


<p>Timing</p> <p>4 or 6 sessions of approximately 40 minutes.</p> <p>Sessions 4 and 5 are optional</p>	<p>Children will</p> <ul style="list-style-type: none"> • Explore Lego WeDo software using 'What will happen' PowerPoint • Use tilt sensor and motor • Make a bird turn • Optional: Make a crocodile open and close its jaws • Make own moving model <p>(Materials from Lego Education have contributed to this planning)</p>
<p>e-safety links</p>  <p>I can talk about why it is important to be kind and polite online and in real life.</p>	<p>Objectives</p> <p>Programming</p> <ul style="list-style-type: none"> • I can tell you the order I need to do things to make something happen and talk about this as an algorithm. (2) • I can program a robot or software to do a particular task. (2) • I can look at my friend's program and tell you what will happen. (2) • I can use programming software to make objects move. (2) • I can watch a program execute and spot where it goes wrong so that I can debug it. (2) <ul style="list-style-type: none"> • I can break an open-ended problem up into smaller parts. (3) • I can put programming commands into a sequence to achieve a specific outcome. (3) • I keep testing my program and can recognise when I need to debug it. (3) • I can use repeat commands. (3) • I can describe the algorithm I will need for a simple task. (3) • I can detect a problem in an algorithm which could result in unsuccessful programming. (3)
<p>Links to other learning</p> <p>English:</p> <ul style="list-style-type: none"> • Give well-structured explanations of their programming. • Maintain attention and participate actively in collaborative conversations together with using spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas; through activities within the programming 	
<p>Resources</p> <p>Lego WeDo (1 or 2) Lego WeDo software and Teachers Manual</p>	<p>Preparation</p> <ul style="list-style-type: none"> • Download What will happen presentation and What will happen Lego WeDo2 (if you have sets of Lego WeDo2) • Print out (and laminate) copies of Lego WeDo icon cards

	Expectations	Activity	Success Criteria
1	<p>Programming</p> <p>I can program software to do a particular task. (2)</p> <p>I can put programming commands into a sequence for a specific outcome. (3)</p>	<p>Exploring Lego WeDo Software</p> <ul style="list-style-type: none"> Children may already have built a model (the crocodile is used in session 4 in this sequence but any of the Lego WeDo models could be used). Children working on laptops 1:1 or in pairs / threes. Work through slides 2 – 10 of ‘What will happen?’ OR use What will happen Lego WeDo2 at an appropriate pace for the class. Encourage children to have a go to see what they can make happen with the programming blocks shown. Stop class and share discoveries as plenaries throughout the session. Children could use sets of Lego WeDo icon cards to plan programming sequences where this helps class organisation. 	<p>Gold: Can I put blocks into sequences, predict what will happen and then execute the program to see if I am right?</p> <p>Silver: Can I put blocks into different sequence to make different things happen?</p> <p>Bronze: Can I use the blocks to make things happen?</p>
2	<p>Programming</p> <p>I can look at my friend’s program and tell you what will happen. (2)</p> <p>I can program software to do a particular task. (2)</p> <p>I can put programming commands into a sequence for a specific outcome. (3)</p>	<p>Introduce tilt sensor</p> <ul style="list-style-type: none"> Show the children the tilt sensor and the USB Hub. Explain the hub is plugged into the computer via the USB cable to connect the tilt sensor to the software. Show the children slide 11 of ‘What will happen?’ . Can they predict what will happen? You may need to show them what happens with the Display background block first or they may suggest this as showing a picture. Let the children connect the tilt sensor and try re-creating the sequence on the slides. Does it do what they expected? Set the children the challenge (Slide 12) of showing different background pictures using the tilt sensor. The children will need to know that clicking on the tilt sensor block will change the angle of the tilt sensor. Talk through all they have been able to do so far. Slide 13: What else could they make happen with the sensor? What have they learnt? How did they learn it? Talk about the attitudes to their learning which have made a difference to what they discovered and the skills they have developed. You can refer to Somerset’s Computational Thinking Model. The SEN version has easier language if this is helpful. 	<p>Gold: Can I look at a sequence of programming blocks and predict what will happen? Can I add to a sequence to achieve a different outcome?</p> <p>Silver: Can I talk about what someone else’s sequence will do? Can I put blocks into a different sequence to make different things happen?</p> <p>Bronze: Can I use the blocks to make things happen?</p>

<p style="text-align: center;">Programming</p> <p>I can tell you the order I need to do things to make something happen and talk about this as an algorithm. (2)</p> <p>3 I can break an open ended problem up into smaller parts. (3)</p> <p>I can describe the algorithm I will need for a simple task. (3)</p>	<p>Introduce the motor (You will need to have made a simple bird with a gear that can be connected to a motor)</p> <ul style="list-style-type: none"> • Ask the children which blocks they would use to get the motor to turn. • Show the children the motor and the USB Hub. Explain the hub is plugged into the computer via the USB cable to let the software give instructions to the Lego WeDo motor. • Ask the children which blocks they would use to get the motor to turn. • Children add the motor to the USB Hub by clicking it in place. Allow them time to explore what happens with the different motor blocks. • Show the children a simple model you have created that needs a motor to make a bird (or other creation!) turn. Remind them of the word algorithm. Model writing an algorithm for what needs to happen. <ul style="list-style-type: none"> ○ Press start ○ Motor turns • What will the program look like? Add the blocks the children suggest and test the program. • What about if we want it to turn one way and then the other? Ask the children to write a simple algorithm. Ask them what the program will look like. Add the blocks suggested and test the program. • Show slide 16. What do the children predict this will make happen? • What about slide 17. Children will need to be very quiet so that the motor starts when you make a noise. If it starts moving anyway ask the children to debug the program. (It can be the noise of clicking on the start block. You may need to replace it to start with a key press instead.) 	<p>Gold: Can I describe the algorithm that is needed and execute this as a program?</p> <p>Silver: Can I think about what needs to happen and program the sequence required?</p> <p>Bronze: Can I program a sequence to make a motor turn?</p>
--	---	---



		<ul style="list-style-type: none"> • Tell the children that in the next session they are going to program the crocodile to open and close its mouth (or make a different model move if you have selected and got the children to build something else. Ask them to talk with a partner to plan the algorithm for this. • Agree the algorithm to use to make the crocodile open and close its mouth. <ul style="list-style-type: none"> ○ Press a key ○ Turn the motor until the mouth is open ○ Press a key ○ Turn the motor until the mouth is closed • (You may need to do a quick test to see which way to turn the motor and for how long) 	
4	<p>Optional Programming</p> <p>I can break an open-ended problem up into smaller parts. (3)</p> <p>I can describe the algorithm I will need for a simple task. (3)</p>	<p>Make the crocodile open and close its mouth</p> <ul style="list-style-type: none"> • Remind children of the algorithm you agreed to make the crocodile open and close its mouth. • Where you are sharing Lego WeDo sets among the class tell the children to write their program when they are ready to test it let them have a turn with the model. You may want to do this as a whole class or you may choose to make this a carousel experience with other activities going on so that each group are writing the program and testing it at the same time rather than waiting for their turn with a set. • Can you add a sound effect of the crocodile crunching on the food? Slide 19 and 20. • Set the children challenges on slide 21 (use the tilt sensor to open and close the mouth). 	<p>Gold: Can I describe the steps necessary to program for the outcome I want?</p> <p>Silver: Can I recognise the sequence of programming blocks I will need to implement an algorithm?</p> <p>Bronze: Can I make a programmable model and use instructions to make it move?</p>
5	<p>Optional Programming</p> <p>I can break an open-ended</p>	<p>Make the crocodile close its mouth when you put something inside it</p> <ul style="list-style-type: none"> ▪ Ask the children what a hungry crocodile will do if you put something in its mouth. ▪ Ask the children to spot the distance sensor in their crocodile model and explain that it will sense when something is close to it 	<p>Gold: Can I create a model and program it to move in different ways, continually testing the program and recognising when I need to debug it?</p> <p>Silver: Can I create a model and</p>

<p>problem up into smaller parts. (3)</p> <p>I can tell you the order I need to do things to make something happen and talk about this as an algorithm. (2)</p> <p>I can describe the algorithm I will need for a simple task. (3)</p> <p>I keep testing my program and can recognise when I need to debug it. (3)</p>	<ul style="list-style-type: none"> ▪ Get the children to work in pairs to write an algorithm to make the crocodile close its mouth when there is something it can eat in its mouth. (Slide 22) ▪ Allow children to write and test a program to implement this algorithm. (Use slide 23 if needed) ▪ Stop children to talk about debugging the program when this is required. 	<p>program it to move? Can I watch the program execute and spot if it goes wrong?</p> <p>Bronze: Can I make a model and use program blocks to make it move?</p>
<p>Programming</p> <p>I can describe the algorithm I will need for a simple task. (3)</p> <p>6 I can put programming commands into a sequence to achieve a specific outcome. (3)</p>	<p>What can you make happen?</p> <ul style="list-style-type: none"> • Use slide 24 to talk about all the children have learnt. Talk about the Computational Thinking they have done – go through the skills on the poster. • What ideas do the children have to create their own model and make something happen? • Challenge children to make their own Moving Model. • Talk about issues, challenges, successes and adaptations as the children go through the design and programming. 	<p>Gold: Using knowledge of Lego WeDo can I create my own programmable model from the Lego and sensors?</p> <p>Silver: Can I adapt a program I have used before to make my own model move?</p> <p>Bronze: Can I make a model and use program blocks to make it move?</p>