























Summary	Duration
In this unit students consider how to give clear and useful instructions. This will develop an understanding of how coding and code is used to instructs computers and robots. Students explore coding through plugged and unplugged means and gain an understanding of an algorithm.	1 term











<p><b>Key inquiry questions</b></p> <ul style="list-style-type: none"> <li>▪ Why do we need to give instructions?</li> <li>▪ Why do instructions need to be specific?</li> <li>▪ What happens if my instructions are unclear?</li> <li>▪ What is an algorithm?</li> <li>▪ How do I use technology safely?</li> </ul>	<p><b>Picture book suggestions</b></p> <p>Rosie Revere Engineer                      Ada Twist Scientist                      Iggy Pech Architect                      The most magnificent thing                      The three little pigs                      Goldilocks and the three bears</p>
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Outcomes
<p><b>K–10 (inc. Science and Technology K–6)</b></p> <p>ST1-4WS investigates questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know</p> <p>ST1-5WT uses a structured design process, everyday tools, materials, equipment and techniques to produce solutions that respond to identified needs and wants</p> <p>ST1-15I describes a range of familiar information sources and technologies and how their purposes influence their design</p> <p><b>Mathematics K–10</b></p> <p>MA1-1WM describes mathematical situations and methods using everyday and some mathematical language, actions, materials, diagrams and symbols</p> <p>MA1-2WM uses objects, diagrams and technology to explore mathematical problems</p> <p>MA1-8NA creates, represents and continues a variety of patterns with numbers and objects</p> <p>MA1-17SP gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results</p> <p>MA1- 16MG represents and describes the positions of objects in everyday situations and on maps</p> <p><b>English K–10</b></p> <p>ENe-1A communicates with peers and known adults in informal and guided activities, demonstrating emerging skills of group interaction</p> <p>ENe-10C thinks imaginatively and creatively about familiar topics, simple ideas and the basic features of texts when responding to and composing texts</p>

Tch	Content	Teaching, learning and assessment	Resources
Miss B	<p><b>Science and Technology</b></p> <p><u>Working Technologically</u></p> <p>Students explore and define a task by:</p> <ul style="list-style-type: none"> <li>identifying needs and wants of users/audiences, eg using interview, observations and surveys. 🧩 👤</li> </ul> <p>Students generate and develop ideas by:</p> <ul style="list-style-type: none"> <li>using techniques for documenting and communicating design ideas, including simple plans, drawings and models, using familiar materials 📄</li> </ul> <p><b>Mathematics</b></p> <p><u>Two-Dimensional Space 1</u></p> <p>Students:</p> <p>Recognise and classify familiar two-dimensional shapes using obvious features (ACMMG022) 📐</p> <ul style="list-style-type: none"> <li>identify and draw straight and curved lines</li> <li>compare and describe closed shapes and open lines</li> </ul> <p><u>Positional Language</u></p> <p>represents and describes the positions of objects in everyday situations and on map</p> <ul style="list-style-type: none"> <li>describe the path from one location to another on drawings 🗺️</li> <li>use a diagram to give simple directions (Communicating)</li> <li>create a path from one location to another using computer software (Communicating) 💻</li> </ul> <p>s</p>	<p>Coding</p> <p><b>Success</b></p> <p>I can write a</p> <p>I can direct a</p> <p>I am learning</p> <p><b>Sequence</b></p> <p>Give students a floor mat or large surface divided as a grid. The grid can be of any dimension, for example 3 x 3; 4 x 4; 5 x 5, 10 x 10. (A mat with a grid marked out, or some masking tape on the floor to show the grid. Make sure it is highly visible and that the squares are large enough for students to stand or sit in.) Consider doing this outside with chalk</p> <p>Invite a student to volunteer to act in role as a robot. The robot's task is to locate and retrieve an object placed somewhere on the grid. The robot must start from the bottom left hand corner.</p> <p>Explain that the robot needs to be given a set of instructions in order to retrieve the object. The robot understands words and symbols.</p> <p>Invite the students to write a set of instructions for the robot to follow. For example:</p> <p>FFRR or ↑↑→→ (Forward 2 squares then move right 2 squares)</p> <p>Share student responses and direct the robot to move according to the sequence. Student acting in role as the robot must follow the directions given</p> <p>Students given paper of whiteboards and in pairs, they write instructions for the robot to get to the endpoint. Consider adding some hazards. Students then test out instructions with their partner and then as a whole class.</p>	<ul style="list-style-type: none"> <li>Grid</li> <li>Whiteboards/markers</li> </ul>
Mrs G	<p><b>Science and Technology</b></p> <p><u>Working Technologically</u></p> <p>Students explore and define a task by:</p> <ul style="list-style-type: none"> <li>identifying needs and wants of users/audiences, eg using interview,</li> </ul>	<p><b>Ipad</b></p> <p>Beebot app</p>	<ul style="list-style-type: none"> <li>Ipads</li> </ul>

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	<p>observations and surveys.  </p> <p>Students generate and develop ideas by:</p> <ul style="list-style-type: none"> <li>using techniques for documenting and communicating design ideas, including simple plans, drawings and models, using familiar materials </li> </ul> <p><u>Information</u></p> <p>There is a range of information sources and technologies.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>interact with an information source or technology to explore the ways that different forms of information are combined, including text, image and sound, eg a website or digital game  </li> </ul> <p>The purposes of information sources and technologies influence their design.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>interact with a range of familiar information sources and technologies and identify their purposes, eg television programs, websites, digital games, newspapers and magazines </li> <li>describe how the purpose of a specific information source or technology influences its design, eg a website or game   </li> </ul>	<p><b>Success Criteria</b></p> <p>I can use the Beebot App to direct a beebot</p> <p>I can direct my beebot to a location</p> <p><b>Class discussion</b></p> <ul style="list-style-type: none"> <li>Consider what we know about how the app works</li> <li>Rules for using the beebot app</li> </ul> <p><b>Activity</b></p> <p>Have students work in pairs to use the Beebot App on the ipads</p> <ul style="list-style-type: none"> <li>Have students work through all 12 levels</li> </ul>	
Mis s B	<p>Science and <b>Technology</b></p> <p><u>Working Technologically</u></p> <p>Students explore and define a task by:</p> <ul style="list-style-type: none"> <li>identifying needs and wants of users/audiences, eg using interview, observations and surveys.  </li> </ul> <p>Students generate and develop ideas by:</p> <ul style="list-style-type: none"> <li>using techniques for documenting and communicating design ideas, including simple plans, drawings and models, using familiar materials </li> </ul> <p><u>Information</u></p> <p>There is a range of information sources and technologies.</p> <p>Students:</p>	<p>Bee bots</p> <p><b>Success Criteria</b></p> <p>I can explore new technology</p> <p>I can use bee bots safely</p> <p><b>Introduction</b></p> <p>Ask the children what technology they have used at school or at home. Give an example if they need help. 'At school, as a teacher, I use the interactive whiteboard.' Write these ideas down on the board or get the children to write them on their own mini whiteboards and share.</p> <p>Then ask,</p> <p>'When you first get this new technology, how do you know how to work it?'</p> <p>'How do you handle new things?'</p> <p>'Why do you need to keep new things safe?'</p>	<ul style="list-style-type: none"> <li>Beebots</li> <li>Obstacles</li> </ul>

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	<p>interact <b>With</b> an information source or technology to explore the ways that different forms of information are combined, including text, image and sound, eg a website or digital game  </p> <p>The purposes of information sources and technologies influence their design.</p> <p>Students:</p> <p>interact with a range of familiar information sources and technologies and identify their purposes, eg television programs, websites, digital games, newspapers and magazines </p> <p> <ul style="list-style-type: none"> <li>describe how the purpose of a specific information source or technology influences its design, eg a website or game   </li> </ul> </p> <p><b>Mathematics</b></p> <p><u>Two-Dimensional Space 1</u></p> <p>Students:</p> <p>Recognise and classify familiar two-dimensional shapes using obvious features (ACMMG022)</p> <ul style="list-style-type: none"> <li>identify vertical and horizontal lines in pictures and the environment and use the terms 'vertical' and 'horizontal' to describe such lines </li> </ul>	<p><i>Show the Bee-Bot and explain that this is a new thing and it needs looking after.</i></p> <p><i>What could this be used for?</i></p> <p><i>How could it help us with our learning?</i></p> <p><b>Exploration</b></p> <p>Introduce the idea that the children are going to work in pairs or groups for just 5 minutes, and their task is to find out as many things about the Bee-Bot as they can.</p> <p><i>What does it do?</i></p> <p><i>How might it work?</i></p> <p>We call this part 'tinkering' which means 'to play with.'</p> <p>Come back as a group and create a padlet of all the things the children have noticed about the Bee-Bot.</p> <p>Ask students to see what they can make the beebot do and what shapes they can make the beebot draw. This task is purposefully open- ended as the children are exploring and tinkering with the Bee-Bot so there is no need for direct instruction at this point in their interaction with the device.</p> <p>To challenge certain children, provide them with a map or some toys to create obstacles, allowing the children to create a purpose for their programming.</p> <p><b>Conclusion</b></p> <p>After 8-10 minutes, bring the children back as a group and create another padlet to discuss what they have learned about the Bee-Bot.</p> <p><i>How did you get it to work?</i></p> <p><i>How could we use it in other lessons?</i></p> <p><i>What did you get your device to do?</i></p> <p><i>How did you get stuck?</i></p> <p><i>How did you get past being stuck?</i></p> <p>Allow some children to demonstrate what they have made the Bee-Bot do and re-cap the command buttons and directions you can make the Bee-Bot move in.</p>	
Mrs G	<p><b>Science and Technology</b></p> <p><u>Working Technologically</u></p> <p>Students explore and define a task by:</p> <ul style="list-style-type: none"> <li>identifying needs and wants of users/audiences, eg using interview, observations and surveys.  </li> </ul>	<p><b>Beebots</b></p> <p><b>Success Criteria</b></p> <p>I can instruct my Beebot to make a shape</p> <p>I can give my Beebot specific instructions</p>	<ul style="list-style-type: none"> <li>Numeral Cards</li> <li>Beebots</li> </ul>

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	<p>Students generate and develop ideas by:</p> <ul style="list-style-type: none"> <li>using techniques for documenting and communicating design ideas, including simple plans, drawings and models, using familiar materials </li> </ul> <p><u>Information</u></p> <p>There is a range of information sources and technologies.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>interact with an information source or technology to explore the ways that different forms of information are combined, including text, image and sound, eg a website or digital game  </li> </ul> <p>The purposes of information sources and technologies influence their design.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>interact with a range of familiar information sources and technologies and identify their purposes, eg television programs, websites, digital games, newspapers and magazines </li> <li>describe how the purpose of a specific information source or technology influences its design, eg a website or game   </li> </ul> <p><b>Mathematics</b></p> <p><u>Position 1</u></p> <p>Students</p> <ul style="list-style-type: none"> <li>use the terms 'left' and 'right' to describe the positions of objects in relation to themselves and from the perspective of a person facing in the opposite direction, eg 'The ball is on her left' </li> <li>give and follow directions, including directions involving turns to the left and right, to move between familiar locations, eg within the classroom or school</li> <li>give and follow simple directions using a diagram or description (Communicating) </li> <li>describe the path from one location to another on drawings </li> <li>use a diagram to give simple directions (Communicating)</li> </ul>	<p>Sit your group in a circle and ask them how we could get the Bee-Bot to write the numeral 1. Write the numeral 1 on a whiteboard to show them. They might suggest forward, forward. Some might start at the top of the number, others at the bottom. Both options are valid.</p> <p>Ask pupils how they could record their plan. Ask them what they call this plan. Hopefully they remember from earlier work on algorithms that this is an algorithm. At this point let all the children have a go at drawing their algorithms on their whiteboards.</p> <p>Now say you want the children to work with their partner to do just the same – but for a different numeral. Show children the numeral cards to help them understand how the shapes of numbers need to change for a Bee-Bot to trace them. Ask them where they might have seen numbers written this way before.</p> <p><b>Independent Activity</b></p> <p>Put children in pairs, based on your normal approach for grouping. Ask them to work out the algorithm for the beebot to write a specific numeral.. Remind them they can only have the Bee-Bot once they have an algorithm and have walked through it.</p> <p>Give them a numeral card based on the confidence of the pair. 7 is easiest as it needs only one turn, 0 seems to be the next easiest. Some numerals need either a 360 turn or a backwards move (such as 4 and 3). The fun is finding out!</p> <p>Some children will be enjoy working out where to start, others may need a suggestion e.g start at the top, and mark on your card. You or your pupils can draw arrows on the numeral cards to help children get started. Don't forget that perseverance and trial and improvement are important aspects of computational thinking.</p>	

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	<ul style="list-style-type: none"> <li>create a path from one location to another using computer software (Communicating)</li> </ul>		
Miss B	<p><b>English</b></p> <p><u>Speaking and listening 1</u></p> <p>Students:</p> <ul style="list-style-type: none"> <li>respond to and compose texts</li> <li>engage in conversations and discussions, using active listening behaviours, showing interest, and contributing ideas, information and questions (ACELY1656) </li> <li>use a comment or a question to expand on an idea in a discussion</li> <li>use some persuasive language to express a point of view </li> <li><b>contribute appropriately to class discussions</b></li> </ul>	<p>Scratch jr</p> <p><b>Book: Engibears Dream</b></p> <p><b>Summary</b></p> <p><i>Students think about patterns in computer coding and experiment with Scratch Jr to develop their understanding about coding. In the process, students learn to solve problems, design products, and express themselves creatively using digital technology.</i></p> <p><b>Whole-class discussion</b></p> <ul style="list-style-type: none"> <li>Review what they learnt from <i>Engibear’s Dream</i>: <ul style="list-style-type: none"> <li>What parts did you see inside Engibear’s Bearbot?</li> <li>How do you think Engibear could make his Bearbot perform all those actions?</li> </ul> </li> <li>Discuss how small, built-in computers ‘tell’ the objects what to do: <ul style="list-style-type: none"> <li>a washing machine has a computer inside it to tell it how to wash the clothes</li> <li>a microwave has a computer inside to tell it how to cook the food</li> <li>toys that talk or move have small computers inside them to organise the sounds and move the appropriate parts.</li> </ul> </li> <li>Brainstorm other objects that use computers to help them move/talk/perform.</li> </ul> <p><b>Whole-class explanation</b></p> <ul style="list-style-type: none"> <li>Explain: <ul style="list-style-type: none"> <li>All of these small computers inside these objects have instructions written in codes that tell the computers what to do.</li> <li>Code can be written using words or by linking blocks on a computer – relate back to the work they did with Beebots and how they “wrote code” to instruct their friends?</li> </ul> </li> <li>Scratch is software that allows us to create code using blocks</li> <li>Students will be investigating how basic coding is achieved by planning algorithms (a list of instructions) to move a character and coding the algorithms in Scratch.</li> </ul> <p><b>Small-group activity</b></p>	<p><b>Resources</b></p> <ul style="list-style-type: none"> <li>Computers/tablets</li> <li>Scratch Jr app (available for iPad, Android and Chrome) - <a href="https://www.scratchjr.org/">https://www.scratchjr.org/</a></li> <li>Scratch Jr guides and descriptions - <a href="https://www.scratchjr.org/learn.html">https://www.scratchjr.org/learn.html</a></li> <li>Optional: <i>Hello Ruby</i> by Linda Liukas</li> <li>Engibear’s Dream</li> </ul>

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		<ul style="list-style-type: none"> <li>▪ Students explore the different features of Scratch Jr.</li> <li>▪ Use scratch Jr coding cards for students to explore the different features of scratch junior</li> </ul>	
Mrs G	<p><b>Science and Technology</b></p> <p><u>Working Technologically</u></p> <p>Students explore and define a task by:</p> <ul style="list-style-type: none"> <li>▪ identifying needs and wants of users/audiences, eg using interview, observations and surveys. 🗣️ 👥</li> </ul> <p>Students generate and develop ideas by:</p> <ul style="list-style-type: none"> <li>▪ using techniques for documenting and communicating design ideas, including simple plans, drawings and models, using familiar materials 📖</li> </ul> <p><u>Information</u></p> <p>There is a range of information sources and technologies.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>▪ interact with an information source or technology to explore the ways that different forms of information are combined, including text, image and sound, eg a website or digital game 🖥️ 👥</li> </ul> <p>The purposes of information sources and technologies influence their design.</p> <p>Students:</p> <ul style="list-style-type: none"> <li>▪ interact with a range of familiar information sources and technologies and identify their purposes, eg television programs, websites, digital games, newspapers and magazines 🖥️</li> <li>▪ describe how the purpose of a specific information source or technology influences its design, eg a website or game 🖥️ 📖 👥</li> </ul>	<p><b>Scratch jr - Coding patterns</b></p> <p><b>Summary</b></p> <p><i>Students develop their current understanding about patterns and how they relate to algorithms. Students create an algorithm that is made up of a repeated pattern and use Scratch Jr to code it.</i></p> <p><b>Whole-class discussion</b></p> <ul style="list-style-type: none"> <li>▪ Recap the key understandings about Scratch Jr from the previous lesson.</li> </ul> <p><b>Whole-class activity</b></p> <p>Students work through the different activity cards available on Scratch Jr</p> <ul style="list-style-type: none"> <li>• Can I make my characters dance</li> <li>• Can I make the sun set etc</li> </ul> <ul style="list-style-type: none"> <li>▪ Students define different actions (eg clap, stomp, sing) using different shapes (eg triangle, circle, exclamation mark)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Computers/tablets with Scratch Jr</li> <li>▪ <i>Can I make my characters dance?</i> Tutorial - <a href="https://www.scratchjr.org/activities/card02-dance.pdf">https://www.scratchjr.org/activities/card02-dance.pdf</a></li> </ul>