Hive Hackers Session 2 Lesson Plan

Session	2	Lesson Duration	1hr 30mins
Lesson Overview	Students will develop sequential algorithms to move a bird from one side of the maze to a pig at the other side of the maze. This will be done through stacking blocks together in order to navigate forward, left or right. In the second part of the session, students will take control of the 'Artist' to complete simple drawings on the screen.		
Objectives	• Create a program to complete an image, ordering movements as a series of sequential commands in a program. • Count the number of times an action should be executed, represent it as instructions in a program and select arguments where necessary. • Be able to explain, differentiate between, and draw triangles, squares, and rectangles in order to reflect defining attributes.		

Starter - 15 Minutes

Title	Description	Timeline
Welcome back	Recap what we did in the last session. Recap on the vocabulary learned from the previous lesson.	00:00 - 00:21
Intro	Introduce what we are going to do in this new session.	00:21 - 00:41
Vocabulary	Introducing the new word "URL". Give examples to help the students understand the keyword	00:41 - 01:34
Vocabulary Actions	Using the actions for the 3 letters to help the students remember.	1:34 - 02:48
Vocabulary	Introducing the new word "Sequencing". Give examples to help the students understand the keyword.	02:48 - 03:30
Code.org introduction to lesson	Code.org explain what we will be doing during today's lesson.	03:30 - 04:54

Main - Lesson 3 - Maze: Sequencing - 30 Minutes

Title	Description	Timeline
Getting logged in to code.org	As this is the second week ensure that the students can successfully log into the code.org platform using their student login cards. The instructions for this are located within the introduction slides! We will be looking at the 11 tasks in Lesson 3 - Maze: Sequencing	04:54 - 05:31
Example walk through	On screen show the students how to complete the first task.	05:31 - 05:52
Students complete exercises	***Students can now complete the 11 tasks in Lesson 3 - Maze: Sequencing. The answers for this are located within the Teacher Section of this course. Assist the students where possible. If the students finish the exercises, ask them to go back and see if they can create alternative ways to complete the tasks!***	***25 minute activity***
Further tips	Gaging the class's progression, choose a task to go through on the boards. Each task gets harder as you progress through the lesson. In the video, we looked at task 8 and focused on slowly building our steps. We also	05:52 - 09:00

	look at how there can be several ways to get to the same point. Highlight the fact we want 'Lazy coders' i.e to get from A to B in the fewest steps! Tip - **Build your solution slowly** - Adding code and then running to see if it's correct. - **Lazy Coders** - Focus on getting to the end of the maze in as little steps as possible. The workspace shows how many steps you should use.	
Conclusion	Recap what we done in the lesson and explain what we will be doing in the net lesson.	09:00 - 09:23

Main - Lesson 4 - Artist Sequence - 45 minutes

Title	Description	Timeline
Introduction	Welcome the students to the fourth lesson. Recap what we did in the last lesson - Including the key words 'Algorithm' 'Sequence' and 'URL'.	00:00 - 00:22
Recap Keyword	Recap "URL" and "Sequencing", as well as the actions to remember it and its definition.	00:22 - 01:47
Code.org introduction to lesson	Code.org explain what we will be doing during today's lesson.	01:47 - 03:05
Getting logged in to code.org	As this is the second week ensure that the students can successfully log into the code.org platform using their student login cards. The instructions for this are located within the introduction slides! We will be looking at the 12 tasks in Lesson 4 - Artist Sequence	03:05 - 03:24
Example walk through	On screen show the students how to complete the first task. The solutions for this are within the teacher pack.	03:24 - 04:30
Students complete exercises	***Students can now complete the 12 tasks in Lesson 4 - Artist Sequence. The answers for this are located within the Teacher Section of this course. Assist the students where possible. If the students finish the exercises, ask them to go back and see if they can create alternative ways to complete the tasks!***	***25 minute activity***
Further tips	Gaging the class's progression, choose a task to go through on the boards. Each task gets harder as you progress through the lesson. In the video, we looked at task 3 & 4 and focused on slowly building our steps. We also look at how there can be several ways to get to the same point. Highlight the fact we can use the tips and ensure the students read the instructions along the top Tips: - **Build your solution slowly** - Adding code and then running to see if it's correct. - **Read Carefully** - Students will often use the "Jump forward by 100 pixels" instead of the "Move forward by 100 pixels". So read each	04:30 - 10:50

	instruction carefully.	

Extension Activities

Maze Sequence Introduction	Ask students if they are familiar with the game 'Angry Birds'. Explain to the class that for this activity, they will be writing programs to help the angry bird locate the naughty pig in a maze. A good way to introduce the concept of sequencing is through the use of a physical grid. • On the classroom floor, using masking tape, mark out a 4 x 4 grid. • Place two markers randomly in the grid (these could also be toys), one to represent the naughty pig and one to represent the angry bird. • Write the instructions "Move Forward", "Move Backwards", "Turn Right" and "Turn Left" on the whiteboard. • Ask students to come and sit beside the grid on the floor and request two volunteers (one to be the naughty pig, and one to be the angry bird). • The student representing the "naughty pig" will pick up the pig marker (or toy) on the grid and stand in that spot. • The student representing the "angry bird" will pick up the angry bird marker (or toy) on the grid and stand in that spot. • Ask the class to help navigate the student angry bird to the student naughty pig on the grid. • Students should take turns at working out what instruction comes next. • This is also a good opportunity to explain and explore the bird's eye view of the angry bird and how this translates to code.
Create your own Maze	This can be used as an extension activity or homework activity. Once complete, students must create their own angry bird maze using the worksheet provided. Encourage students to be as creative as possible!
UICT Task On the Tiles (Part 1)	*Online Lesson 4 Activity 10 : Create a square, triangle and hexagon* • Using the worksheets provided, students should plan how to create a square, triangle and hexagon using sequential instructions. Students should record the link to their finished drawing in their workbook. Students should also create their shapes using their plans and note any changes to their code, along with an explanation as to why the changes were necessary. • Padlet.com (or alternative) should be used to share the links for each pupil's drawing. Padlet.com must be set up prior to the beginning of the lesson. The school's padlet.com should also be password protected. Both the link and the password should be shared with students during the lesson. Students are encouraged to look at the drawings of their peers and use the 'two stars and a wish' framework to provide feedback. Students can use the feedback that they receive to refine their solution and repost a link on Padlet,com(or alternative). Students can also document their links in their workbooks.
UICT Task	Using the shapes they had created earlier, students should plan how they would create the shape of a house using sequential instructions. Students should record the link to their finished drawing in their workbook. Next, students will create their shapes using their plans and note any changes to their code along with an explanation as to why this was necessary.

Plenary (5 minutes)

Flash Chat: What did we learn?	• What have we learned in this lesson and have you any questions you want to ask? • What does sequencing mean?
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 2.

Resources Required:

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

School Curriculum Links:

Desirable features	**Interactive Design – Level 3** • Students solve problems using Code.org to help direct an angry bird to a naughty pig. • Students input a sequence of sequential commands and make modifications to improve their work. • At the end of the session, students are then encouraged to reflect on their lessons.
5 E's link	**Express -** Students are encouraged to be creative when creating their own angry bird maze. **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.