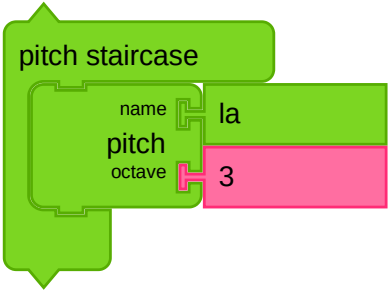


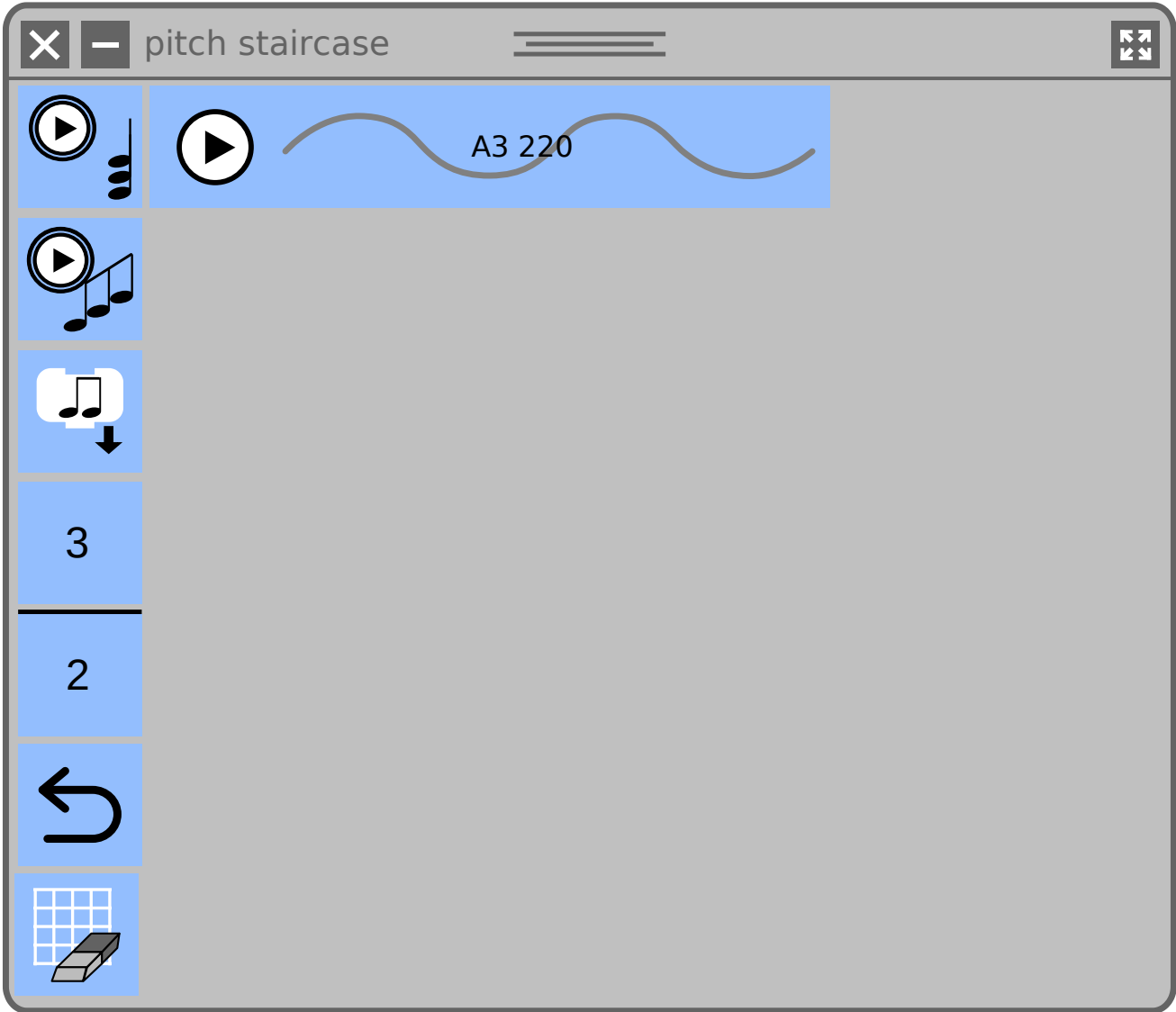
4.7 Exploring Musical Proportions

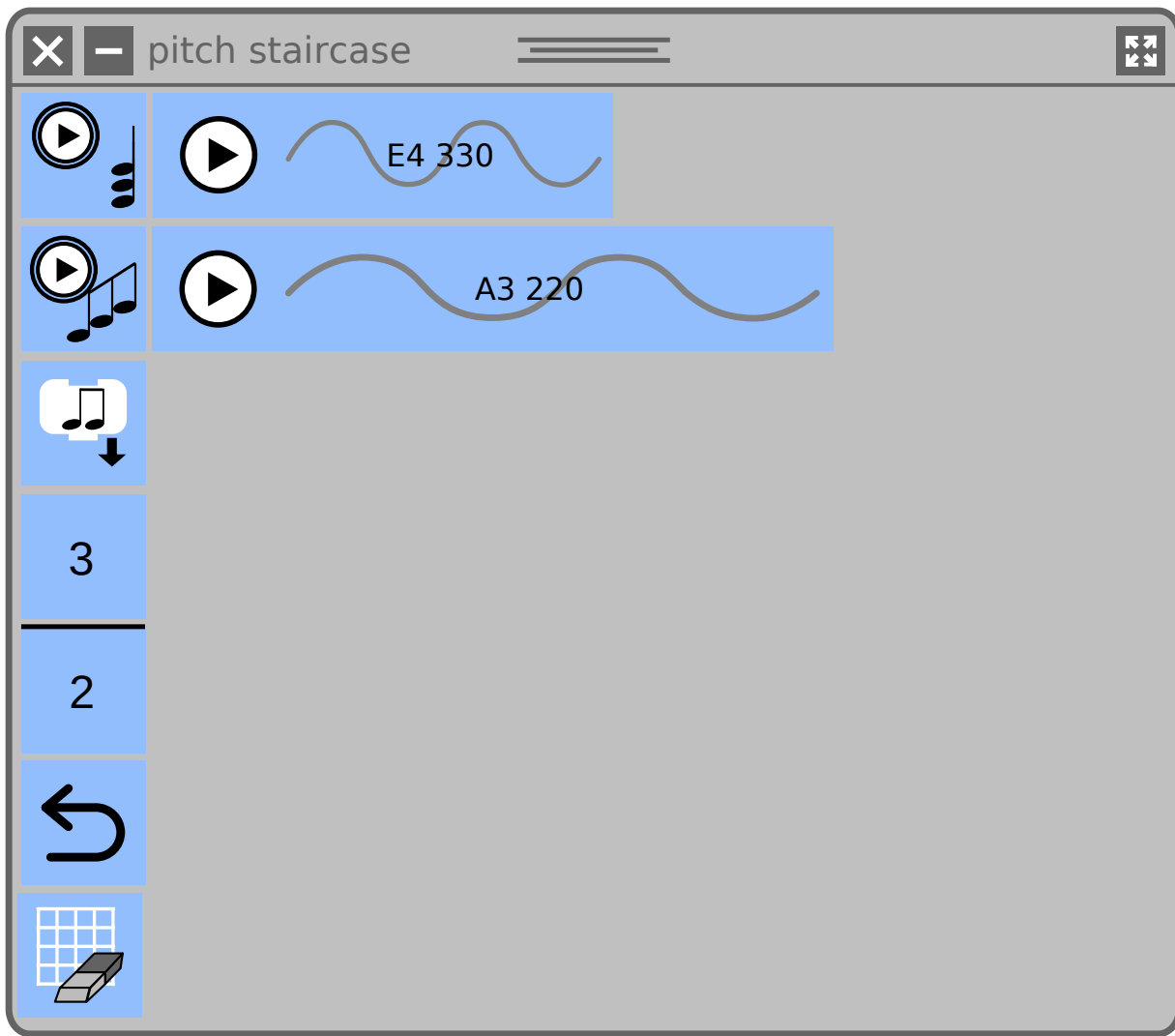
The *Pitch Staircase* block is used to launch a widget similar to the *Phrase maker*, which can be used to generate different pitches using a given pitch and musical proportion.

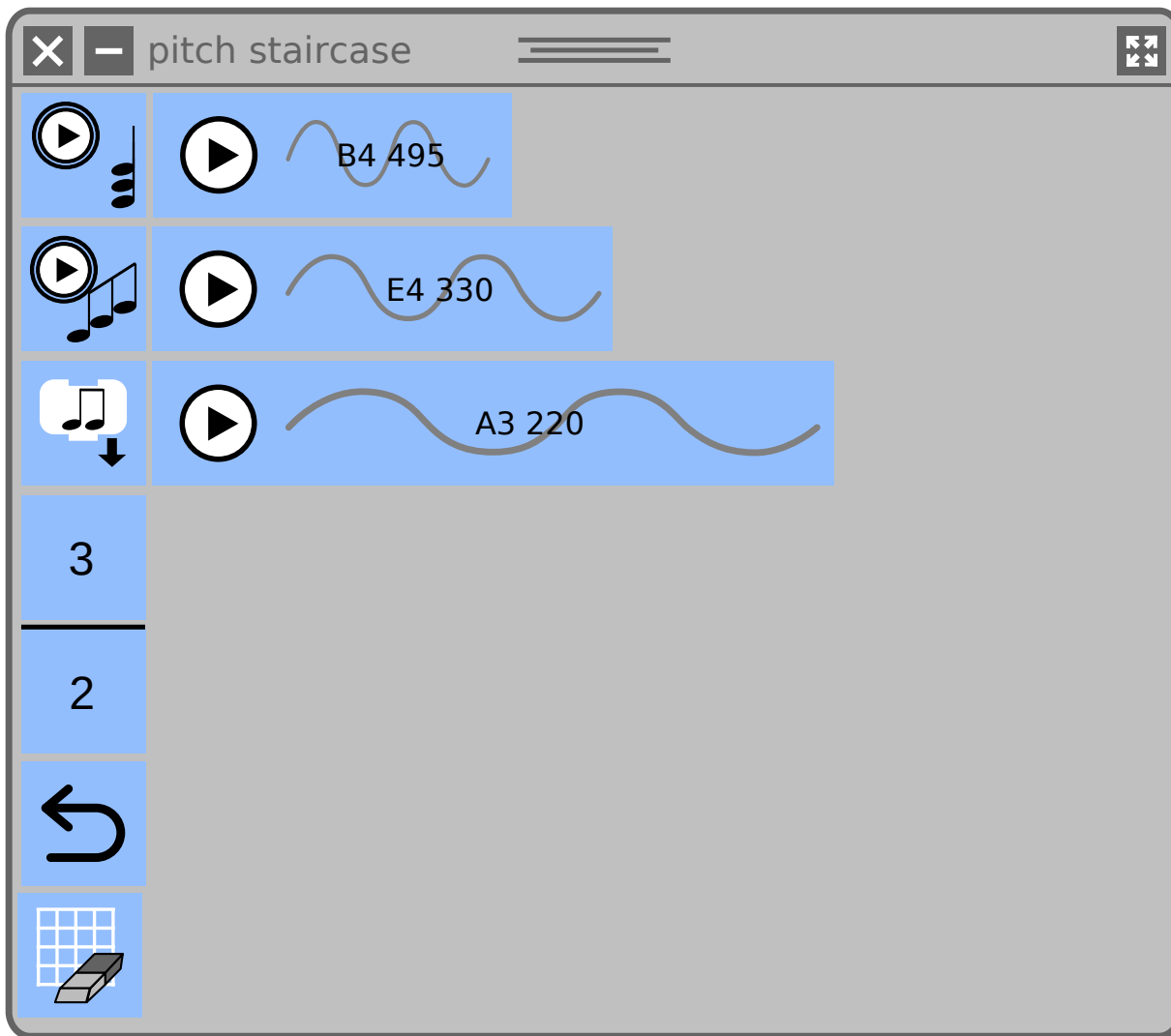
The *Pitch* blocks contained in the clamp of the *Pitch Staircase* block define the pitches to be initialized simultaneously. By default, one pitch is defined and it have default note "la" and octave "3".



When *Pitch Staircase* block is clicked, the *Pitch Staircase* widget is initialized. The widget contains row for every *Pitch* block contained in the clamp of the *Pitch Staircase* block. The input fields in the top row of the widget specify the musical proportions used to create new pitches in the staircase. The inputs correspond to the numerator and denominator in the proportion respectively. By default the proportion is 3:2.

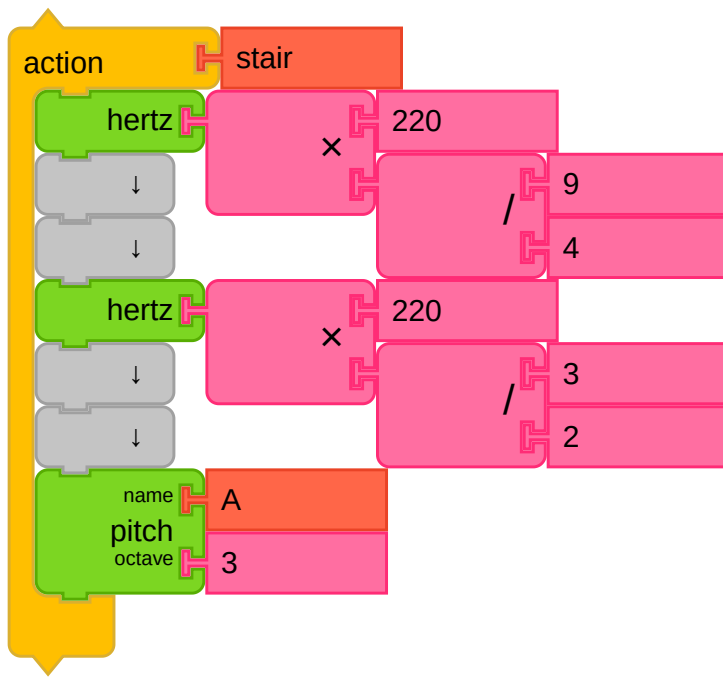




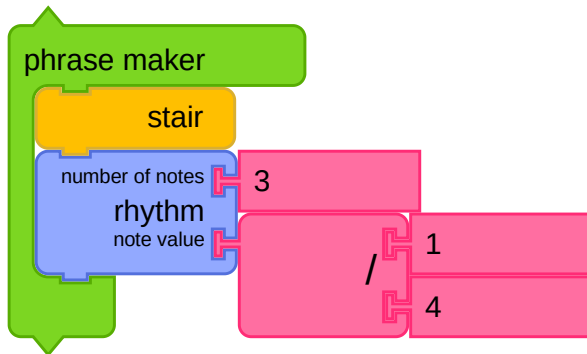


Clicking on the *Play* button to the left of each row will playback the notes associated with that step in the stairs. The *Play-all* button on the upper-left of the widget will play back all the pitch steps simultaneously. A second *Play-all* button to the right of the stair plays in increasing order of frequency first, then in decreasing order of frequency as well, completing a scale.

The *Save stack* button will export pitch stacks. For example, in the above configuration, the output from pressing the *Save stack* button is shown below:



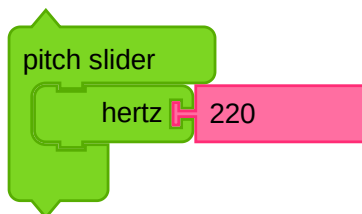
These stacks can be used with the *Phrase maker* block to define the rows in the matrix.

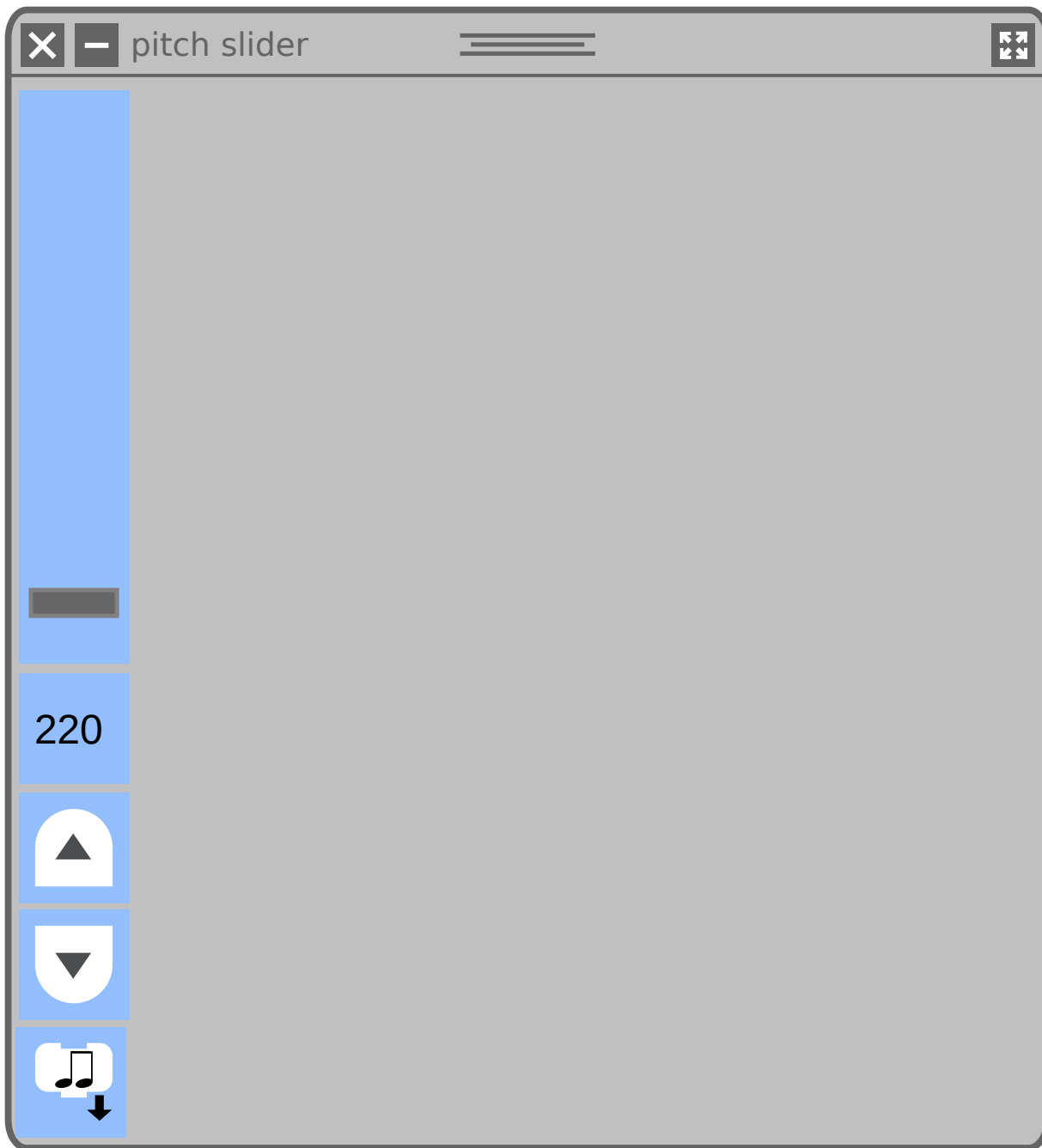


4.8 Generating Arbitrary Pitches

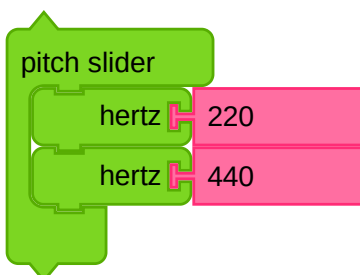
The *Pitch Slider* block is used to launch a widget that is used to generate arbitrary pitches. It differs from the *Pitch Staircase* widget in that it is used to create frequencies that vary continuously within the range of a specified octave.

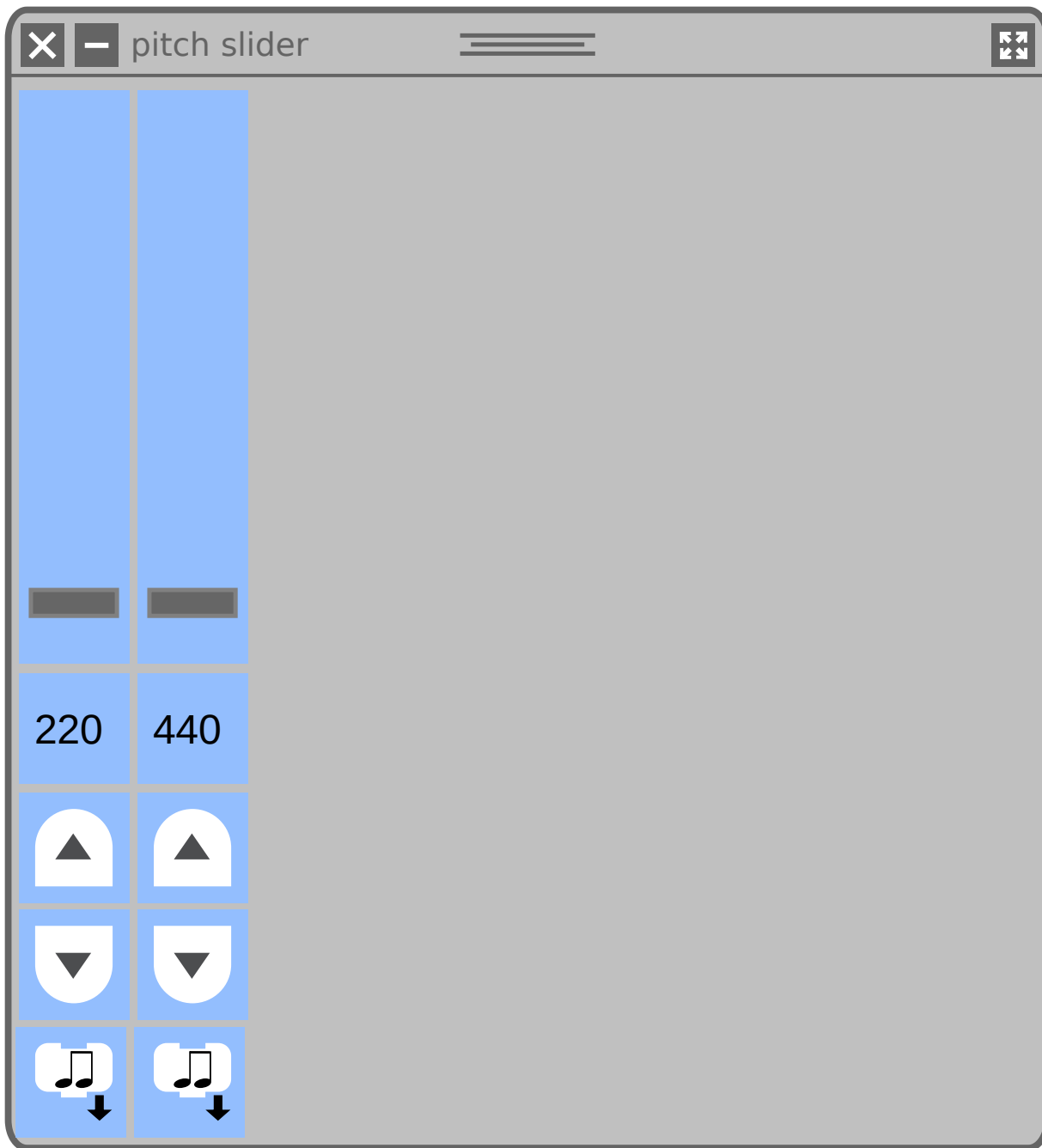
Each *Sine* block contained within the clamp of the *Pitch Slider* block defines the initial pitch for an octave.





When the *Pitch Slider* block is clicked, the *Pitch Slider* widget is initialized. The widget will have one column for each *Sine* block in the clamp. Every column has a slider that can be used to move up or down in frequency, continuously or in intervals of 1/12th of the starting frequency. The mouse is used to move the frequency up and down continuously. Buttons are used for intervals. Arrow keys can also be used to move up and down, or between columns.





Clicking in a column will extract the corresponding *Note* blocks, for example:

