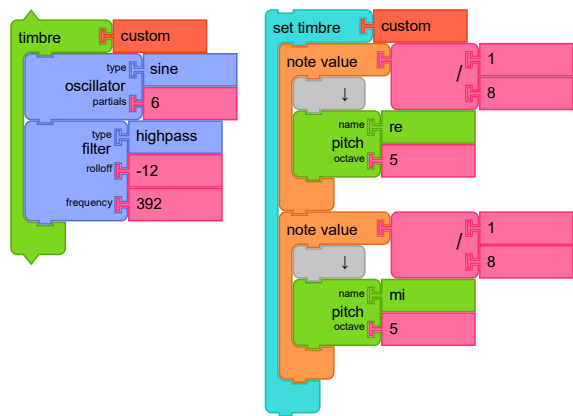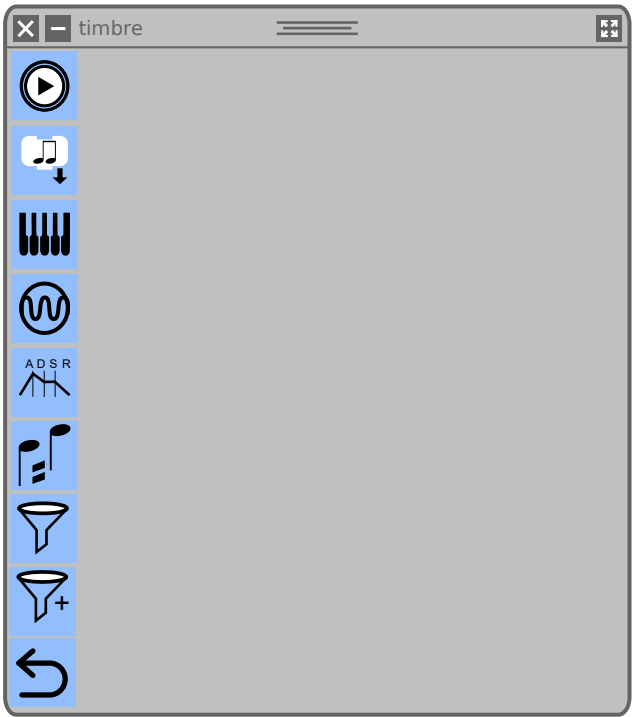## 4.10 Custom Timbres

While Music Blocks comes with many built-in instruments, it is also possible to create custom timbres with unique sound qualities.


The *Timbre* block can be used to launch the *Timbre* widget, which lets you add synthesizers, oscillators, effects, and filters to create a custom timbre, which can be used in your Music Blocks programs.

The name of the custom timbre is defined by the argument passed to the block (by default, `custom`). This name is passed to the *Set timbre* block in order to use your custom timbre.


The *Timbre* widget has a number of different panels, each of which is used to set the parameters of the components that define your custom timbre.

- The *Play* button, which lets you test the sound quality of your custom timbre. By default, it will play `Sol`, `Mi`, `Sol` using the combination of filters you define.
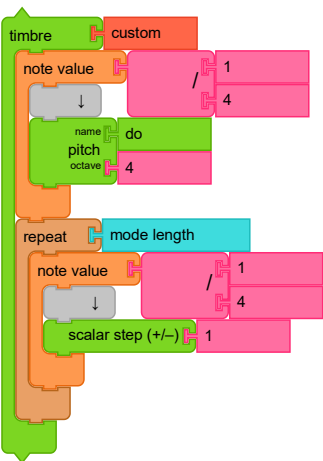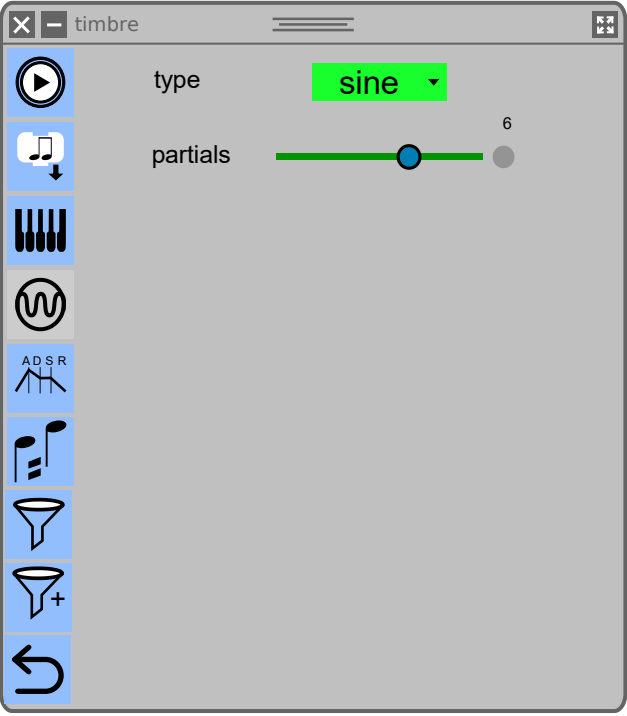
You can also put notes in the *Timbre* block to use for testing your sound. In the example above, a scale will be used for the test.
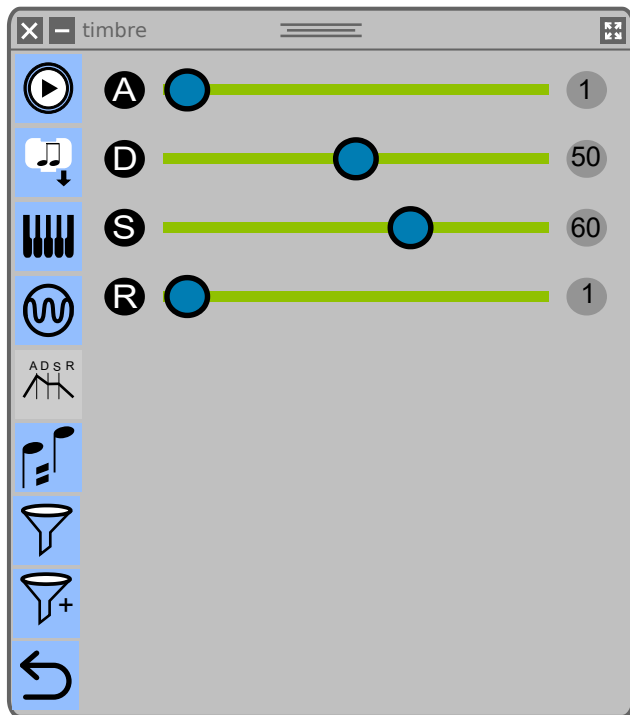
- The *Save* button, which will save your custom timbre for use in your program.
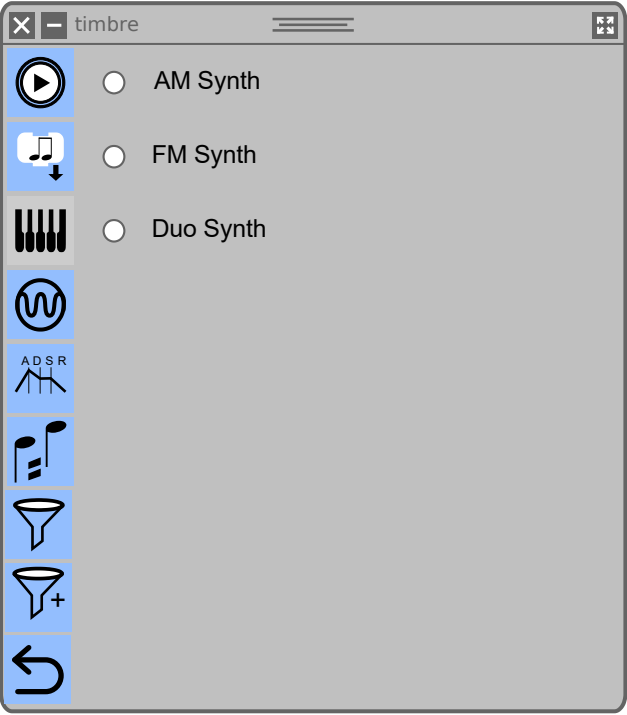
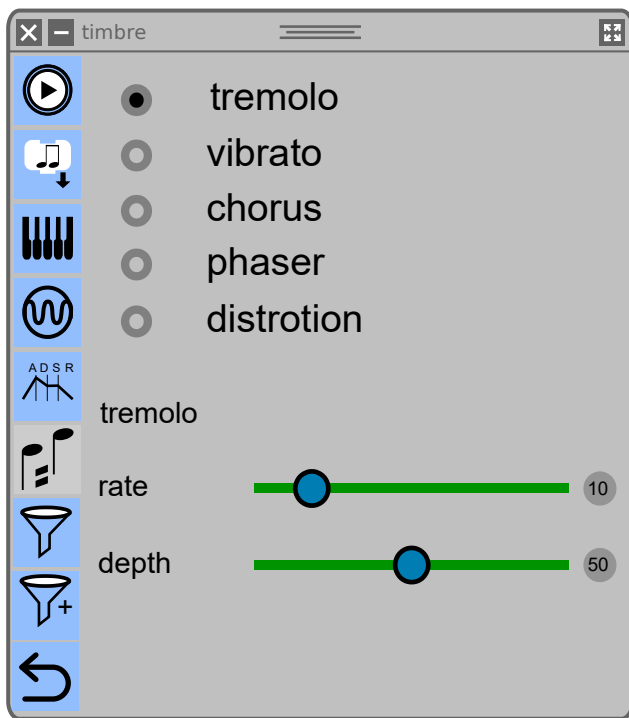- The *Synth* button, which lets you choose between an AM synth, a PM synth, or a Duo synth.

- The *Oscillator* button, which lets you choose between a sine wave, square wave, triangle wave, or sawtooth wave. You can also change the number of partials.
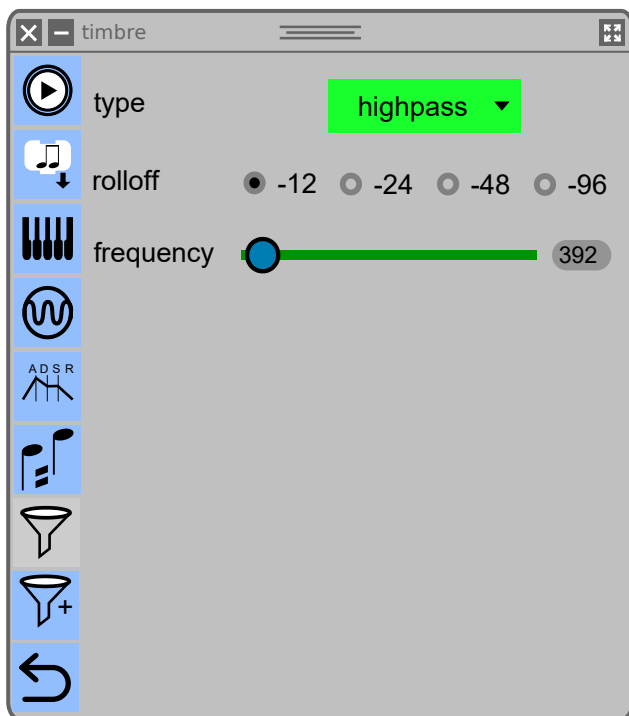
- The *Envelope* button, which lets you change the shape of the sound envelope, with controls for attack, decay, sustain, and release.

tremolo

vibrato

chorus

phaser

distrotion

- The *Effects* button, which lets you add effects to your custom timbre: tremelo, vibrato, chorus, phaser, and distortion. When an effect is selected, additional controls will appear in the widget.


- The *Filter* button, which lets you choose between a number of different filter types.

- The *Add filter* button, which lets you add addition filters to your custom timbre.

- The *Undo* button.

As you add synthesizers, effects, and filters with the widget, blocks corresponding to your choices are added to the *Timbre* block. This lets you reopen the widget to fine-tune your custom timbre.

4.11 The Music Keyboard

The Music Keyboard is used to generate notes by pressing keys of a virtual keyboard.

When there are no *Pitch* blocks inside the widget clamp, a keyboard with all keys between C4 and G5 is created.
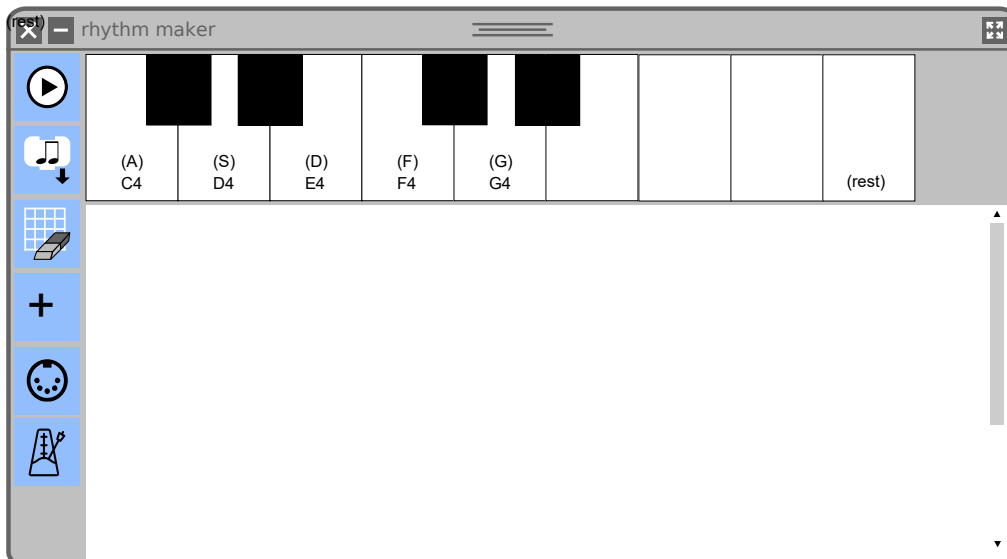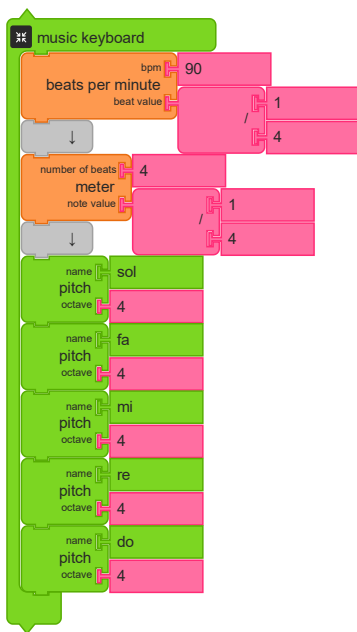
When there are *Pitch* blocks inside the widget clamp, a keyboard with only those pitches is created.

Click on the keys to hear sounds. Click on the Play button to playback all of the notes played. Click on the Save button to output code (a series of *Note* blocks). The Clear button is used to delete all keys pressed previously in order to start new.

The MIDI input allows for a using a MIDI device to generate notes.

The metronome feature will generate a beat to enable candence.