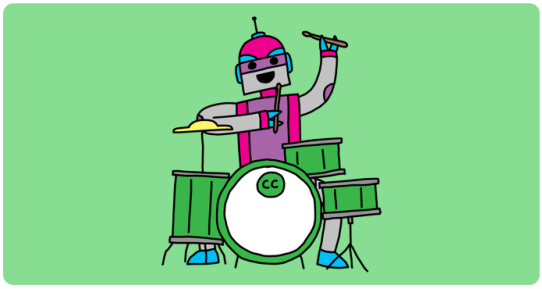
Projects

Drum Loop

Learn how to use samples to create your own drum loop.



Step 1 Introduction

In this project you will use samples to create a drum loop, including an intro and outro.

Click the play button below to hear how your drum loop will sound:

0:00 / 0:12

Additional information for club leaders

If you need to print this project, please use the Printer friendly version (https://projects.raspberrypi.org/en/projects/drum-loop/print).

Club leader notes

Introduction:

In this project, children will learn how to use samples and repetition to create a drum loop.

Resources

The 'Project Materials' link for this project contains the following resources:

Club leader Resources

You can find a completed version of this project by clicking the 'Project Materials' link for this project, which contains:

- drum-loop.txt
- drum-loop.mp3

Learning Objectives

- Sonic Pi samples
- Repetition

This project covers elements from the following strands of the Raspberry Pi Digital Making Curriculum (http://rpf.io/curriculum):

- Combine programming constructs to solve a problem. (https://www.raspberrypi.org/curriculum/programming/builder)

Challenges

- "Create your own drum loop" - using additional samples to create a personalised drum loop.

Frequently Asked Questions

- To find samples available in Sonic Pi, learners can go to jumpto.cc/sonic-pi-samples (http://jumpto.cc/sonic-pi-samples). Alternatively, they can just type `sample [space]` and choose from the list that appears.

Project materials

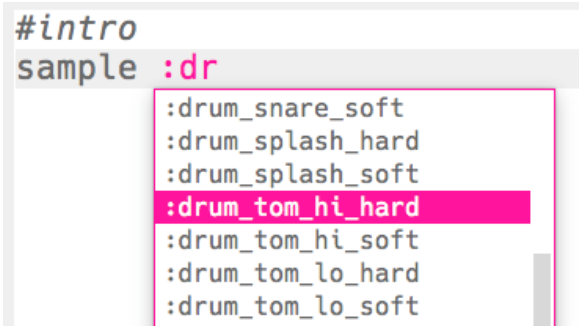
Club leader resources

- Downloadable completed Sonic Pi project (https://projects-static.raspberrypi.org/projects/drum-loop/e762c1ba30553d2d2f8663a36d05aee2efbb4cef/en/resources/drum-loop.txt)
- Downloadable completed project mp3 file (https://projects-static.raspberrypi.org/projects/drum-loop/e762c1ba30553d2d2f8663a36d05aee2efbb4cef/en/resources/drum-loop.mp3)

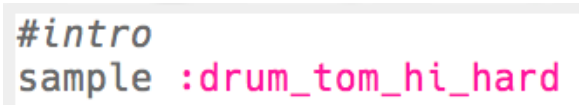
Step 2 The intro

Let's start by creating a short intro to the drum loop.

- Start by adding the `:drum_tom_hi_hard` sample. If you start typing, you should be able to choose the sample from the list that appears.



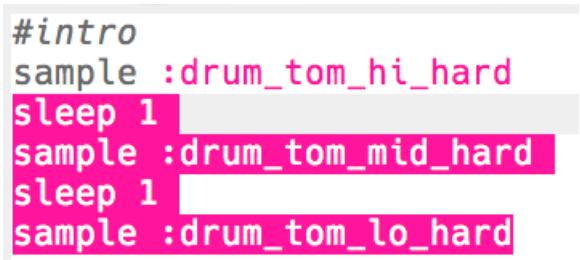
- Here's how your code should look:



  The line above the sample starting with `#` is a **comment**. These lines are ignored by Sonic Pi, but are useful for when we want to remind ourselves what our code does!

- Press run, and you should hear your drum sample.

- Add 2 more drum samples, so that they go from high to low. You'll also need to `sleep` for 1 beat between each sample.



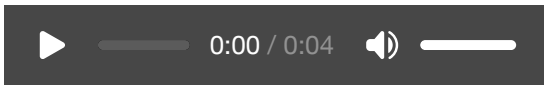
- If you run your intro again, you'll hear that it's quite slow. You can add code to change the beats per minute (**bpm** – the speed) of the music.

```
use_bpm 120

#intro
sample :drum_tom_hi_hard
sleep 1
sample :drum_tom_mid_hard
sleep 1
sample :drum_tom_lo_hard
```

- Finally, add a `sleep` and a `:drum_splash_hard` sample at the end of the intro.

```
use_bpm 120

#intro
sample :drum_tom_hi_hard
sleep 1
sample :drum_tom_mid_hard
sleep 1
sample :drum_tom_lo_hard
sleep 1
sample :drum_splash_hard
```

- Test your intro again. You should now hear 3 drums, followed by a cymbal.



Step 3 The drum loop

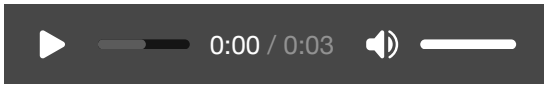
Now that you have an intro, let's code the main drum loop!

- The drum loop will be made up of 4 samples, alternating the bass (the lower drum sound) and snare (the higher drum sound).

  Add this code **after your intro**:

```
sample :drum_tom_lo_hard
sleep 1
sample :drum_splash_hard

#drum loop
sample :drum_bass_hard
sleep 1
sample :drum_snare_hard
sleep 1
sample :drum_bass_hard
sleep 1
sample :drum_snare_hard
```

- Test your drum loop. You should hear 4 drum beats after your intro.



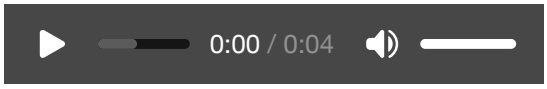
- You can repeat your drum loop by adding `4.times do` before your drums and `end` at the end.

```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
end
```

- Play your drums again, and you'll notice that they don't quite sound right. That's because you need to add a `sleep` after the final drum in the loop.

```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
end
```

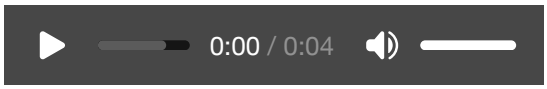
- Test your code again. This time you should hear your 4 drum beats repeat 4 times.



- To make your drum loop a little more interesting, you can play the second bass drum **twice**, for just **0.5** beats each.

```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_snare_hard
  sleep 1
end
```

- Test your code again. You should hear a different rhythm.



Step 4 The outro

Let's add an ending to the drum loop.

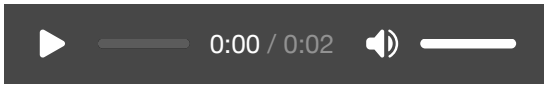
- Add the `:drum_cymbal_open` sample at the end of your code, **outside** of the loop.

```
  sample :drum_snare_hard
  sleep 1
end

#outro
sample :drum_cymbal_open
```

- Press run to test your code. It doesn't sound very interesting, so let's also add a `:drum_snare_hard` sample.

```
#outro
sample :drum_cymbal_open
sample :drum_snare_hard
```

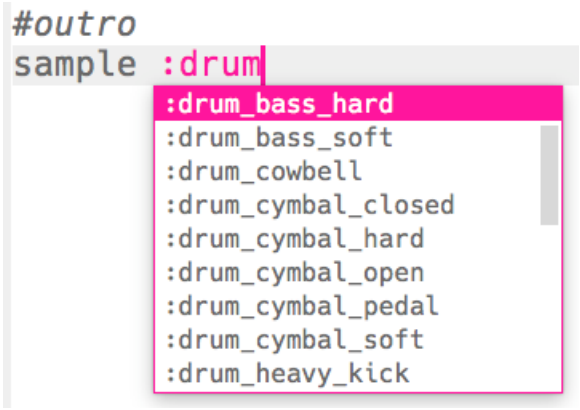
- Test your code. Notice that there's no `sleep` between the 2 outro samples, so they'll play at the **same time**.



Step 5 Challenge: Create your own drum loop

Can you use what you've learnt to create your own drum loop? Here are some ideas to help you:

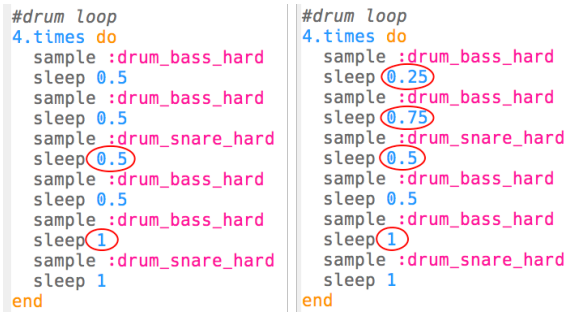
- You could change the drum samples used in your intro or outro. To see what samples are available, you can go to jumpto.cc/sonic-pi-samples (http://jumpto.cc/sonic-pi-samples), or just type `sample :drum` and choose from the list that appears.



- You could experiment by adding more drums to your drum loop, that play for a shorter time:

```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_snare_hard
  sleep 1
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_snare_hard
  sleep 1
end
```

- You could also play around with the `sleep`s between drums. Here are some examples you can try:



```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_snare_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
end
```

```
#drum loop
4.times do
  sample :drum_bass_hard
  sleep 0.25
  sample :drum_bass_hard
  sleep 0.75
  sample :drum_snare_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 0.5
  sample :drum_bass_hard
  sleep 1
  sample :drum_snare_hard
  sleep 1
end
```