

# ACTIVITY PACK



## MUSICAL SPLATS

A CRASH COURSE - - - - -  
IN MAKING UNRULY MUSIC VIRTUALLY



Code your own music and help out a friend, Crash.

Who is Crash? He is the Unruliest Gorilla we know, and he is going BANANAS at home. Send help... send music!

Crash loves to dance, so teachers around the world are sending their students' programs to Crash. Send your projects to your teacher (instructions inside), and you may **see Crash dancing to your creations!**





# MUSICAL SPLATS

## UNRULY MUSIC AND RHYTHM

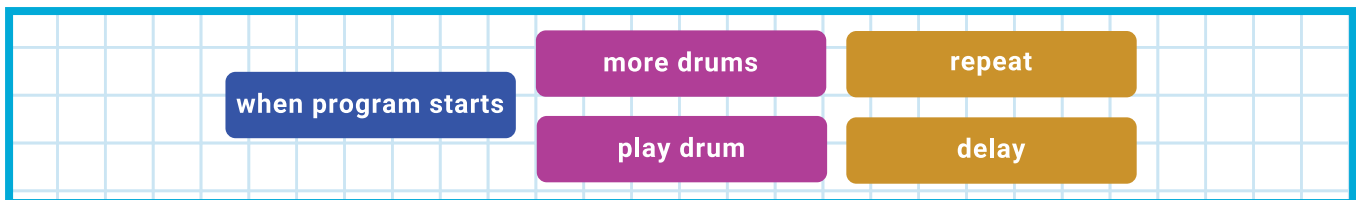
This activity comes with a video. Watch [Musical Splats!](#)

*To be sure Crash can hear your creation, make sure to send your completed project to your teacher!*

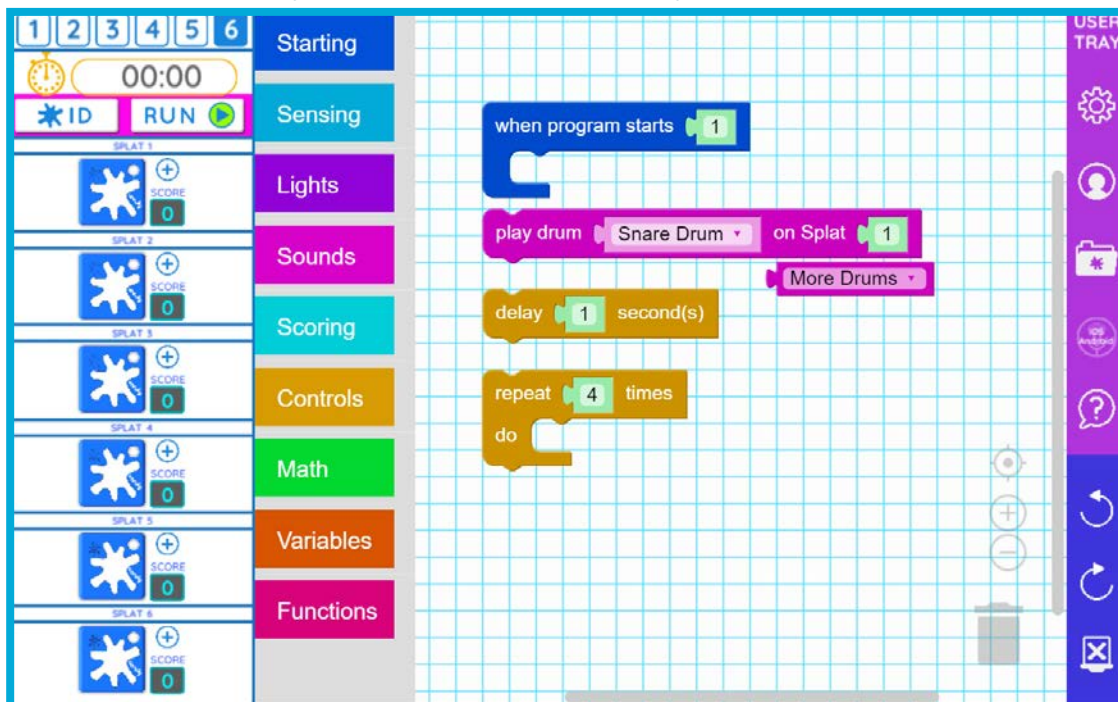
Trouble sharing projects? Read Splatting Without Splats for [Chrome](#) or [iPad](#)

## Activity 1: (Virtual) Splats Drum Machine

Blocks you will use during this activity:

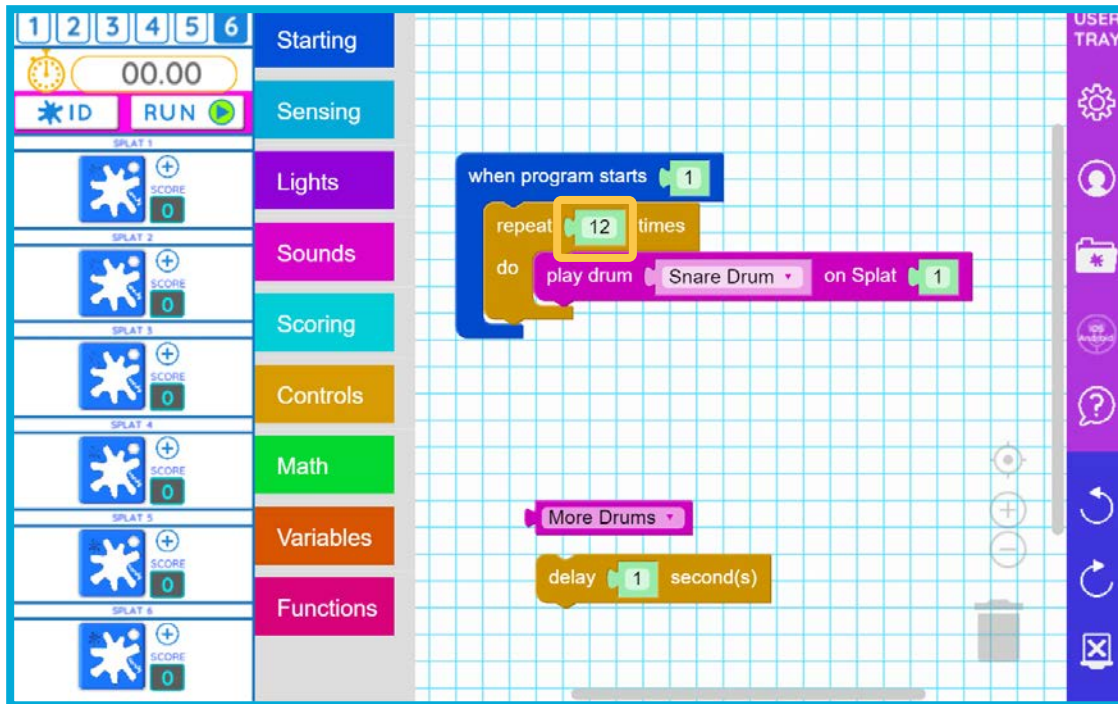


1. Drag your **blocks** out on to your coding area.

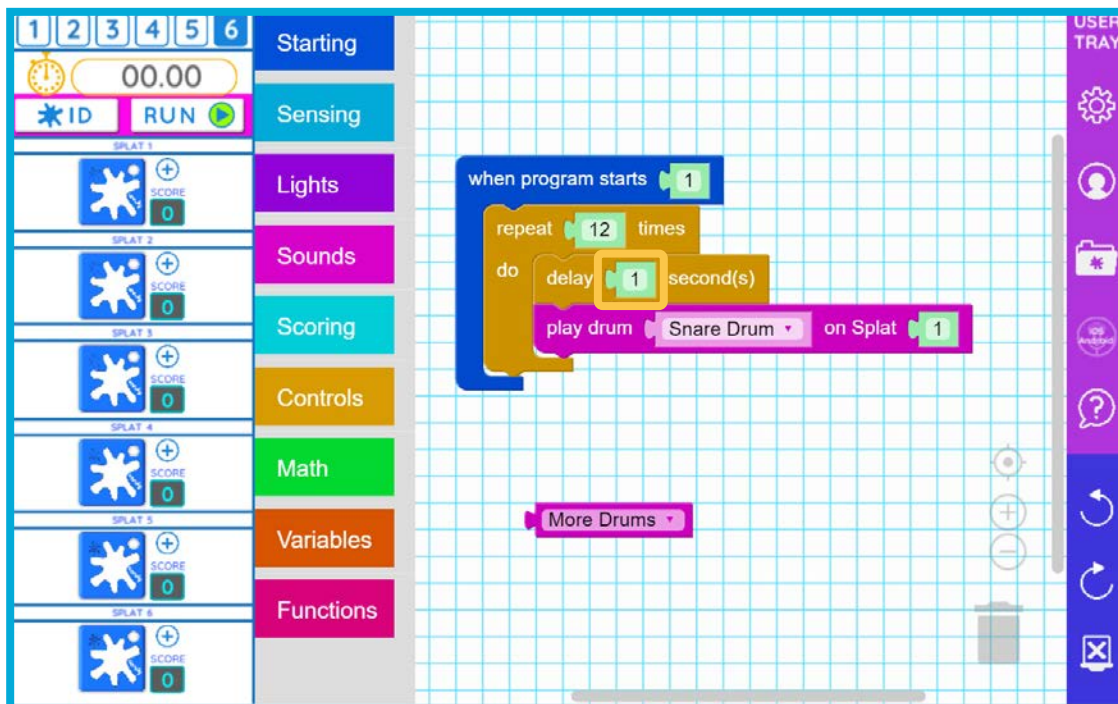




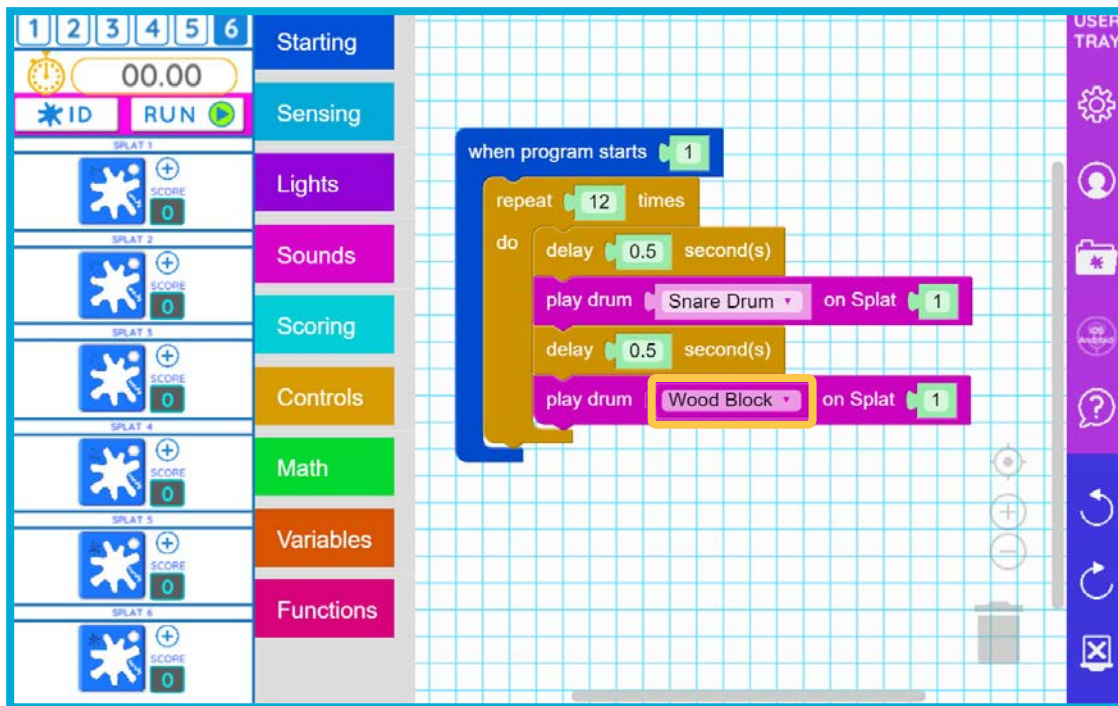
2. Snap together the **when program starts**, **repeat**, and **play drum** blocks. Press run. Change the number field in the **repeat** block and press run again. How does that change your program?



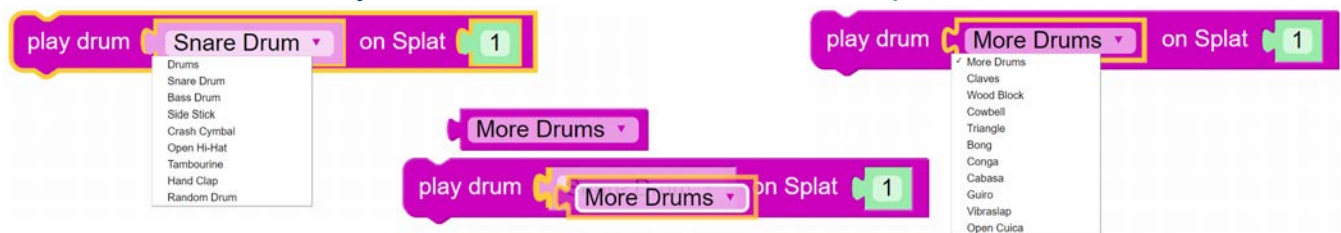
3. Add the **delay** block before your **play drum** block. Press run again. Change the number field in your **delay** block and see how that changes your program. Hint: you can make the number less than 1. Try 0.5 or 0.3!



4. Add another **play drum** block, and select a new drum from the drop-down menu. Add another **delay** block and experiment with all of the number fields, testing your program as you go!

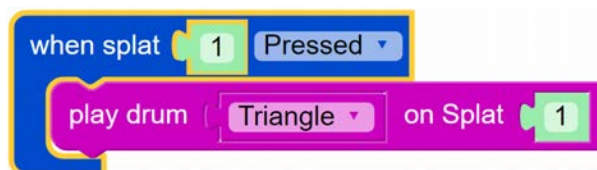


Hint: Try snapping the more drums block into one of your play drums blocks. Try the new sounds from the drop-down!



5. Create your own machine! Add tons **more drums**, **delays**, and **repeats**. Experiment with a **when spat pressed** block, with **play drum** blocks inside.

How could you use this with the drum machine you just built?





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## UNRULY MUSIC AND RHYTHM

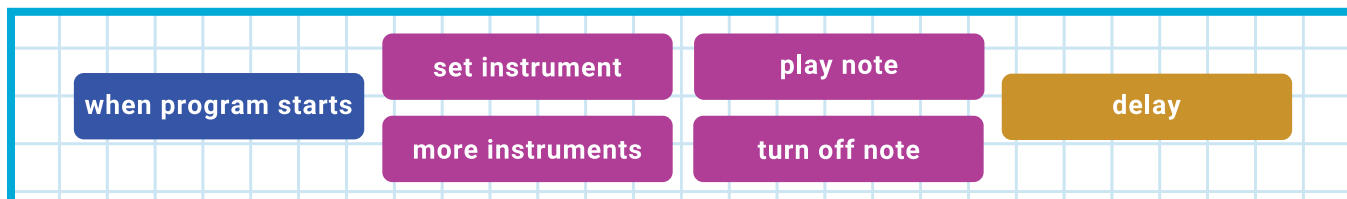
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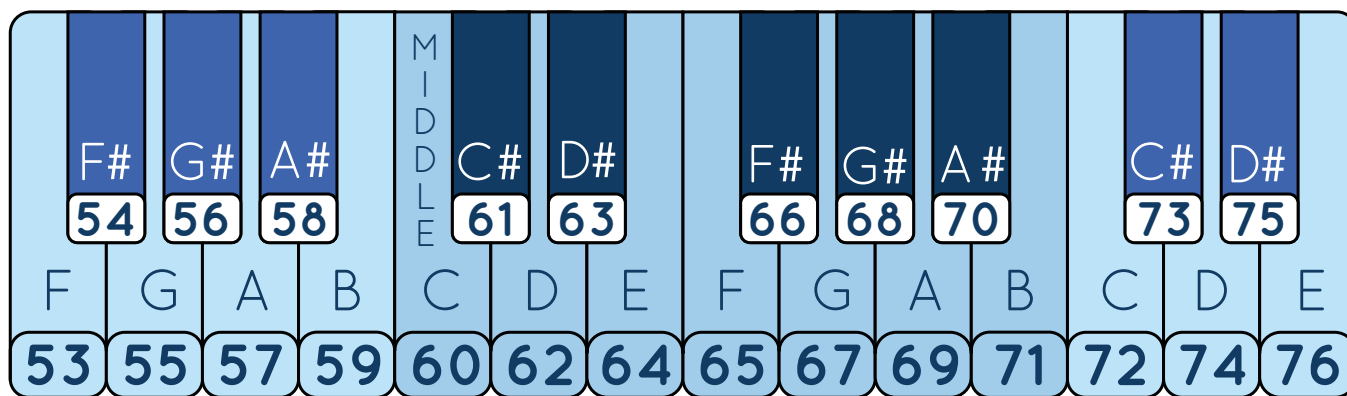
## Activity 2: (Virtual) Splats Boombox

Blocks you will use during this activity:



The Unruly block coding language uses a system called MIDI to make music. Each music note is assigned a number and can be played using a variety of different instrument sounds.

This is what a normal keyboard looks like, translated into MIDI values:



Splat MIDI notes range from the very low (MIDI number 24) up to the very high (MIDI number 108).

The higher the number the higher pitched the note!

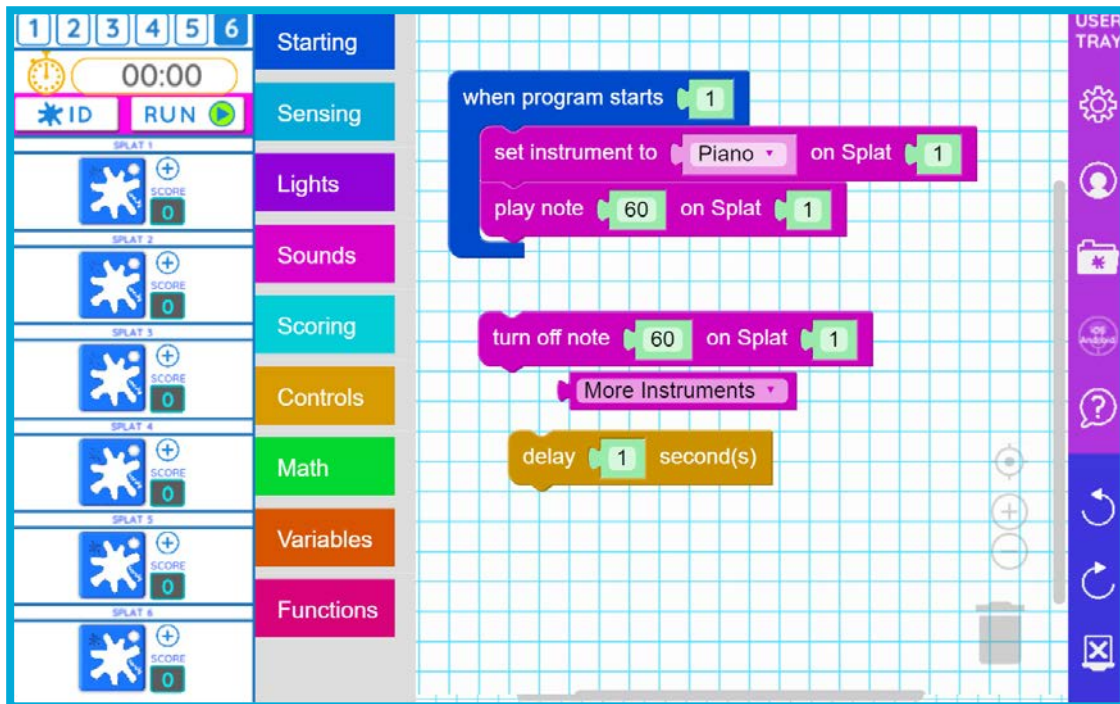
We will start in the middle with MIDI number 60.



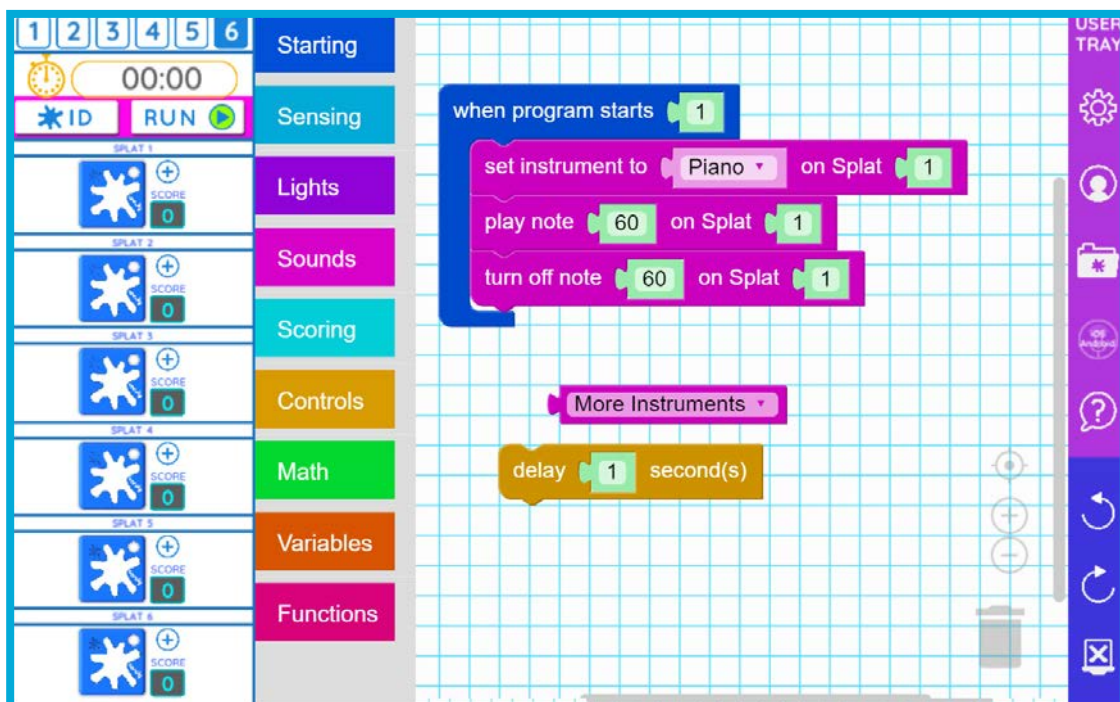


# Playing Music Notes

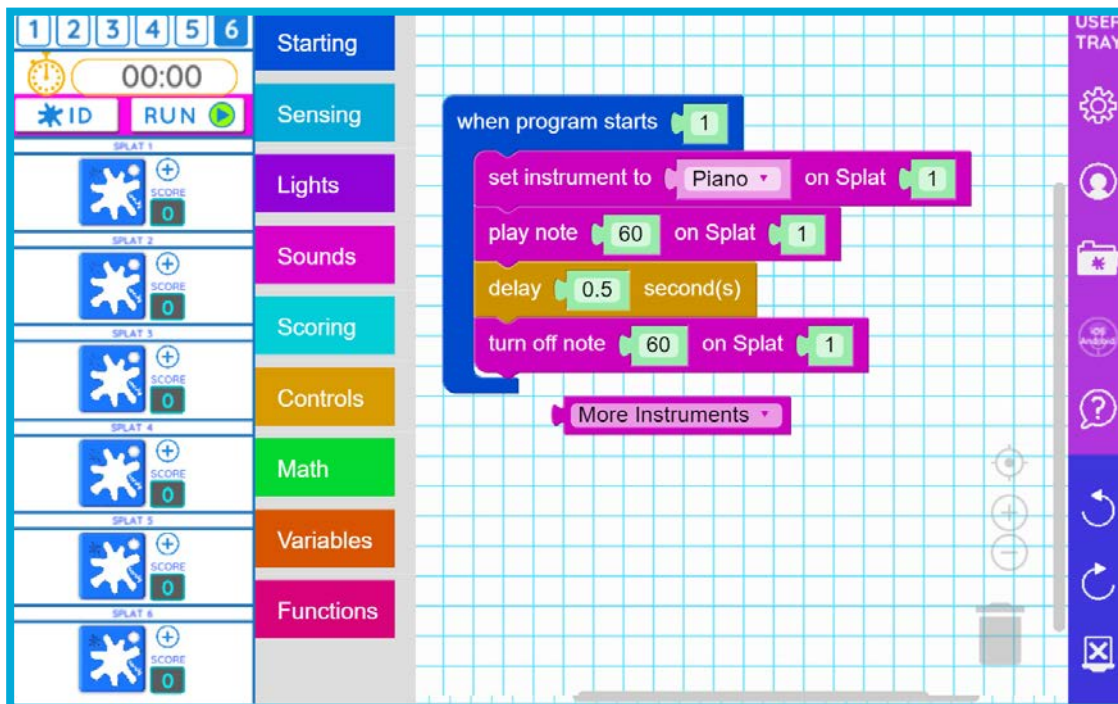
1. Drag out your blocks to the coding area. Snap **set instrument** and **play note** into your **when program starts** block. Press run.



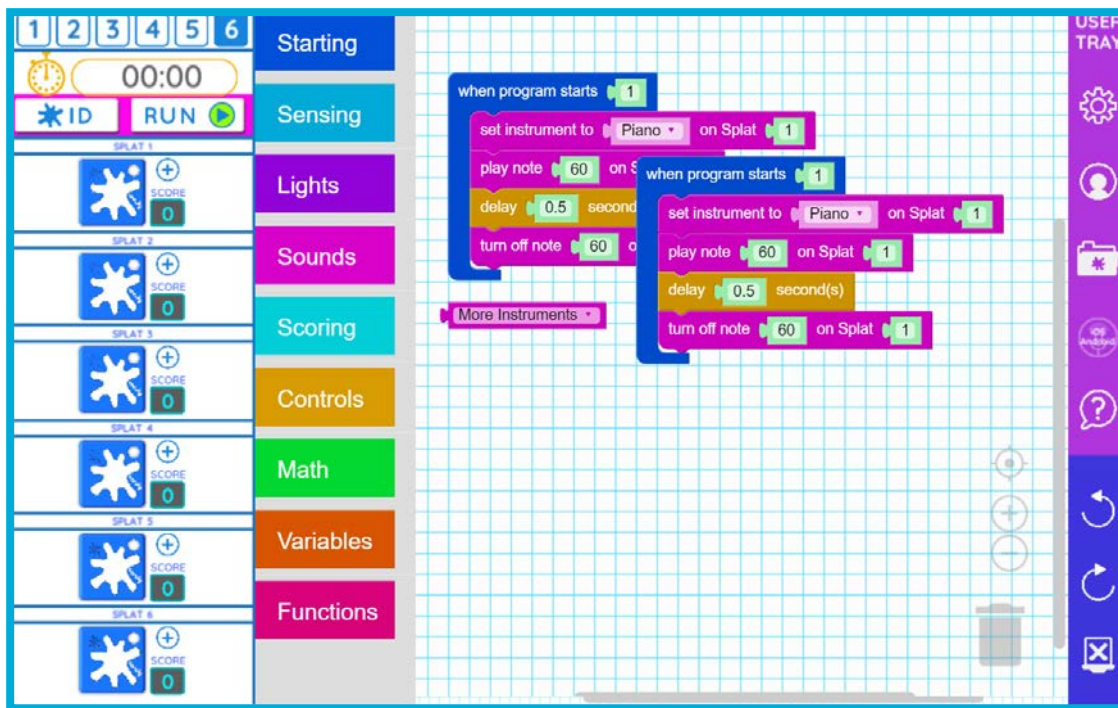
2. How long does your music note play?? We need to turn it off eventually! To do this, add your **turn off note** block after your **play note** block. Press run. What happened this time?



3. Add a **delay** block to tell the computer how long to play your note. Change the **delay** time to a new number and press run. How does that sound?

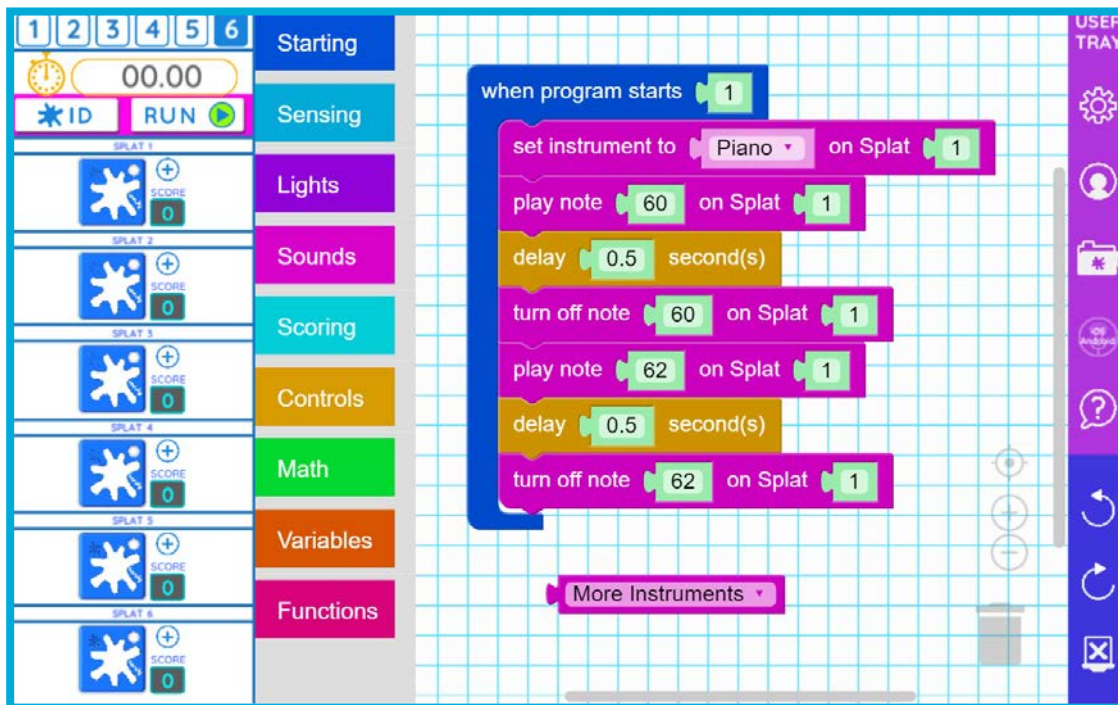


4. To add more notes, we need to repeat what we just did. A trick to this is to duplicate all of our blocks and add them to our program! Right click (or press and hold on a touchscreen) on the when program starts block. Select duplicate from the menu, and your screen should look like this:

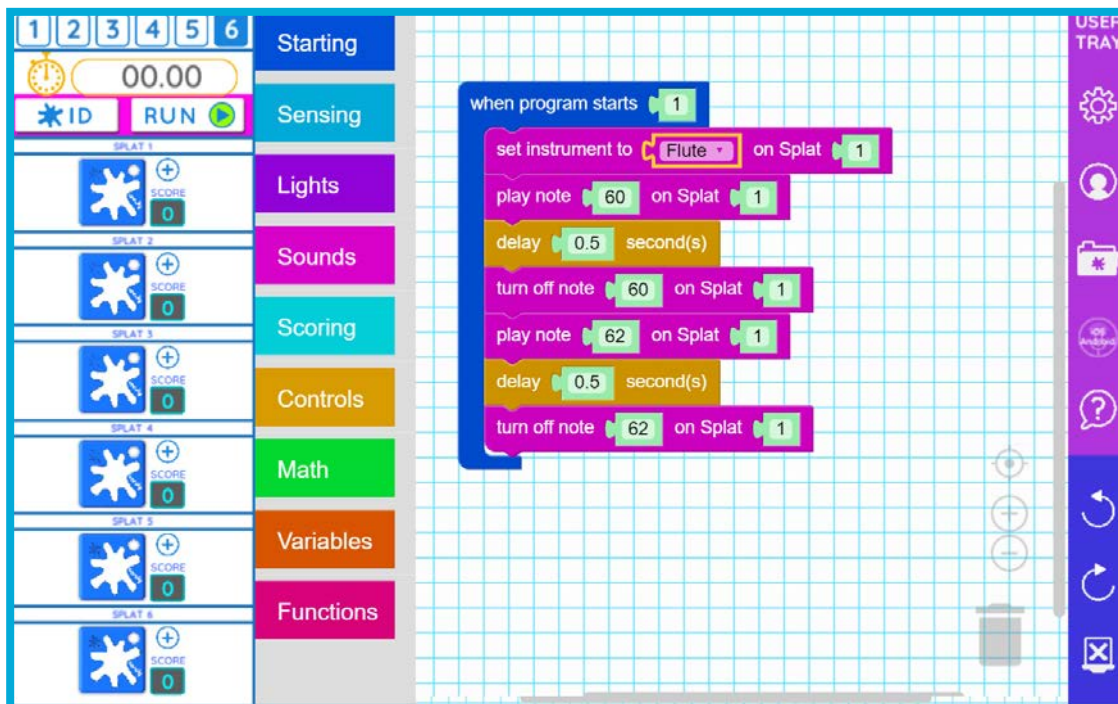




5. Grab and add the blocks you need to your code, choosing a new note to play by entering a different number in the **play note** and **turn off note** blocks. Delete any blocks you don't need anymore!

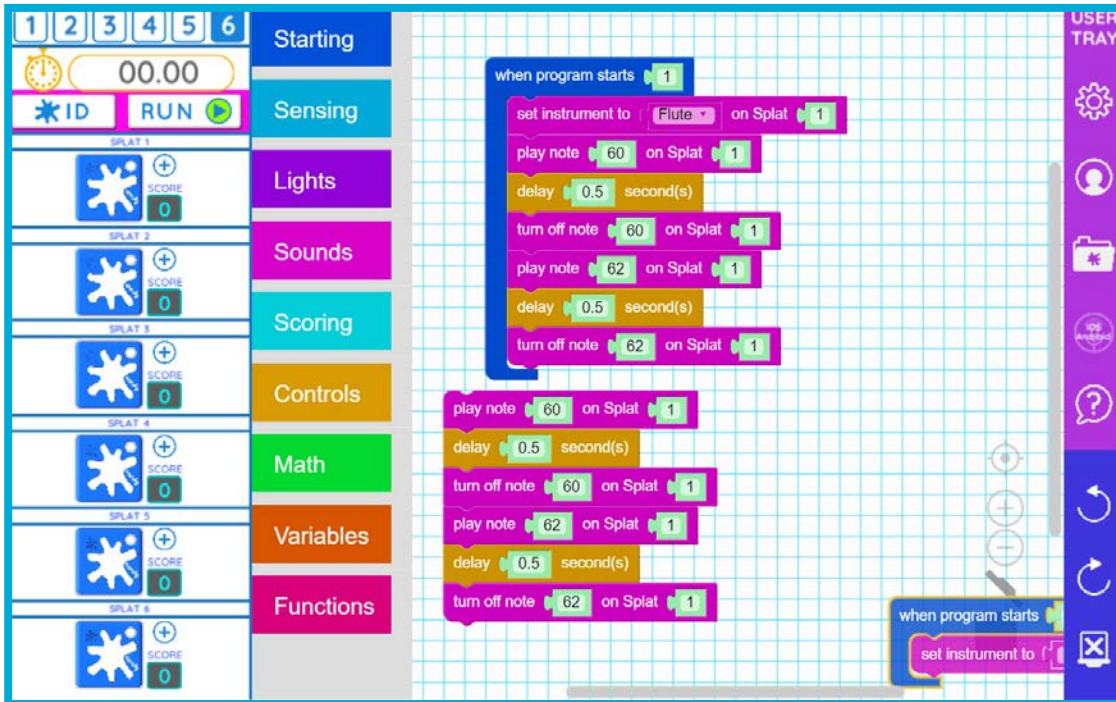


6. Change the instrument to something new by dragging the **more instruments** block onto the **set instrument** to block where it fits!





7. If you would like to add more notes, duplicate and duplicate again!



## Build a song: Twinkle, Twinkle Little Star

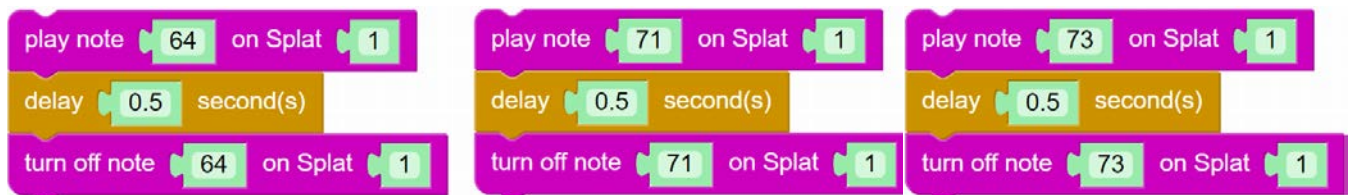
Twinkle, twinkle, little star,

E — E — B — B — C# — C# — B —  
64 71 73 71

Key

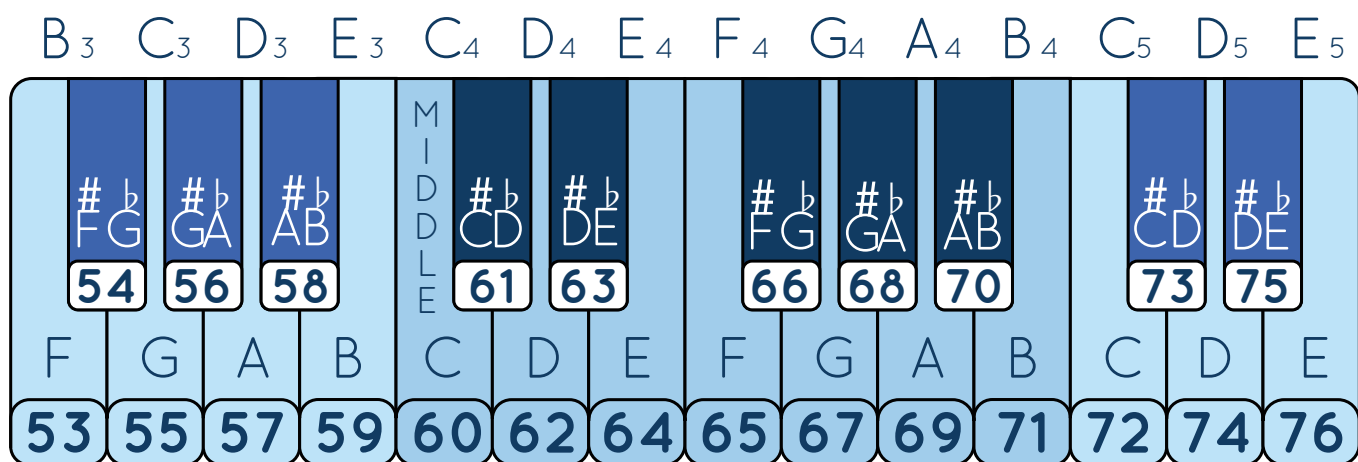
E — Note Names  
64 MIDI Values

With these three groups of blocks copied and repeated in the right number and order, you can create the first line of Twinkle, Twinkle Little Star!



Check out the full song and translating keyboard on the next page if you want to keep building the rest of the song, or start a tune of your own!





Twinkle, twinkle, little star,

E — E — B — B — C# — C# — B —  
64 71 73 71

How I wonder what you are.

A — A — G# — G# — F# — F# — E —  
69 68 66 64

Up above the world so high,

B — B — A — A — G# — G# — F# —  
71 69 68 66

Like a diamond in the sky

B — B — A — A — G# — G# — F# —  
71 69 68 66

Twinkle, twinkle, little star,

E — E — B — B — C# — C# — B —  
64 71 73 71

How I wonder what you are.

A — A — G# — G# — F# — F# — E —  
69 68 66 64

### Key

E — Note Names  
64 MIDI Values







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### Activity 3: (Virtual) Splats DJ

Blocks you will use during this activity:

when splat pressed

set instrument

play note

delay

when program starts

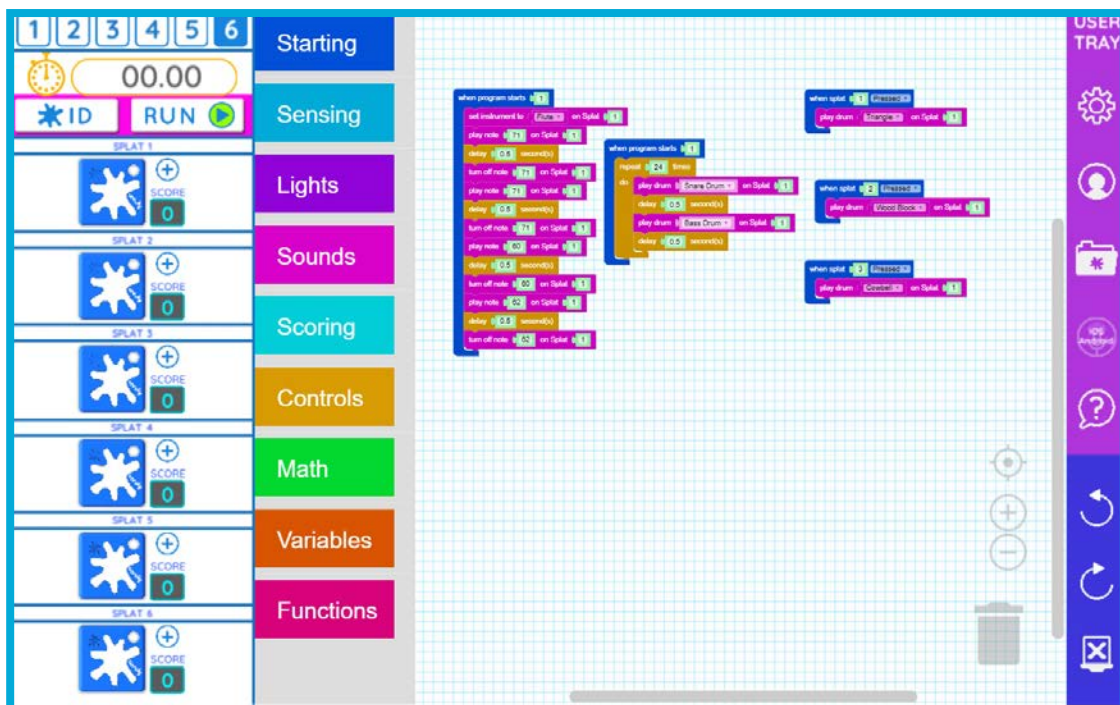
more instruments  
more drums

turn off note

repeat

In this activity, you will combine what you learned in Activity 1 and 2 to become an Unruly DJ! Build a program that plays music + drums **when program start**, and has **sounds** or notes **when splat pressed**.

Be Unruly! Run your program, and play the virtual Splats with your song. Below is a short code example, and on the next page is a guide for translating notes and chords using MIDI.



## MIDI NOTE MUSICAL CONVERSION GUIDE

MIDI values are numbers that represent notes on a regular piano keyboard. For Splats, these notes range from the very low 'C1 (24)' all the way up to the very high 'C8 (108)'.

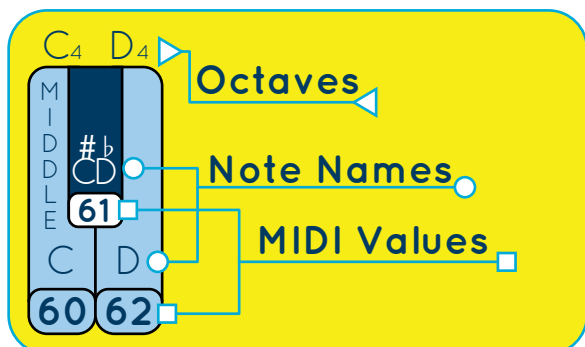
Because there are 12 notes from C to B in each octave, you can go up or down an octave by adding or subtracting 12 from that note's MIDI value.

In the Little Lamb example, the same notes could be played, just an octave higher in pitch, by adding 12 to each of the notes: 64, 62, 60, 62, 64, turns into 76, 74, 72, 74, 76.

These MIDI conversions don't have to be limited to single notes either! You can build and experiment with basic three or five note chords played at the same time.

Some examples are C (60, 64, 67), E (64, 68, 71), and G# (68, 72, 75) or even a C major pentatonic (60, 62, 64, 67, 69).

### KEY



### EXAMPLE: MARY HAD A LITTLE LAMB

