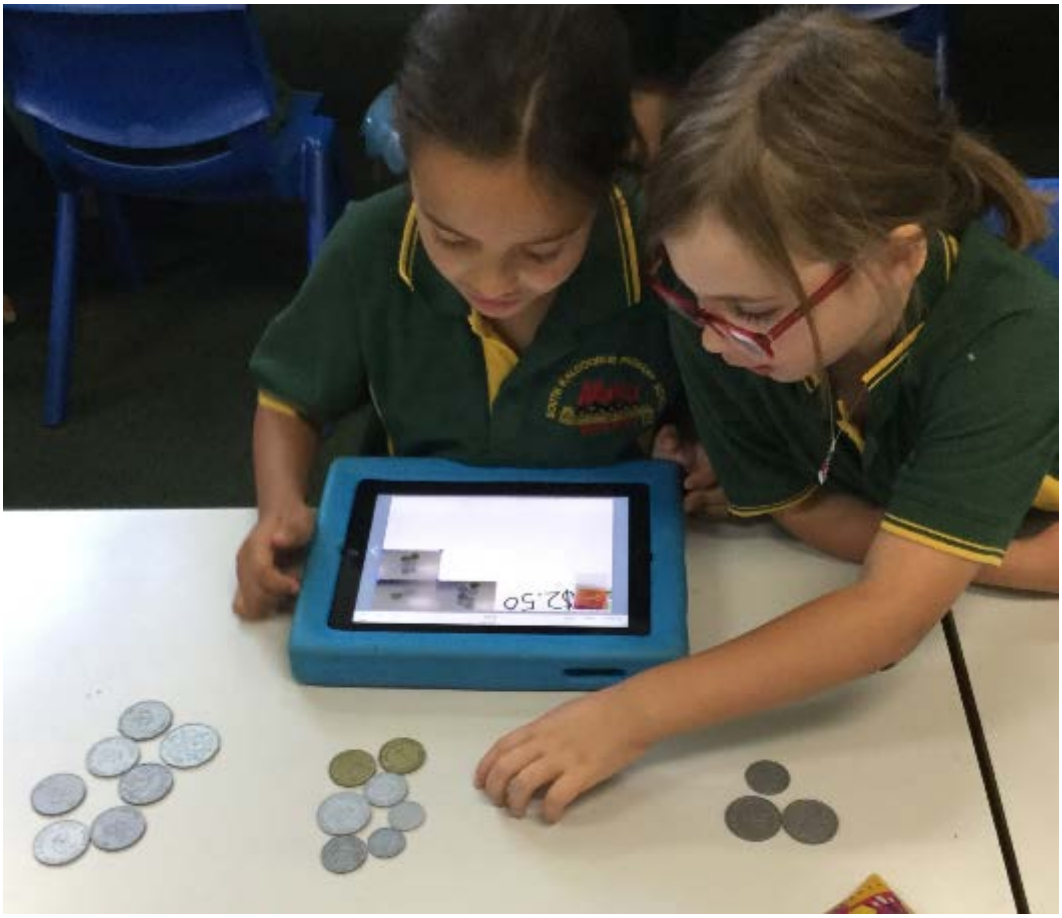


Appendix 21: Using digital technologies in Mathematics



Appendix 22: Recording interviews

Appendix 23: Staff survey results

1. Which band of schooling do you teach?

   F–2 – 6.5%

   3–4 – 12.5%

   5–6 – 25%

2. How confident do you feel in accessing resources for the Digital Technologies Curriculum?

   Not confident at all – 12.5%

   Depends on the content – 37.6%

   Confident – 25%

   Extremely confident – 25%

3. How confident do you feel in teaching the Digital Technologies Curriculum?

   Not confident at all – 12.5%

   Depends on the content – 62.5%

   Confident – 12.5%

   Extremely confident – 12.5%

4. How confident do you feel in assessing the Digital Technologies Curriculum?

   Not confident at all – 12.5%

   Depends on the content – 62.5%

   Confident – 0%

   Extremely confident – 25%

5. What content do you feel most confident teaching?
   a. Basic introduction
   b. Digital systems. Representing data using pictures, symbols and displays. Collecting data and using visuals to display.
   c. The theory side
   d. Algorithms as a sequence of steps
   e. Binary and coding
   f. Digital systems, data representation and simple programming
6. What content do you feel least confident teaching?
   a. Using a variety of digital tools to present data. Understanding programs enough to teach them.
   b. Coding
   c. The practical side
   d. How information systems meet information and communication
   e. Networking
   f. Branching and iteration
7. How frequently do you teach the Digital Technologies Curriculum?

   Completely integrated – 0%

   Once a week for the entire year – 0%

   Once a week for an entire semester – 12.5%

Once a week for rotating blocks of time throughout the year – 25%

Several days a week for rotating blocks of time throughout the year – 37.5%

Other (please specify) – 25%

Once a week throughout the year, plus integrated throughout other learning areas

Once a week for the entire year with additional integrated lessons

8. Which of our resources do you use?

Osmo – 14.3%

Blue-Bots – 100%

Spheros –

Edisons – 28.5%

Micro:bits – 42.8%

Lego Mindstorms – 14.2%

Robot Turtle – 28.5%

Code Master – 14.2%

9. Briefly outline a Digital Technologies lesson you have taught this year.
    a. Nicole Pestell has helped to teach the Kindys which I am very grateful for.
    b. Data representation – who lives in your house. Linking with History. The lesson allows the students to collect data, and display it to represent the people who live in their house.
    c. STEM project – Blue-Bot challenge
    d. More theory activities. Hardware vs software, devices and functions, coding and messages, touched on binary, braille and secret codes. What is encoding and decoding
    e. Using micro:bits to make a target to shoot and the score
    f. South American Countries of the World PowerPoint – Students use branching (hyperlinks) to jump between maps of the continents, South America, and facts about the specific countries
    g. Binary coding unplugged using student-made 10x10 art grids as input – coding this to binary – another student then decodes the binary and recreates the art grid. Students check their output against the code and the original input and debug any errors in either output or code until it all corresponds.
10. What area of the Digital Technologies Curriculum would you like to receive more PL in?
    a. Assessment
    b. Planning throughout the year an integrated and explicitly taught curriculum for year groups
    c. Coding
    d. Not such much PL but I need to actually play with the resources myself to get more confident in teaching them but also problem solving with them
    e. Code master
    f. Networking
    g. Creating online collaborative projects and user interfacing

Appendix 24: Staff completed CSER MOOC

Year	Foundations	Extended
2017	**1**	**1**
2018	**10**	
2019		**1**
Total	**11**	**2**