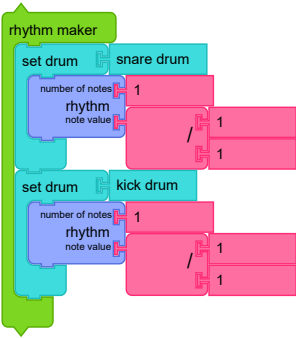


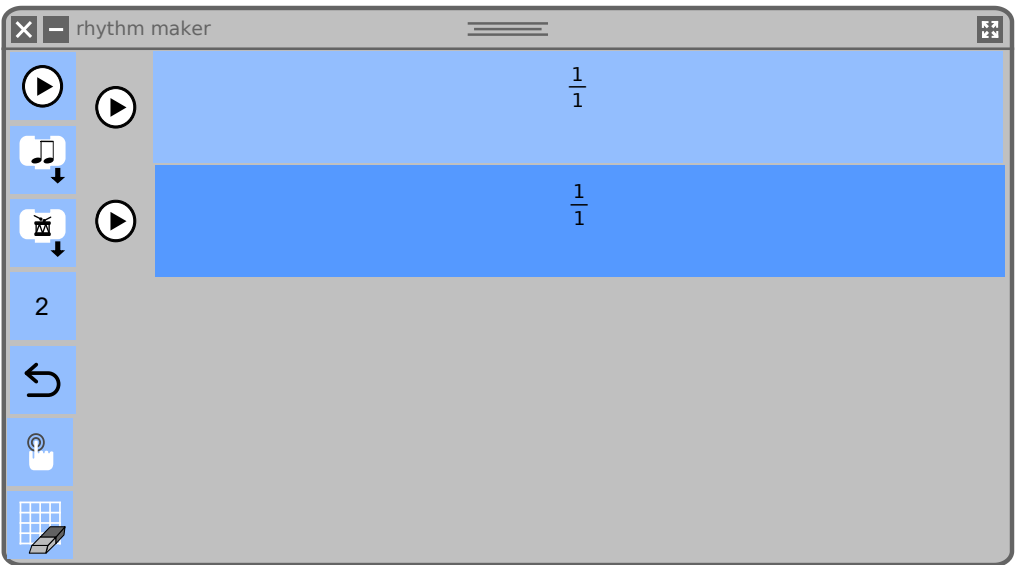
4.3 Generating Rhythms

The *Rhythm Maker* block is used to launch a widget similar to the *Phrase maker* block. The widget can be used to generate rhythmic patterns.

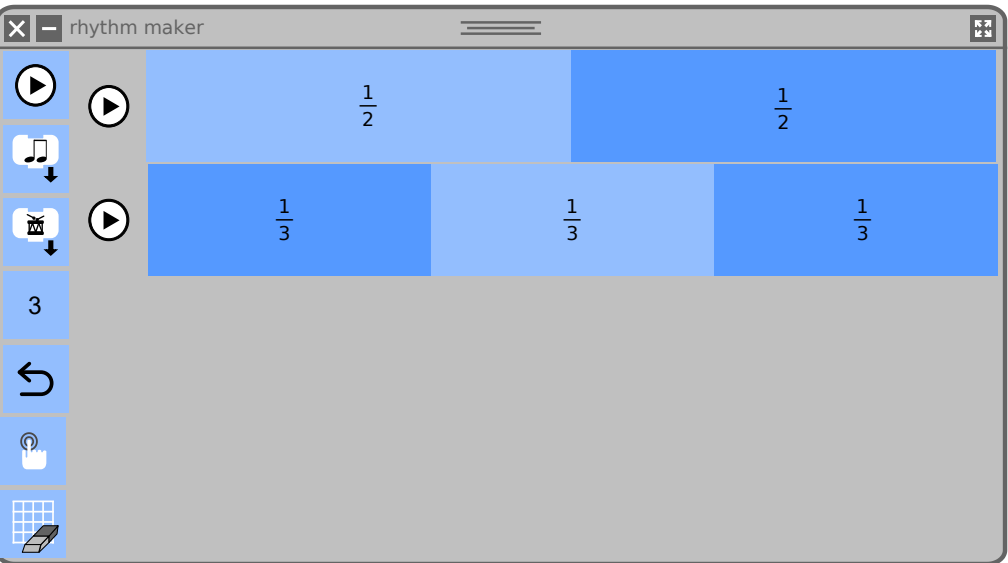


The argument to the *Rhythm Maker* block specifies the duration that will be subdivided to generate a rhythmic pattern. By default, it is 1 / 1, e.g., a whole note.

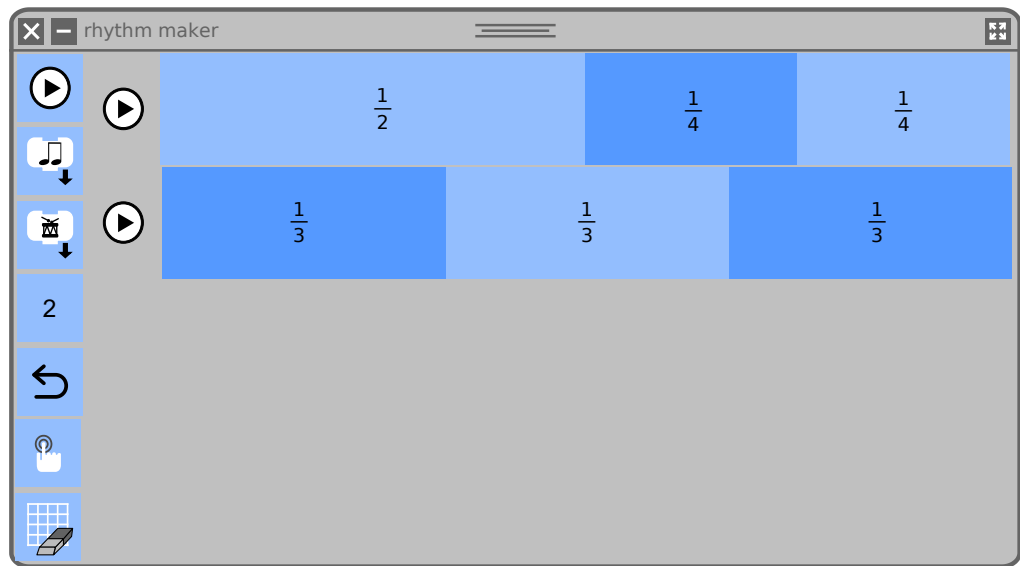
The *Set Drum* blocks contained in the clamp of the *Rhythm Maker* block indicates the number of rhythms to be defined simultaneously. By default, two rhythm "rulers" are defined. The embedded *Rhythm* blocks define the initial subdivision of each rhythm ruler.



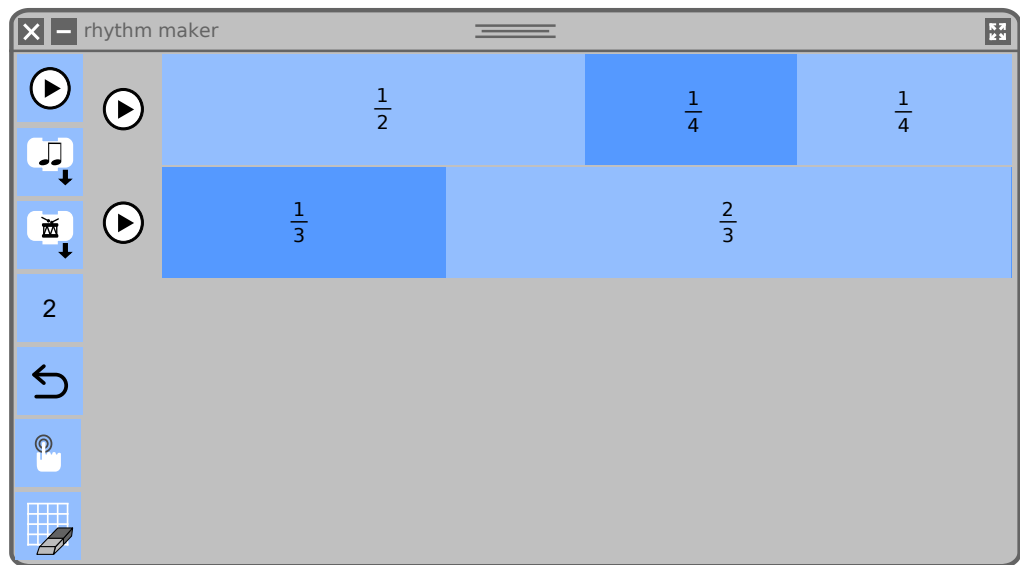
When the *Rhythm Maker* block is clicked, the *Rhythm Maker* widget is opened. It contains a row for each rhythm ruler. An input in the top row of the widget is used to specify how many subdivisions will be created within a cell when it is clicked. By default, 2 subdivisions are created.



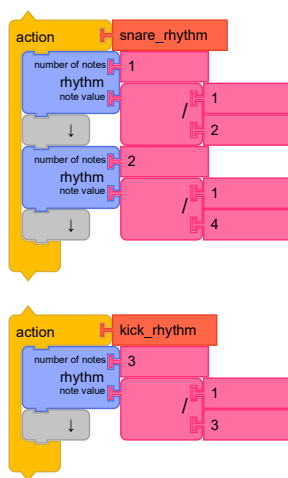
As shown in the above figure, the top rhythm ruler has been divided into two half-notes and the bottom rhythm ruler has been divided into three third-notes. Clicking on the *Play* button to the left of each row will playback the rhythm using a drum for each beat. The *Play-all* button on the upper-left of the widget will play back all rhythms simultaneously.



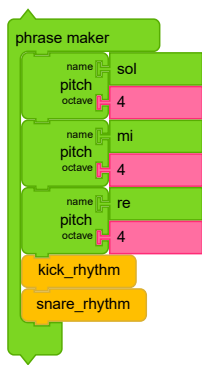
The rhythm can be further subdivided by clicking in individual cells. In the example above, two quarter-notes have been created by clicking on one of the half-notes.



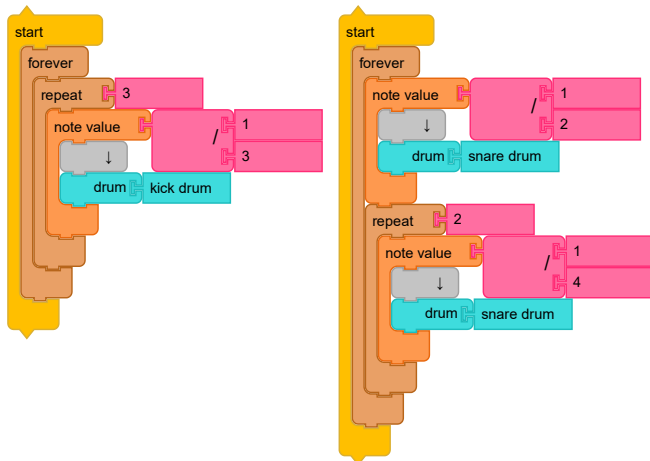
By dragging across multiple cells, they become tied. In the example above, two third-notes have been tied into one two-thirds-note.



The *Save stack* button will export rhythm stacks.



These stacks of rhythms can be used to define rhythmic patterns used with the *Phrase maker* block.



The *Save drum machine* button will export *Start* stacks that will play the rhythms as drum machines.

Another feature of the *Rhythm Maker* widget is the ability to tap out a rhythm. By clicking on the *Tap* button and then clicking on a cell inside one of the rhythm rulers, you will be prompted (by four tones) to begin tapping the mouse button to divide the cell into sub-cells. Once the fourth tone has sounded, a progress bar will run from left to right across the screen. Each click of the mouse will define another beat within the cell. If you don't like your rhythm, use the *Undo* button and try again.