Hive Hackers Section 5 Lesson Plan

Section	5	Lesson Duration	1 hr 30 mins
Lesson Overview	This session demonstrates how 'conditionals' can be used to tailor a program to specific information. Students are introduced to the conditional statement. This is the code that functions differently depending on the conditions it may encounter. Next, the concept of 'binary' will be taught to students. Through a series of paper-based activities, students will explore and develop their understanding of binary.		
Objectives	• Compare values using the = operator. • Identify when a conditional statement can be used to deal with unknown values. • Execute an algorithm with a conditional statement. • Solve puzzles using a combination of looped sequences and conditionals. • Encode and decode letters into binary. • Relate the real-life idea of storing initials on a bracelet, to the idea of storing information in a computer.		

Starter (15 minutes)

Title	Description	Timeline
Welcome back	Introduce what we are going to do in this new session.	00:00 - 00:29
Introduce keywords	Introducing the new word "Conditionals" or "Binary". Give examples to help the students understand the keyword. Ask if the students can give examples of conditions their teacher or parents might give them. Ask students how many 'Bi' words they can think of, such as Bicycle, Binoculars. If the students have a workbook get them to copy down the definitions.	00:29 - 02:25
Code.org Examples	Code.org will explain some examples of conditionals. See if the students know who the famous face is that is explaining.	02:25 - 03:18

Main (75 minutes)

Title	Description	Timeline
Introduce today's activity	Explain an overview of the activities and how they tie into today's keywords.	03:18 - 03:36
Code.org	Code.org explain what we will be doing online.	03:36 - 05:17
Example of conditionals	Explain how we create a tree diagram from the code shown. Each example will get progressively harder as you move through this section. If the students workbook is available they can fill in the blank spaces.	05:17 - 11:27
Online Example of conditionals	This shows how to find a solution to exercise 12. Slow break it down for the students as you work through it in the same steps as before. Begin by writing the answers at the end of each statement, then take each card and feed it through the tree diagram. Students can then take a pack of cards and feed each of these through the tree diagram to get the correct outcome for each.	11:27 - 16:01
Code.org exercise 12	Students complete stage 12 on code.org	16:01 - 16:34
Students	***Students can now complete the 2 tasks in Lesson 12: Conditionals. The***	***15 minute***

complete exercises	***answers for this are located within the Teacher Section of this course. Assist the students where possible.***	***activity***
Solution to the online exercise	We can break down the solution to the online tasks.	16:34 - 24:13
Code.org Lesson 13	Students complete Lesson 13 on code.org.	24:13 - 24:27
Code.org exercise 13	Code.org explain Lesson 13: Bee: Conditionals.	24:27 - 25:30
Further explanation	Reiterate the new buttons that were given in the video.	25:30 - End
Students complete exercises	***Students can now complete the 2 tasks in Lesson 12: Conditionals. The answers for this are located within the Teacher Section of this course. Assist the students where possible.***	***35 minute activity***

Extension Activities

Break the Code	Using their knowledge of binary, students are tasked with deciphering the message that is encoded within the additional worksheet.	5 mins
Binary Bracelets	• Students have a 'binary bracelet' worksheet contained in the back of their workbook. • During this activity, students are encouraged to tear this page from the booklet and begin to work through it. • The aim is to find the code which corresponds to the first initial of their forename. • Once that is complete, they should colour in the bracelet with the appropriate pattern. • Afterwards, the bracelets should be worn on wrists, with students asking their peers to work out the letter.	10 mins
Binary Extension	If students have finished all of the tasks above they are encouraged to complete the additional binary worksheets located in their workbooks.	10 mins

Plenary (5 minutes)

Flash Chat: What did we learn?	• What have we learned from this lesson? • What have you learned about conditionals? Why are they useful in programming? • What is a nested loop?
Feedback Post-its	Students give feedback on the lesson using the 'two stars and a wish' framework..
Reflection Sheet	Students should complete their reflection sheets for Lesson 5.

Resources Required:

- Student & Teacher Workbook for the lesson
- Protractors, pens & pencils

- Computers/Laptops/iPads

Curriculum Links:

Desirable features	**Interactive Design – Level 4** ● Solving problems on the Code.org platform using conditionals for the 'bee task'. ● Each of the tasks get progressively more complex and difficult, consolidating knowledge and building up the difficulty level for students. ● In order to successfully complete this task, students must try to continually improve their work, ensuring that their code is as efficient as possible. ● Each week, they must also complete a 'reflection sheet', documenting their progress.
5 E's link	**Evaluate** ● Students will reflect on their progress, considering what went well in the reflection sheet and how to improve upon their original work.
Possible Extensions	● Link with another school and send each other coded binary message. ● Each student should must work out the message as a group and send a response. ● The response could be sent using Flipgrid or via Email.