

FORTNITE

MAKING MUSIC IN FORTNITE CREATIVE: CREATING LOOPS WITH THE MUSIC SEQUENCER



STUDENT GUIDE

Music is impactful and memorable. Using music in your digital projects can help elevate the audience experience and make your content more engaging. In this project, you will create a machine in **Fortnite Creative** to play your own custom music.

OBJECTIVE

Students will demonstrate an understanding of looping structures in Fortnite Creative.

ACTIVITY

Students will build a music machine in Fortnite Creative utilizing the Sequencer and music note gallery to play their own custom compositions.

It is suggested that you use the Grid Island template if you are creating a new island for this activity.

BACKGROUND CONTEXT

Loop: A series of commands that are run infinitely, or until a certain condition is met.

Computers are very fast, and can accomplish repetitive tasks quickly. Computer programmers use loops that run a sequence of commands to complete a specific task.

Here are some examples of loops written in pseudocode. Pseudocode is a way of writing coding concepts in a simple format that is easy for people to communicate and understand. When implementing the concepts outlined in pseudocode, you would need to translate the actions to match the language that the computer would understand.

Award 10 Points for a Gold Coin

```
Begin Loop
  Check Player for Coin
  Does player have a gold coin?
  If YES, add 10 points to player score and remove the coin
Loop Again
```

Loop Until the Player has 100 points

```
Begin Loop
  Check Player for Coin
  Does player have a gold coin?
  If YES, add 10 points to player score and remove the coin
Loop Again IF the Score is less than 100
Continue running the rest of the program
```

Computer programmers must translate their ideas into a language that the computer will understand. These are called programming languages. When you know a programming language, you can use the power of the computer to make your ideas come to life!

OVERVIEW OF MUSIC

Although music allows for a wide variety of creative expression, it has several common structures that help make it appealing to listeners. Getting a basic understanding of these structures will help you be more successful with your own musical creation in Fortnite Creative.

Tempo—Also referred to as BPM (Beats Per Minute), the tempo is the speed at which the musical notes are played. A higher tempo means the music will play faster. When listening to your music, pay attention to the speed and adjust it up or down to make it sound best.

Measure/Bar—Musical notes are grouped into equal-sized measures. A common measure contains 4 beats. You may have heard musicians count 1-2-3-4. They are counting the beats in each measure at the desired tempo for that song. You will use grids in Fortnite Creative to make sure your music fits this pattern.

Notes—In sheet music, notes are written along horizontal lines, called staff lines or staves. The location of the notes on a staff indicates the pitch, and the shape of the note indicates how long the note lasts.

It is not necessary, but a basic understanding of musical notation will make it easier to recreate songs in Fortnite Creative, and easier to create your own music.

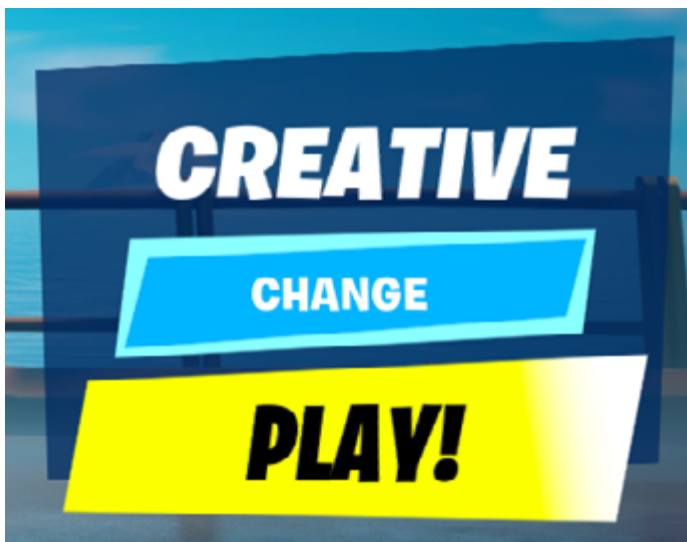
Developing musical skills could open a world of enjoyment in addition to developing your creative and analytical mind. The patience, practice and creativity of musicians can also be helpful when learning new technology.

GUIDED ACTIVITY

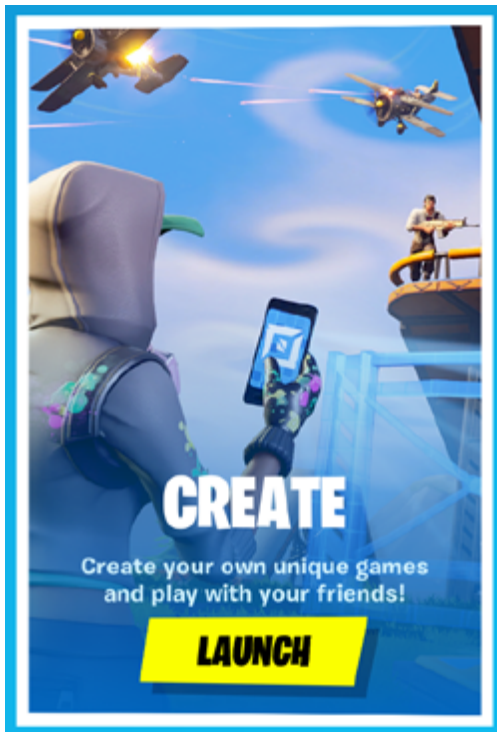
GETTING STARTED

If you need a review on creating your island, refer to the [Getting Started Guide](#)

Below is a review of how to get started in Fortnite Creative by creating an island to start a new project.



Make sure **Creative** is your selected game mode and press the **Play** button.



In the **Create** section, select the **Launch** button to start your own private server.



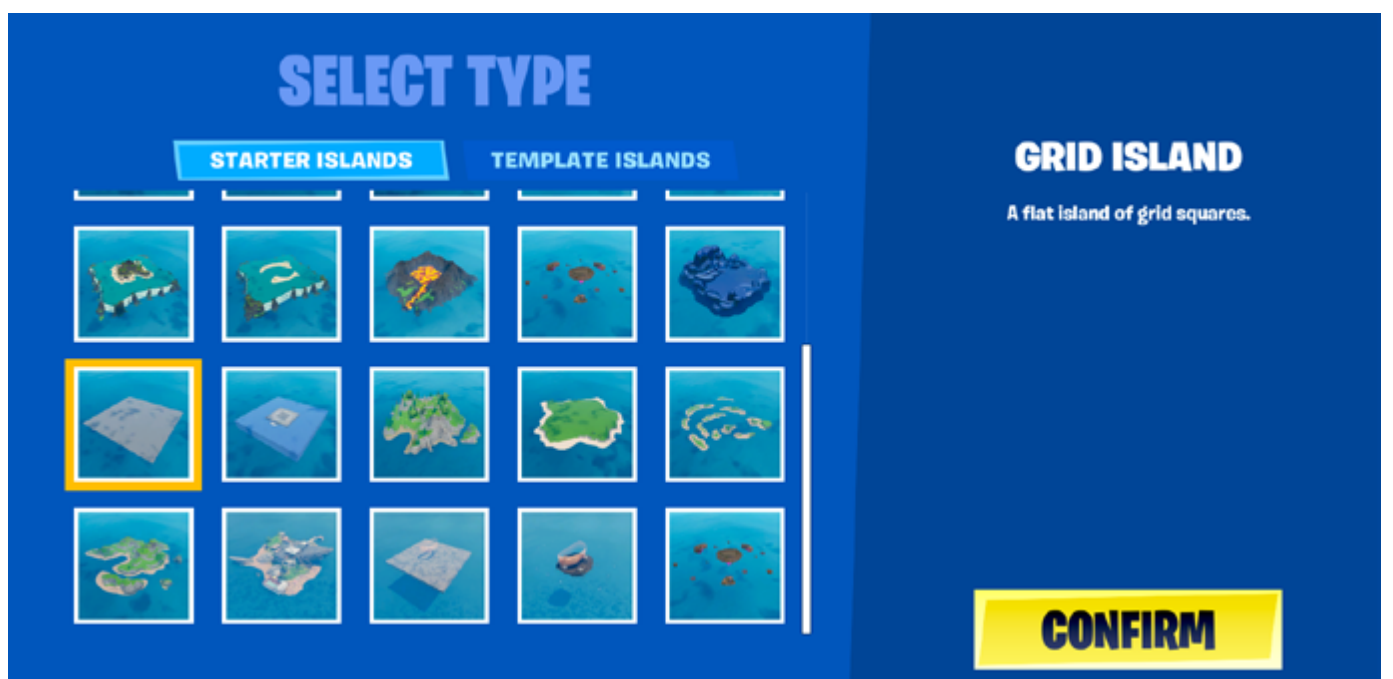
When you spawn into the Creative hub, you will see a golden teleport portal. (This is typically located directly in front of you when you spawn.)

Approach the portal, but do not enter it.

When you get close to the portal, select the **Use Console** command—in this case, the **E** key.



Since you are starting a new project, select the **Create New** button.



Scroll through the Starter Islands and select the Grid Island option. This island will provide a flat surface with gridlines that make it easier to align our music notes.



Set a custom name for your island so you will be able to find it in the future. In this case, we use the name **Music Machine**.

Select the **Confirm** button to finish creating your custom island.



After a few moments, your portal will change its destination to your newly created island. Once you see your island name in the portal, it is time to jump in!

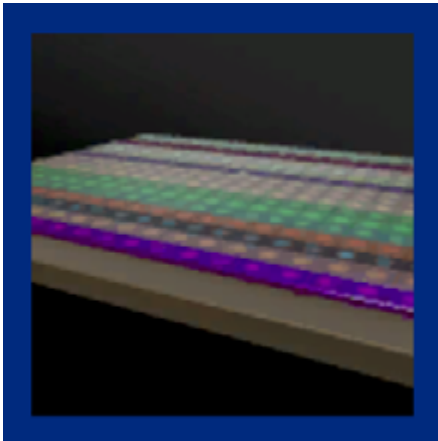


When you enter your island, you will skydive down to the ground.

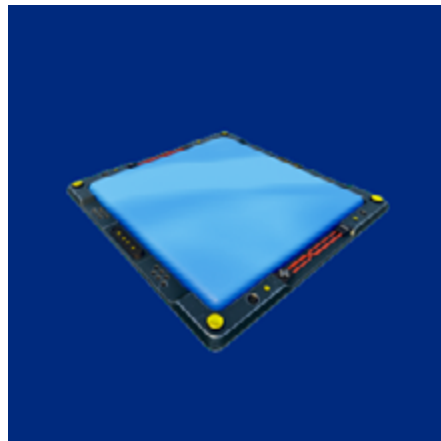
There is a white square in the center of the island.
Let's meet there!

STEP 1: GATHER YOUR SUPPLIES

What you need:



**Music Blocks Gallery
(Gallery)**



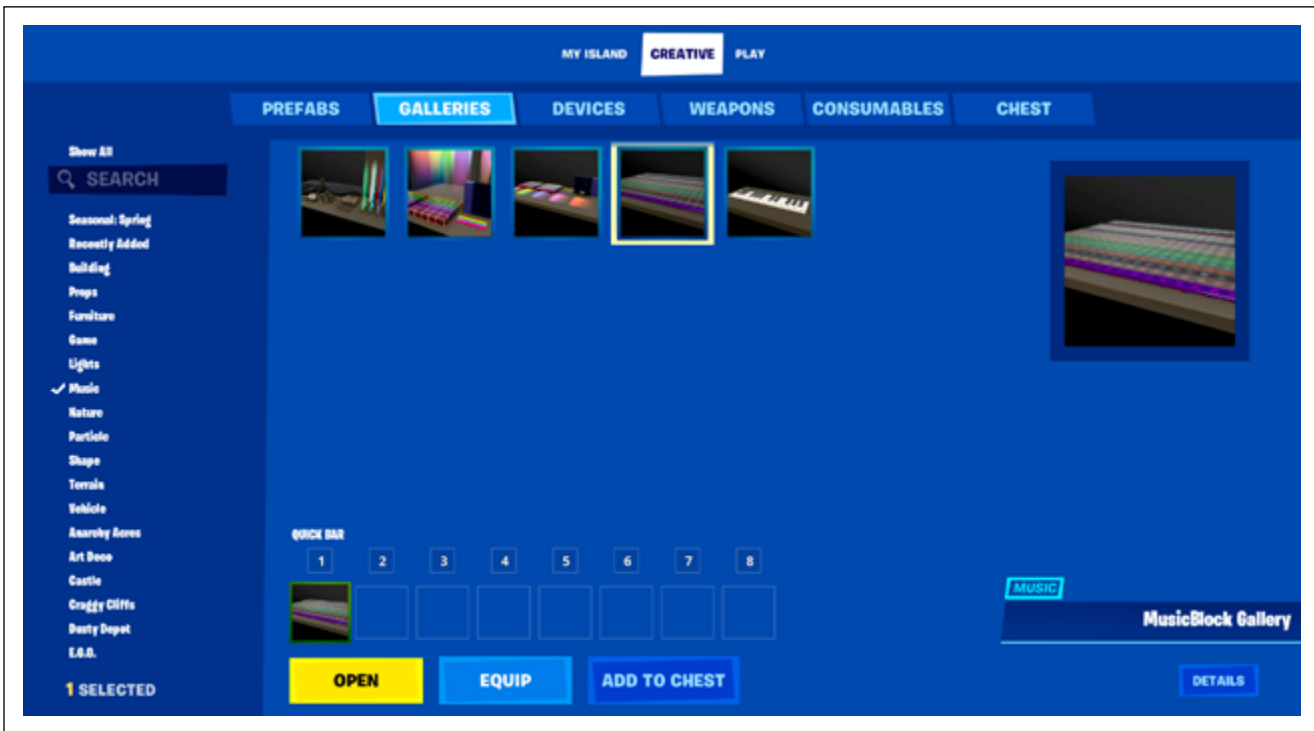
**Sequencer
(Device)**



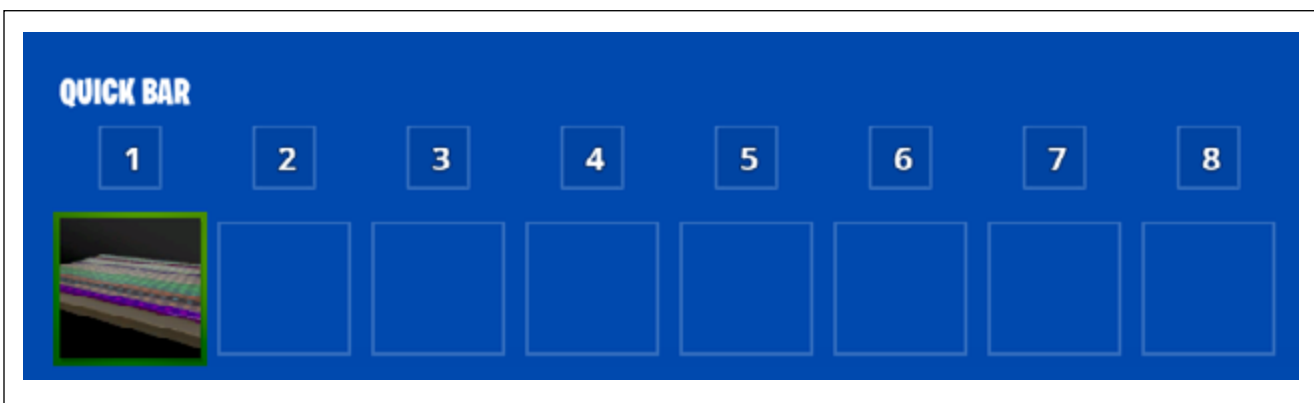
**Player Spawn
(Device)**

To gather the necessary items, you will need to enter your creative inventory. The key mapping for **Inventory** will be shown on-screen. The default is the **I** key.

Get your **Music Blocks**.



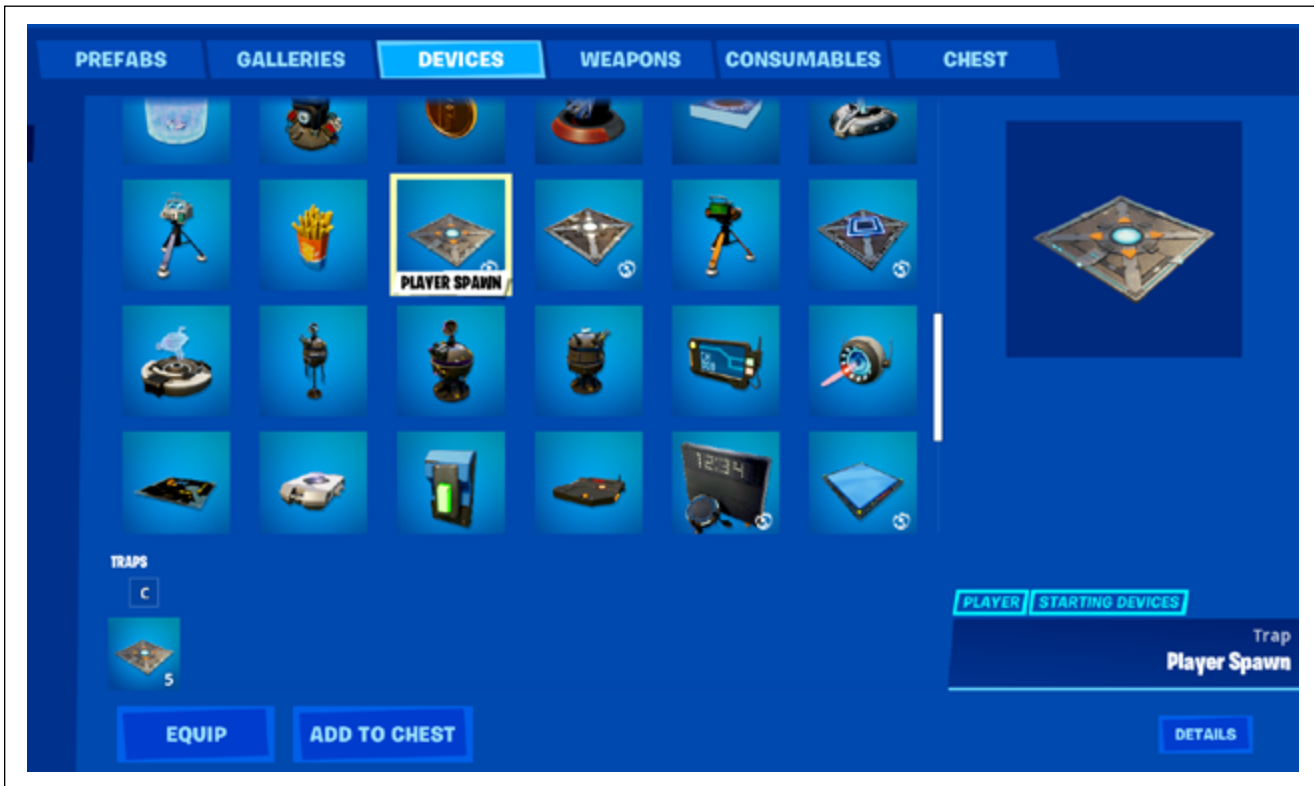
From your Creative inventory, select the **Galleries** tab. Notice the search box and categories on the left-hand side for narrowing your results. In this case, we selected the **Music** category to view all music-related galleries. Select the **Music Block** Gallery, then click the **Equip** button.



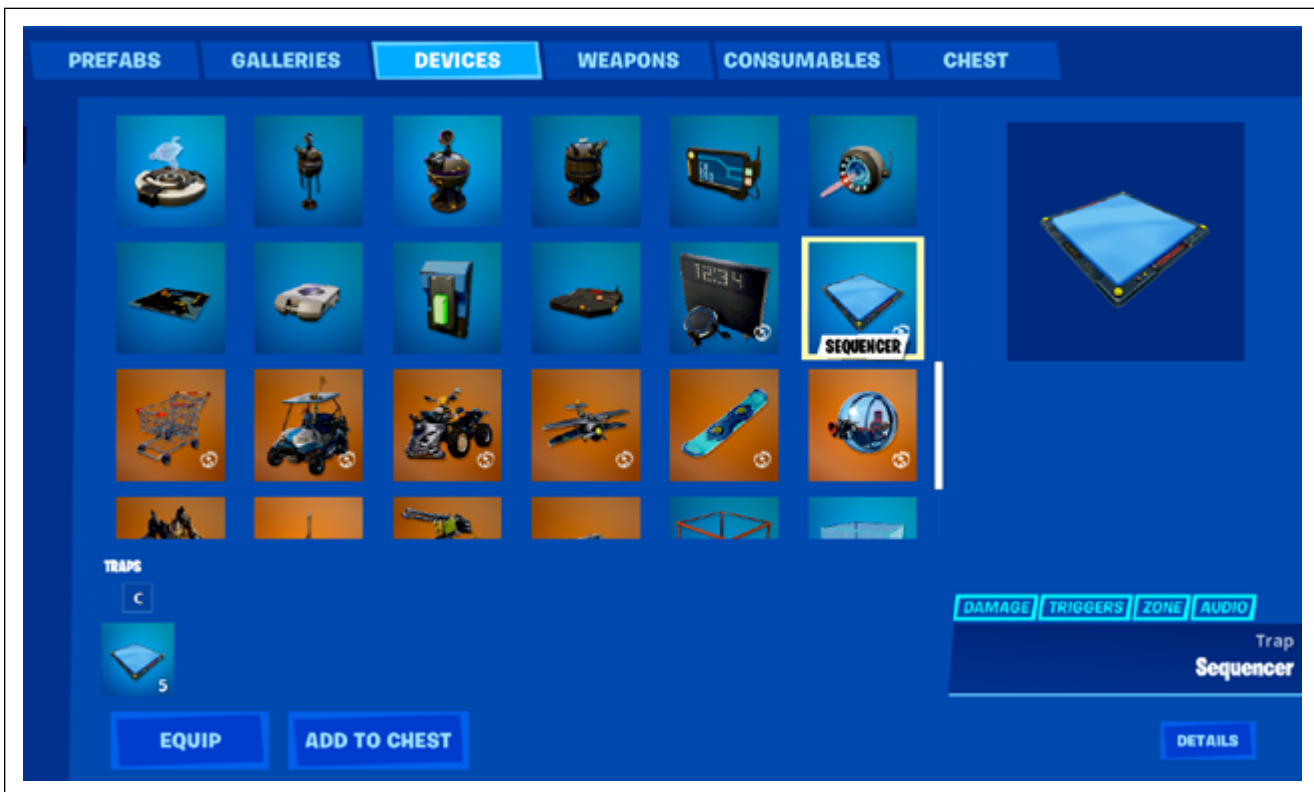
After you select **Equip**, the Music Block Gallery will appear in your Quick Bar. In this case, the Music Block Gallery is in slot 1. The items in the Quick Bar will be accessible when using the **Phone** device on your island.

Get your devices.

Select the **Devices** tab in your **Creative** inventory.



Find the device labeled **Player Spawn** and click the **Equip** button after highlighting that device.
(NOTE: Do not confuse this with a similar looking device called an Item Spawner Plate.)



Next, find the Sequencer. Highlight the **Sequencer** and click the **Equip** button.

Notice that the Player Spawn and Sequencer are equipped into an area labeled **Traps**. This is the fifth slot in your Building Materials bar. When this slot is selected, you can click the right-mouse button to alternate between the items saved in the Traps slot.

STEP 2: PLACING INVENTORY ITEMS ON YOUR ISLAND

PLAYER SPAWN



First, place a Player Spawn device in the center of the map on the white square. Remember, the Player Spawn is in your Traps slot. To access this slot, you must be in a **Building mode**. If you have any of the building elements equipped, you can use the mouse scroll wheel or the key mapping to select the Traps slot. When the Traps slot is selected, right-click to alternate between the items that are equipped to this slot.

Select **Player Spawn** in the Traps slot.

Place the Player Spawn on the white square in the center of the map.



Although configuration options are available for the Player Spawn device, no changes are necessary.

With the Player Spawn device placed on the island, you will appear at this location when entering your island instead of skydiving down. This will save you time and always start you in the same location.

Now place your Music Block Gallery on the island.



First, equip your phone.

Next, press the key matching the slot with your Music Block Gallery. In this case, it would be the 1 key.



The blue highlight will show the area needed to place the Music Block Gallery. Move and look around to change the location. Select an area near the center so it will be close to your spawn location. When the blue highlight is in the correct location, left-click the mouse to place the gallery in that location.



Now, with the Music Block Gallery placed, it's time for some fun!

ACTIVITY:

Running on the Music Blocks will activate their sounds. Spend a few minutes running on the blocks to hear them.

- Notice how each color is a different type of instrument. Which ones are your favorites?
- Notice how running along the same color block will play a different pitch. Test the far ends of your favorite instruments to hear the highest and lowest pitches available.
- Notice how the musical notes are labeled on the blocks. Do you play an instrument or know musical notation?

STEP 3: INTRODUCING THE SEQUENCER

You will be using the Sequencer device to play Music Blocks that you have selected and placed to make a song. Before placing the Sequencer, you must first place a floor where you want it to go. Find a spot near the center Player Spawn, but where it will not interfere with the Music Blocks.



Notice the location of the wooden floor near Player Spawn and the Music Block Gallery.



When placing the Sequencer, the activation volume area will extend to your right. In this example, we face the wooden floor with the Music Blocks behind us when the Sequencer is placed. (NOTE: You can change the **Zone Direction** in the Sequencer customization options if it needs to be changed.)



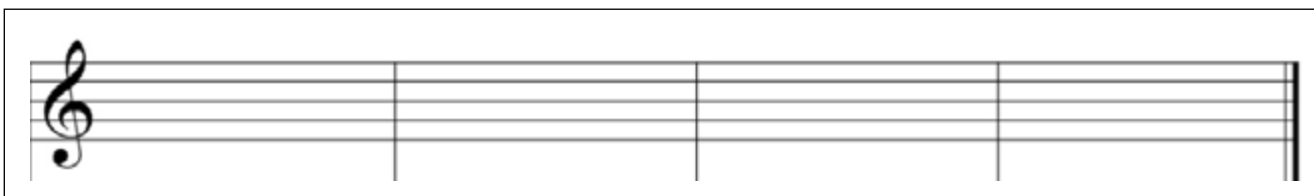
Notice the configuration with the long wireframe box extending from the Sequencer. This wireframe box is the activation volume. Any Music Blocks placed in here will play when activated by the Sequencer.



Stepping on the blue pad of the Sequencer will send a pulse through the entire volume, extending out from the Sequencer.

STEP 4: OPTIMIZING YOUR SETTINGS FOR MUSICAL COMPOSITION

Music has structures and patterns that we use to make it pleasing to our ear. We can configure our settings and use our environment to implement these structures inside Fortnite Creative.

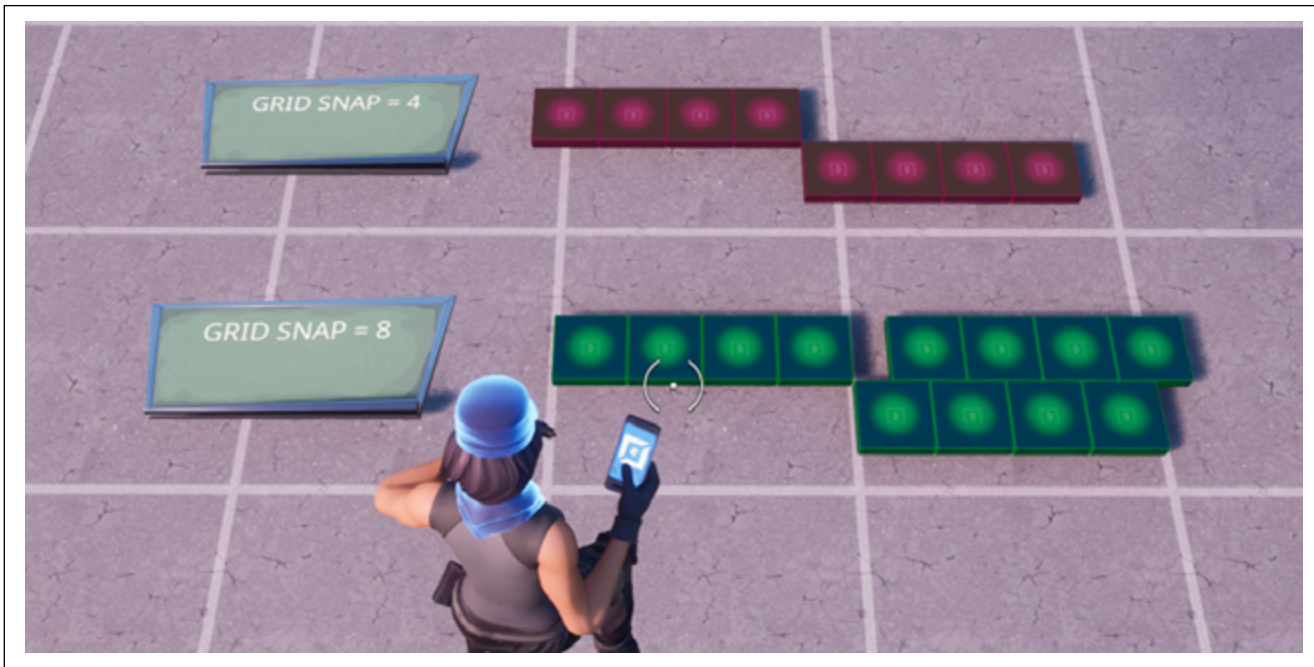


Notice how the image of the Sequencer looks similar to the image of the musical staff with measures. For your project, each tile in the Sequencer will represent one bar, or measure.

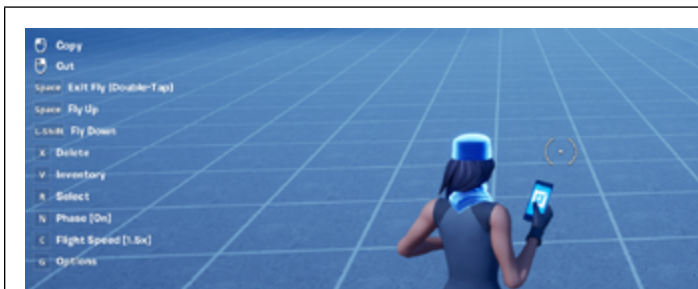
One of the most common time signatures for music is called 4/4 time (four-four). This means that you count 4 beats per measure. Conforming the music to this pattern will help make it flow better.

You can accomplish this structure by using the **Grid Snap** feature in Fortnite Creative. Basically, when placing objects, the Grid Snap number will define the number of increments available in each tile. Since we already determined that a tile will represent one measure, the Grid Snap will determine your time signature.

For your example, you can use a Grid Snap value of 4, 8, 16 or 32.



You will use **Grid Snap = 8** for this project. With this setting, four Music Blocks fit inside the tile. It also allows more advanced placement of the blocks in 1/8 increments (eight notes).



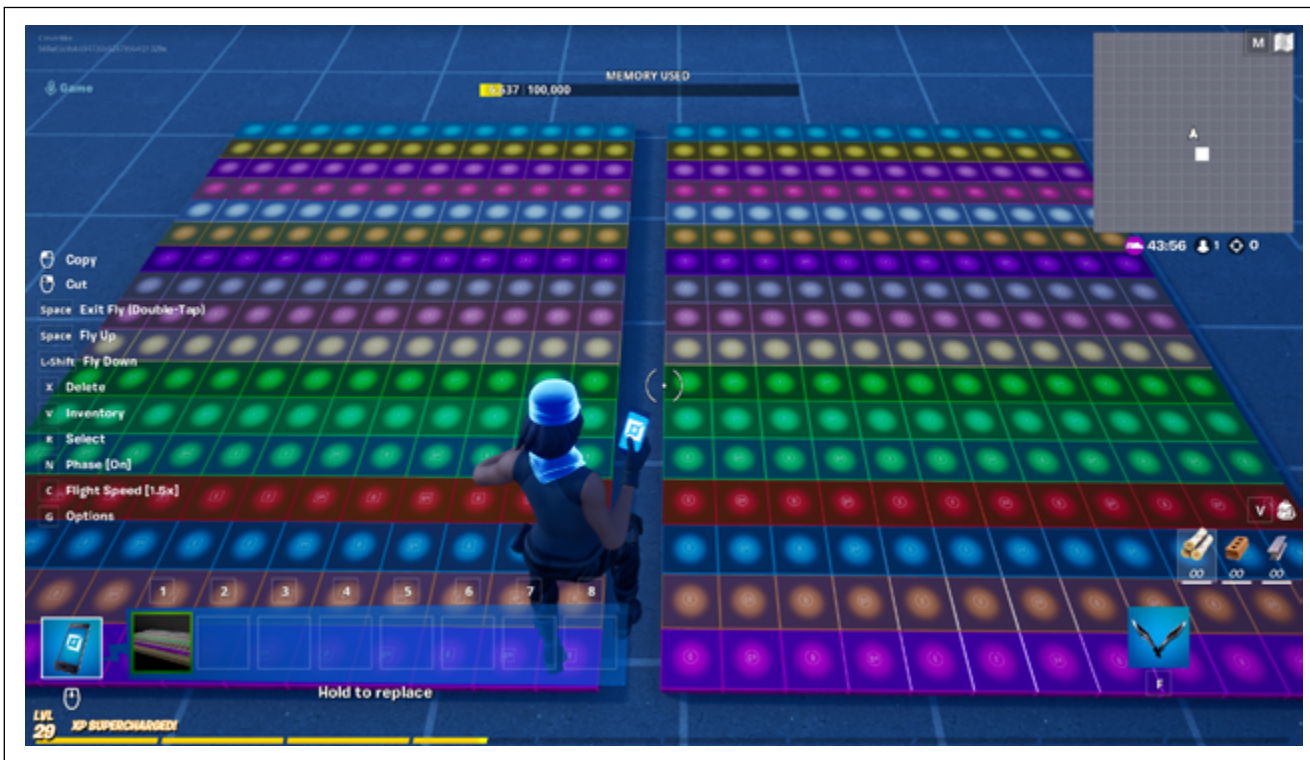
With the Phone equipped, select the **Options** command. In this case, the **G** key is mapped to **Options**.



Inside the Options Quick Menu, change the Grid Snap to **[8]** then click **Close**.

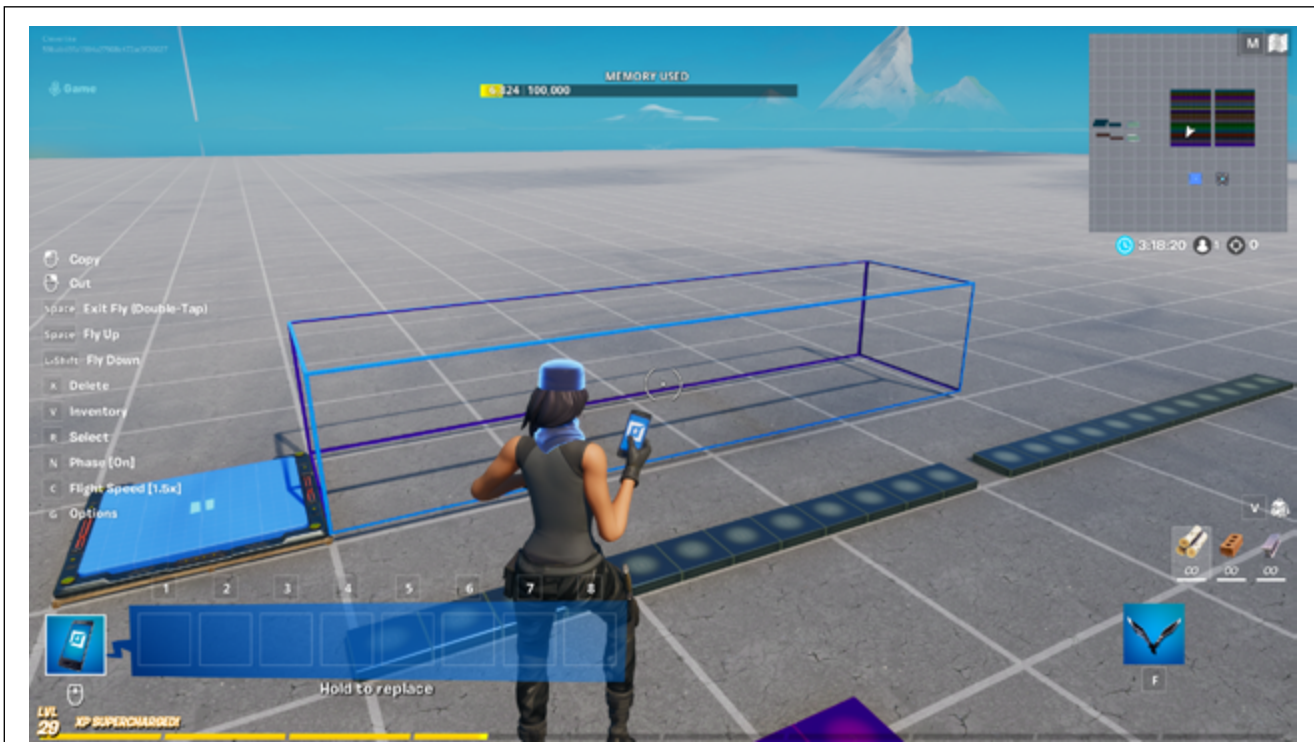
STEP 5: PUTTING THE MUSIC TOGETHER

The Music Block Gallery is arranged according to the chromatic scale. This is 12 notes that are equally spaced in pitch (like playing black and white piano keys in sequence). Each set of 12 notes is an octave. In the image below, we have divided the Music Block Gallery to show that each instrument is supplied with two octaves. When grabbing Music Blocks, make sure to grab the notes from the correct octave.





When you have selected the instrument of choice, you can select all the notes from that instrument and copy it near your Sequencer.



With the music note blocks copied and ready, let's create a simple song.

STEP 6: MATCHING MUSIC BLOCKS WITH MUSICAL NOTES

ODE TO JOY - BEETHOVEN

B B C D D C B A G G A B B A A

TWINKLE TWINKLE LITTLE STAR

D D A A B B A G G F# F# E E D A A G G F# F# E
A A G G F# F# E D D A A B B A G G F# F# E E D

MARY HAD A LITTLE LAMB

E D C D E E E D D D E G G
E D C D E E E D D E D C



When selecting Music Blocks, find the musical note in the middle of the staff lines and select the matching Music Block from the center of the Music Blocks. In this case, the **C** note is placed with other notes higher and lower, so you will need to grab the **C** Music Block from the center.



STEP 7: PLACING YOUR MUSIC BLOCKS

Notice the first note in the example is labeled **B**. This note is also in the middle of the staff, so take the **B** note from the middle of your selected instrument.



Pick up the B Music Block and place it at the beginning of the first bar, closest to the Sequencer pad.



Place the first Music Block. You should be able to place 4 Music Blocks per tile. This matches the 4 beats per bar/measure in your music.



After placing the first Music Block, step on the sequencer pad to make sure your music note is played. If it doesn't play, make sure the Music Block is within the Sequencer volume outlined in blue.

Once it is working, you will use this block to align all subsequent blocks.



With the first two B notes placed, you can place the next note, C. There are two of each note for every instrument. Make sure to pick the correct notes. In this case, we placed the B note from the center of our Music Blocks. There is a C note on the far left and one in the middle. Use the C Music Block from the center.

Let's complete the first measure.



This is the Music Blocks in Fortnite Creative. (B,B,C,D)



Here are the musical notes from the first bar. (B,B,C,D)

Make sure yours match, then complete all of the bars in this sample song.





Once you have placed all your Music Blocks, step on the Sequencer pad to activate your song.

TROUBLESHOOTING

Does your song play too fast or too slow?

Adjust the Tempo of your song by getting close to the Sequencer pad and selecting the Customize option. Adjust the Tempo(BPM) and try again until it sounds right.

Do all your Music Blocks connect in a row without overlapping and without extra space between them?

To fix a Music Block that is out of place, you can use the Phone tool to cut and paste the block(s) into the correct position.

Do your musical notes seem correct, or are there some notes that are out of place?

Remember that there are two of each note for every instrument. Each of the two notes are different by one octave. Selecting the wrong octave could make an uncomfortable sound in your song. Double-check anything that sounds bad, and replace the Music Block(s) with the proper selection. [Hint: When notes are higher on the music staff, they are a higher pitch. Lower notes are a lower pitch. In our sample song, the G note is lower than the A, so grab the G block that is a lower/deeper pitch.]

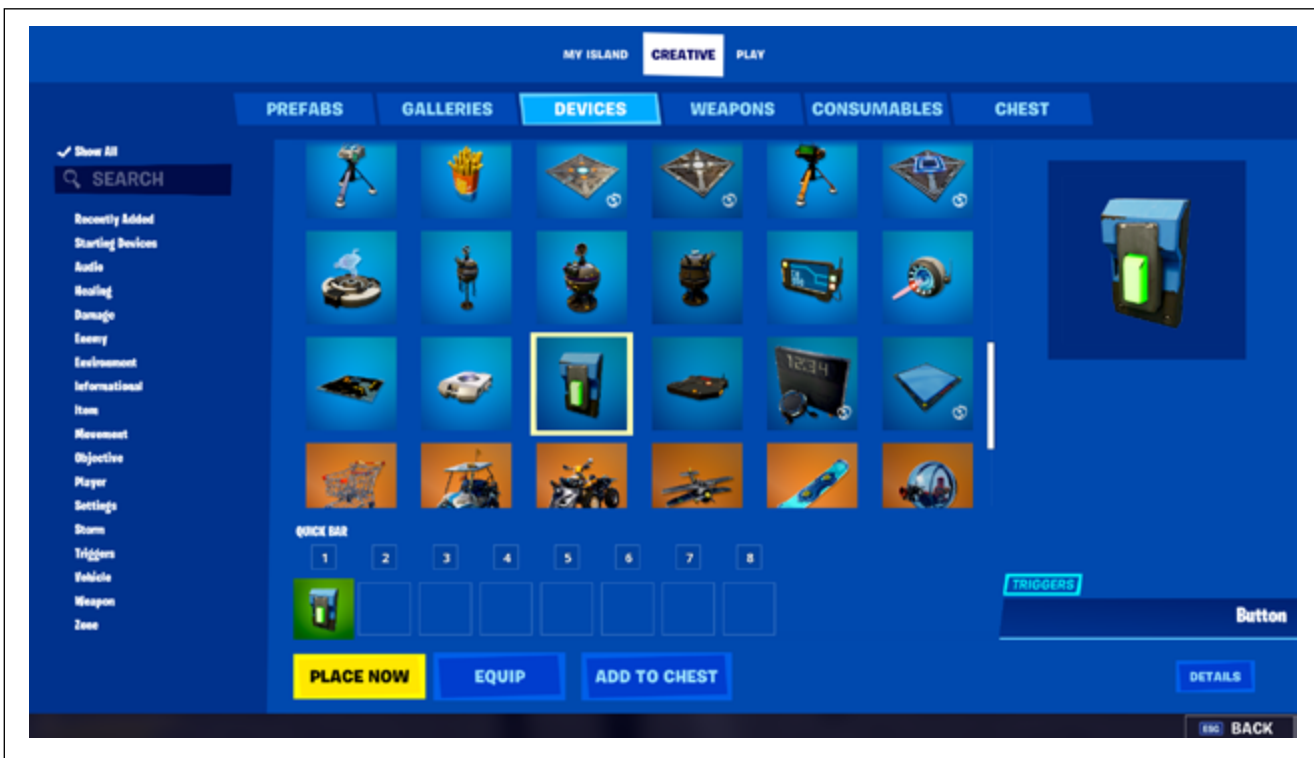
Is the activation volume of your Sequencer facing the correct direction, and is it sized correctly to play this song?

If the activation volume (Zone) is facing the wrong direction, you can change it by Customizing the Sequencer and changing the Zone Direction field. To adjust the size of the Zone, you can change the Length, Width and Height values. If you don't see these options, click the All Options icon to reveal all Sequence options (see below).



STEP 8: CONTROLLING YOUR SONG IN A FORTNITE CREATIVE GAME

This exercise is unique, and it can be created and tested without starting the game. In addition to the great creative fun of making music, Sequencers are also capable of triggering other devices that can be useful when inventing your own games. As a final step in this guided activity, you will create an On/Off switch to toggle the music.



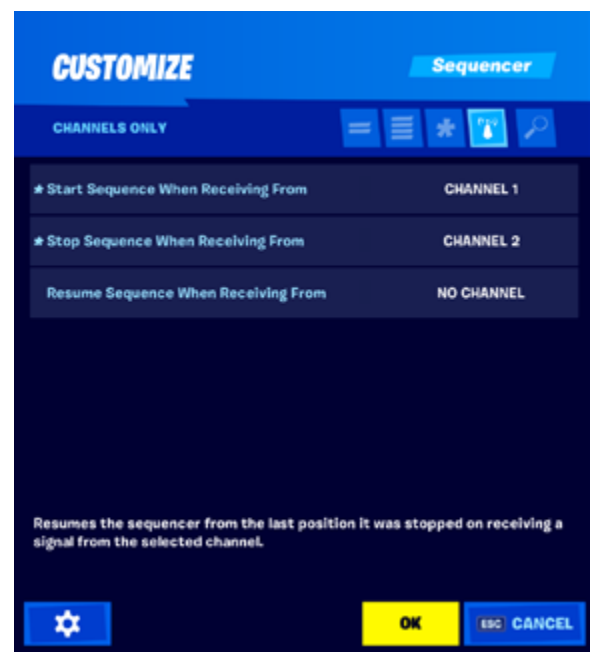
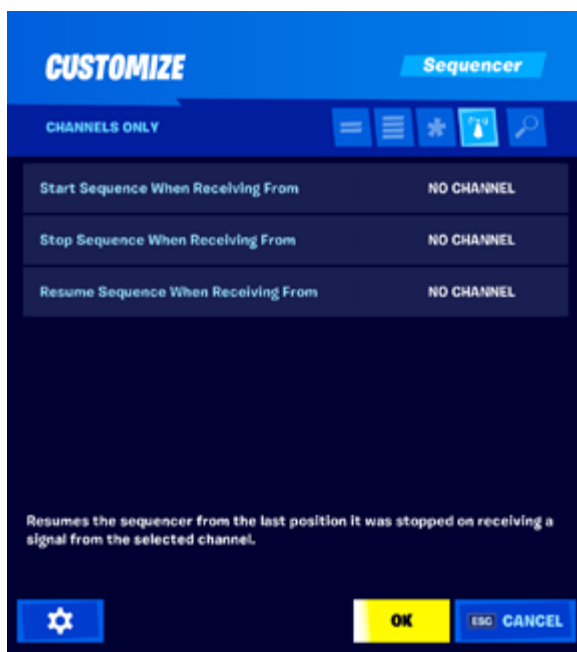
Go to the **Creative inventory** and **Equip** the **Button** from the **Devices** category.



Place two buttons near each other. (Placing them in a location where you can see the Sequencer in the background is a good idea.)

Select the Channels Only icon in the Sequencer customization menu.

Set the Sequencer to be started by a signal on Channel 1, and stopped by a signal on Channel 2.

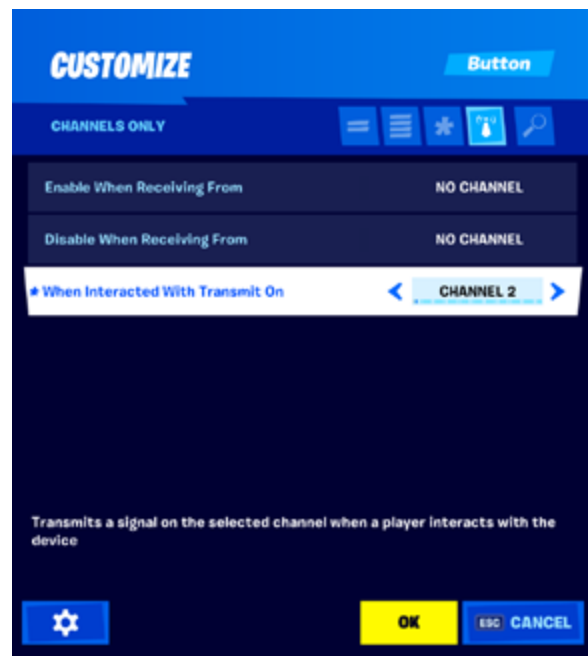
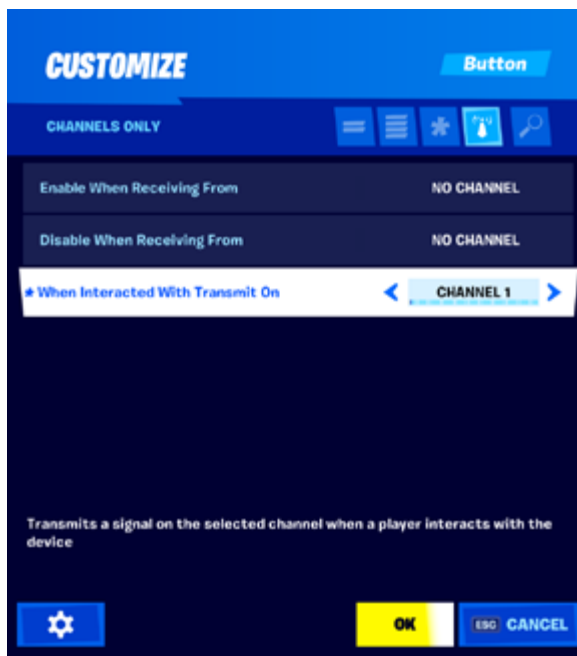




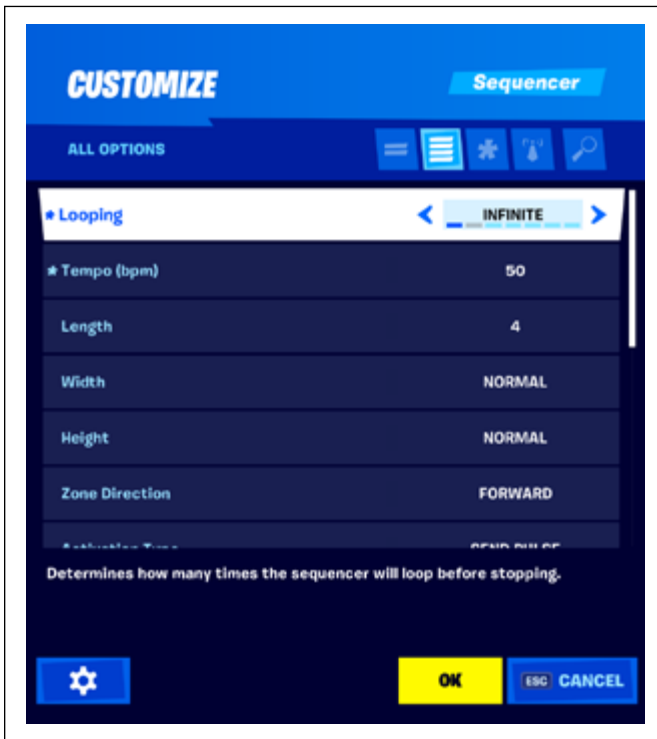
Designate one button to be the **ON** button. This will be programmed to send a signal on Channel 1 to activate the Sequencer. The other button will be the OFF button, and will send a signal on Channel 2, which will stop and reset the Sequencer.

Set Button 1 [On] to transmit on Channel 1.

Set Button 2 [Off] to transmit on Channel 2.



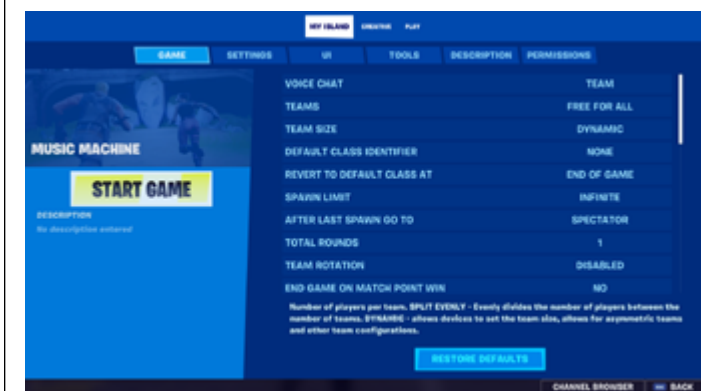
To make this exercise easier, change the Sequencer **Looping** value to Infinite so it will play continuously when you push **ON**, and will stop when you press **OFF**.



To start the game, From there you:

Enter the **Creative Inventory** screen and select the **Start Game** button from the **My Island** tab.

Or, you can press the **ESC** key and select the **Start Game** button.





Notice how the Sequencer zone outline is not shown. Try to toggle the Sequencer On and Off with the buttons.

Congratulations!

You have made a Music Machine in Fortnite Creative, and you've learned how to create and control loops in the game. Loops are an important part of programming, and now you are equipped with the experience to put loops to work for you in your own creations.

ACTIVITY:

Now you understand how music, sequencers, and loops work in Fortnite Creative. Integrate the idea in your game world. Here are a few ideas/challenges:

- Create your own musical composition, or play a song of your choice in your game world.
- Create a more complex song—If you are inspired by the musical creation, try to challenge yourself to create a more complex song.
- Explore more controls—If you like to fidget with the controls, go explore the Devices in Fortnite Creative and try to invent a new way to control your Music Machine.
- Did you know that the Sequencer can activate many different devices? Try creating a sequence that only performs a series of actions without playing a single note of music.

SAMPLE MUSIC RESOURCES

When the Saints Go Marching In

Sheet music for 'When the Saints Go Marching In' in G major, 4/4 time. The music is presented in two staves. The first staff contains measures 1 through 8, and the second staff contains measures 9 through 16. Chord names are written below the notes for each measure.

Staff 1 (Measures 1-8):
 Measure 1: G B C D
 Measure 2: G B C D
 Measure 3: G B C D B
 Measure 4: G B A
 Measure 5: A B A
 Measure 6: (empty)
 Measure 7: (empty)
 Measure 8: (empty)

Staff 2 (Measures 9-16):
 Measure 9: G G B D D D C
 Measure 10: B C D B
 Measure 11: G A G
 Measure 12: (empty)
 Measure 13: (empty)
 Measure 14: (empty)
 Measure 15: (empty)
 Measure 16: (empty)

Ode to Joy - Beethoven

Sheet music for 'Ode to Joy' by Beethoven in G major, 4/4 time. The music is presented in four staves, each starting with a measure number (1, 5, 9, 13). Chord names are written below the notes for each measure.

Staff 1 (Measures 1-4):
 Measure 1: B B C D
 Measure 2: D C B A
 Measure 3: G G A B
 Measure 4: B A A

Staff 2 (Measures 5-8):
 Measure 5: B B C D
 Measure 6: D C B A
 Measure 7: G G A B
 Measure 8: A G G

Staff 3 (Measures 9-12):
 Measure 9: A A B G
 Measure 10: A B C B
 Measure 11: G A B C
 Measure 12: B A G A D

Staff 4 (Measures 13-16):
 Measure 13: B B C D
 Measure 14: D C B A
 Measure 15: G G A B
 Measure 16: A G G

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