

Foundation – Level 2	Levels 3 and 4	Levels 5 and 6
Digital Systems		
	<p>Modems unplugged: this activity requires students to listen to songs and find the hidden messages based on the same principle as a modem. http://csunplugged.org/modems-unplugged-2/</p> <p>Error detection: this lesson demonstrates to students how transmitting data from one computer to another can change the information. This activity shows how to detect when data has been corrupted and how to correct it. http://csunplugged.org/error-detection/</p> <p>What are input and out put devices: use these interactive resources to support students with learning about digital systems. http://www.bbc.co.uk/guides/zx8hvp4</p> <p>How computers work: the purpose of this activity is to give students a sense of how computers work through role-play. Students form small groups and each have a role to play as different parts of a computer. http://cse4k12.org/how_computers_work/index.html</p>	<p>Computer Science in a box: about how computers work, while addressing critical maths and science concepts such as number systems, algorithms and manipulating variables and logic. https://www.ncwit.org/sites/default/files/resources/computerscience-in-a-box.pdf</p> <p>How the internet works: this unit plan provides a sequence of lessons to support students learning and understanding about how the internet works, including learning about different types of hardware required. http://cse4k12.org/internet/how-internet-works.html</p>
Data and Information		
	<p>What is a data base: use this interactive webpage to support students learning about how organisations and businesses collect and record data. http://www.bbc.co.uk/guides/z8yk87h</p>	<p>Potato Athletics: students will create a Binary Code alphabet and use it to make a statement to summarise their results of an experiment. http://fuse.education.vic.gov.au/Resource/ByPin?Pin=29LY48&SearchScope=All</p> <p>Binary Baubles: this lesson explores the concept of binary to illustrate how a computer codes data that will be stored for later use. Students will explore computer language and how information can be stored with different combinations of just two choices. https://code.org/files/CSEDbinary.pdf</p>
	<p>Musical number patterns: the challenge: use this interactive game to support students to understand how to create patterns with a specific rule to produce the same sound pattern. Help students make connections to analysing data and understand that musical notes are data stored in a particular format. http://splash.abc.net.au/home#!/media/1388421/musical-number-patterns-the-challenge</p> <p>Binary Numbers: this lesson plan will help students to develop an understanding of how information is stored on computers. http://csunplugged.org/binary-numbers/</p> <p>Binary Bracelets: students create bracelets from a paper template that is a binary representation of the first letter of their name. Students learn that the same set of data can be represented in more than one way. https://studio.code.org/s/course2/stage/14/puzzle/1</p>	<p>Text compression: explores with students how computers have a limited amount of space to store data and information and how they represent it http://csunplugged.org/wp-content/uploads/2014/12/unplugged-03-text_compression.pdf</p> <p>A knights Tour : with a focus on graphs, data representation, generalisation and computational thinking, this lesson idea asks students to solve a puzzle where they must find a way for a knight to visit every square on the board exactly once. https://teachinglondoncomputing.org/resources/inspiring-unplugged-classroom-activities/the-knights-tour-activity/#content</p> <p>https://wonderville.org/resources an interactive website providing students with information, games, challenges and videos specifically for upper primary aged students. Allow students time to explore the website and share what they discover.</p>
	<p>Miniature Earth: this unit plan helps to simplify world population statistics for primary aged students. It requires students to think about the data and create a display to accurately present the data they collected using a digital tool. http://fuse.education.vic.gov.au/Resource/ByPin?Pin=T48887&SearchScope=All</p>	
Creating Digital Solutions		
	<p>Scratch: this lesson sequence explores the concepts of programming before starting with more complex programming languages such as Python. http://fuse.education.vic.gov.au/Resource/ByPin?Pin=KFSFM7&SearchScope=All</p> <p>Robotics/gaming Kodu gaming. 3d Design Animation</p>	<p>Postie. an online game to teach students about social media and interpreting friends' posts. Students can go back and play the game multiple times and get to know the characters' personalities. http://posti.artscentremelbourne.com.au/users/rory/</p> <p>Home internet survey http://splash.abc.net.au/home#!/media/1386749/home-internet-survey</p> <p>Google Docs/ online safety posters</p>

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	<p>Hectors world: an age appropriate animation with fun and engaging characters that explores digital safety. Children observe the characters as they explore how to stay safe online.</p> <p>https://esafety.gov.au/education-resources/classroom-resources/hectors-world</p> <p>Ebudd:e https://budd-e.cybersmart.gov.au/primary/main.php</p>	Hummingbird technology. Programing and Design.
	<p>Graph paper programing: in this lesson students program one another to draw pictures and will begin to understand the concepts of programming.</p> <p>file:///Users/06491277/Downloads/graph%20paper%20programming.pdf</p>	3d designing and printing
	<p>My Robotic Friends: this lesson requires students to problem solve using computational thinking and write a set of instructions for a 'robot' to follow.</p> <p>https://csedweek.org/unplugged/thinkersmith</p>	
Achievement Standard		
	<p>By the end of Level 4, students describe how a range of digital systems and their peripheral devices can be used for different purposes.</p> <p>Students explain how the same data sets can be represented in different ways. They collect and manipulate different data when creating information and digital solutions. They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.</p> <p>Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input. They explain how their developed solutions and existing information systems meet their purposes.</p>	<p>By the end of Level 6, students explain the functions of digital system components and how digital systems are connected to form networks that transmit data.</p> <p>Students explain how digital systems use whole numbers as a basis for representing a variety of data types. They manage the creation and communication of ideas, information and digital projects collaboratively using validated data and agreed protocols.</p> <p>Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. They incorporate decision-making, repetition and user interface design into their designs and develop their digital solutions, including a visual program. Students explain how information systems and their developed solutions meet current and future needs taking sustainability into account.</p>