Hive Hackers - Section 3 - Loops - Lesson Plan

Section 3	Lesson 5 & 6 - Getting Loopy & Maze Loops Lesson 7 - Artist Loops Lesson 8 - Bee Loops	Lesson Duration	1 hour 30 minutes
Lesson Overview	During this section the students will be completing: - Lessons 5 & 6 - Getting Loopy and Maze Loops - Lesson 7 - Artist Loops - Lesson 8 - Bee Loops on the code.org platform. The instructional video will walk you through this Students practice converting sets of actions into a single loop. Students will use loops to move more efficiently through the maze with the angry bird and pig. Once students have finished this activity, they will apply what they have learned using loops to decode the artist task. Finally, in order to help the bee collect more nectar and thus make more honey. Students will be encouraged to use 'nested loops' - looped statements inside another loop.		
Objectives	● Identify the benefits of using a loop structure instead of manual repetition. ● Create a program for a given task which loops a single command and sequence of commands. ● Break down a long sequence of instructions into the smallest repeatable sequence possible. ● Employ a combination of sequential and looped commands. ● Count the number of times an action should be repeated and represent it as a loop. ● Create a program that draws complex shapes by repeating simple sequences. ● Demonstrate the concept of 'pattern matching'.		

Open - Video Lesson 5 & 6 - Getting Loopy and Maze Loops

Title	Description	Timeline
Introduction	Brief introduction of the facilitator and new section.	00:00 - 00:17
Vocabulary	Introducing the students to their new word "Loop". Gives a definition and some examples	00:17 - 01:36
Video of code.org	Video from code.org explaining how we can use loops to decrease our code.	01:36 - 03:07
Lesson 5 - Getting Loopy	Brief explanation on how to get to lesson 5 "Getting Loopy" and how to do it. Very short exercise.	03:07 - 04:10
Lesson 6 - Maze Loops	Brief explanation on how to get to lesson 6 "Maze Loops". The facilitator will then show examples on how to complete the online exercises at code.org. Reiterating the fact that a lazy coder (a coder that uses less code) is a better coder. It also Clearly demonstrates that the "sequencing" blocks are BLUE and the "repeating" blocks are PINK.	04:11 - 07:10
Plenary	Tell the students to go and complete all the exercises from both lessons. Finish off with what you should have learnt at the end of the lessons.	07:10 - 07:34

Open - Video Lesson 7 - Artist Loops

Title	Description	Timeline
Introduction	Brief recap on new word from previous lesson "Loop" and our new block which was the "Repeat block".	00:00 - 00:33
Video of code.org	Video from code.org explaining how to use loops to reduce or fix the code in the artist online activities.	00:33 - 01:02
Lesson 7 - Artist Loops	Brief explanation on how to get to lesson 7 "Artist Loops". The facilitator will then show examples on how to complete the online exercises at code.org. This artist lesson will be more difficult than the previous artist lesson as students will no longer be constrained to 90 degree angles. Here the facilitator reiterates that sometimes it is better to watch your code work before trying to change it, this encourages the student to slow down the artist to find out what needs changed in the code.	01:02 - 03:40
Plenary	Tell the students to go and complete all the exercises from online exercise 7 Artist loops". Finish off with what you should have learnt at the end of the lessons.	03:40 - 03:59

Open - Video Lesson 8 - Bee Loops

Title	Description	Timeline
Introduction	Brief introduction stating that this is the last lesson of the loops section. Introduce the students to our two new blocks "Get nectar" and "Make Honey"	00:00 - 00:45
Video of code.org	Video from code.org explaining how to use our new blocks in Lesson 8 "Bee Loops" online activities.	00:45 - 01:40
Lesson 8 - Bee Loops	Brief explanation on how to get to lesson 8 "Bee Loops". The facilitator will then show examples on how to complete the online exercises at code.org. Here the facilitator reiterates the use of the repeat block and how important it is to make certain actions happen within the code. When students are using loops to repeat an action (such as getting nectar), encourage them to think about the movements before and after that action. Students must always aim for dark green circles which will then tell them they completed the code correctly and in the least steps as possible.	01:40 - 04:25
Plenary	Tell the students to go and complete all the exercises from online exercise 8 "Bee Loops". Finish off with what you should have learnt at the end of the lessons. Tell the students what the next section will entail.	04:25 - 04:44

Extension Activities

Artist Activities	● Free draw shapes on the artist - squares, triangles, Hexagons.
	● Having protractors available can help students to more clearly visualize the angles they need.
Online Activity 7	● If students have completed all of the tasks above, they should complete all remaining activities in this level.

Plenary (5 minutes)

Flash Chat: What did we learn?	● What have we learned in this section?
	● What is good about loops and why should we use them?
	● Why is it better to be a lazy coder?
Feedback posits	Students give feedback on the lesson using the 'two stars and a wish' framework.
Reflection Sheet	Students will complete their 'reflection sheets' for Lesson 3.

Resources Required:

- Student & Teacher Workbook for the lesson
- Protractors, pens & pencils
- Computers/Laptops/iPads
- Masking tape

NI Curriculum Links:

Desirable features	**Interactive Design – Level 3/4**
	● Solving problems on the Code.org platform for the angry birds, bees and zombies tasks using nested loops.
	● Modifications are made to the original code from the Lesson 2 'On The Tiles task', and as a result, students improve their work.
	● This allows for their coding of the square, triangle and hexagon to be more efficient.
5 E's link	**Express -** Students are being creative while completing the 'On The Tiles' UICT task. In this task, students choose their own design elements and positioning of the shapes on the screen.
	Exchange - Padlet.com is used so the students can share their drawings for the "One The Tiles Task". Students are encouraged to visit the URL link to the drawing of the peers and comment using the two stars and a wish framework.
	Evaluate - Students are asked to make improvements to their instructions and explain why they made such improvements.
	Exhibit - Students exhibit the ability to share their work digitally by uploading URL to Padlet.com.
Possible Extensions	Link with another school online via Google Hangouts to share URLs to the first part of the "On The Tiles" UICT challenge. Each school should give the collaborating school feedback

	on their drawings. One way they could do this is by using FlipGrid to record video messages on different drawings.