Deck the halls

Micro:bit lesson plan – Code Playground

BARCLAYS

Lesson overview

In this lesson, students will learn how to make the BBC Micro:bit play a festive tune – *Deck the halls*. They'll explore how music is made of sequences of notes and rhythms, and how they can code these on the Micro:bit. By the end of the lesson, they'll have created their own mini performance and be able to explain how code controls music. Teachers will guide students through the project using the video or workbook.

Time	Key learning outcomes	Resources
60 mins	• Understand how to use Micro:bit music blocks to code a melody • Recognise how sequencing affects the tune • Change pitch (note) and duration (beat) to build a recognisable tune • Explore how music and coding connect through patterns.	• Laptops or desktop computers • Access to Micro:bit website https://microbit.org/

Content

Introduction

This festive themed project explores the creative possibilities of coding music using the BBC Micro:bit. Introducing the Micro:bit music blocks children will recreate the classic carol '*Deck the halls*'.

Play a short clip of '*Deck the halls*', or hum/sing the first line and ask:
"How could we teach a computer to play this tune?"

Explain that music follows patterns, just like coding does and using the MakeCode editor they'll learn how to sequence musical notes, adjust pitch, and debug their code to produce a recognisable melody.

Class discussion: "How does a computer make music?"

Collect ideas: instructions, notes, timings, speakers, output.

How to tie these concepts to a real-world example: "Musicians use notes and timing: programmers use blocks and sequence."

Mention that many modern musicians use coding to create beats, mix tracks, or even perform live.

Micro:bit practical

Ask the children to log into Micro:bit and set up their workspace as described in the workbook.
Show the deck the halls video as a guided lesson pausing regularly when the pupils need to catch up.

- Children should be able to follow along with the workbook or the guided lesson video
- By the end of the lesson children should be able to create a working program showcasing the deck the halls project.

Activity – Deck the halls

This project uses music blocks to create a classic Christmas carol, *Deck the halls.*

- **Coding the first note:** Demonstrate how to locate the music blocks and drag **play tone Middle C for one beat** into **on start**. Test it

- **Changing the pitch:** Select **Middle G** from the note dropdown. Test again and compare

- **Build the melody:** Continue adding blocks until the tune matches *Deck the halls* as shown in the workbook.

Class question: "If I change a ½ beat to 1 beat, what will the tune sound like? Why?"

Micro:bit practical

Using the video and workbook support the children to follow the instructions and complete the coding project. Have them think of other ways to enhance the project if they have extra time.

Activity wrap up

Prepare to share your project with the class:

- "Does it sound like *Deck the halls*? What would you fix if it doesn't?"

- Highlight that mistakes in pitch or beat are normal and part of coding. "What did you do when your tune didn't sound right?"

Encourage customisation

- Ask pupils to make their tune play faster or slower by changing the tempo block. Can they make a dance version of the tune?

- Add an input: pressing A starts the tune, pressing B stops it. This gives children ownership of performance

- Use the LED grid to show a Christmas tree, star, or snowflake as the music plays.

Code snippets
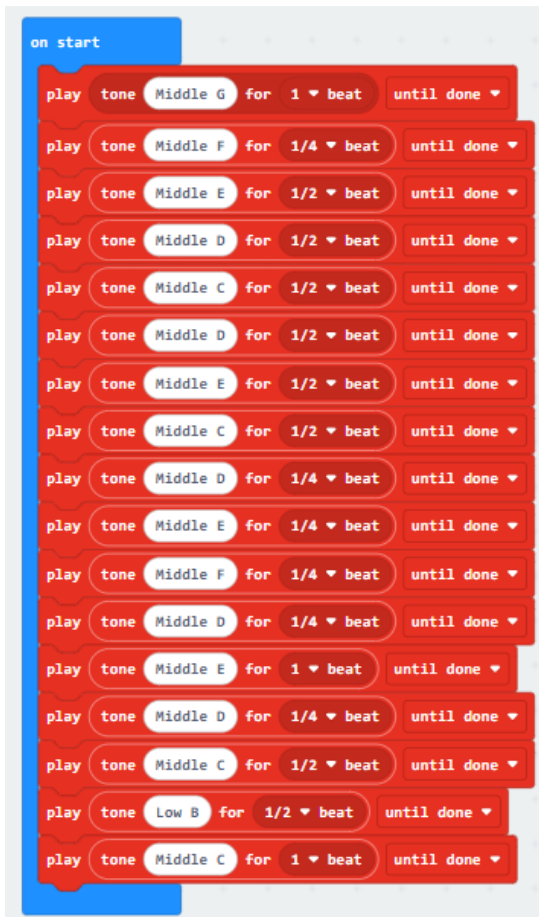
Summary

The following information is an example of what a child at an expected level would be able to demonstrate when completing these activities with additional examples to demonstrate how this would vary for a child with emerging or exceeding achievements.

Assessment guidance	
Differentiation – Lower ability/ASN • Focus on programming just a few notes • Provide note lists or screenshots of blocks • Focus on whole beats before introducing fractions • Pair students for additional support.	**Differentiation – Higher ability/extension** • Challenge students to extend the tune, using loops to repeat sections or variables to change tempo • Add LED animations synced to music • Ask them to create another festive melody.

Plenary

• What did you learn about coding music?

• What does sequence mean in music and in code?

• How did testing as you go help with debugging?

Assessment questions

1. Which block controls pitch? Which controls duration?

2. What feature would you add to improve the project?

3. How could you personalise your tune?

4. What other songs could you create?