

## Tone Melody

<http://arduino.cc/en/Tutorial/Tone>

This example shows how to use the `tone()` command to generate notes. It plays a little melody you may have heard before.

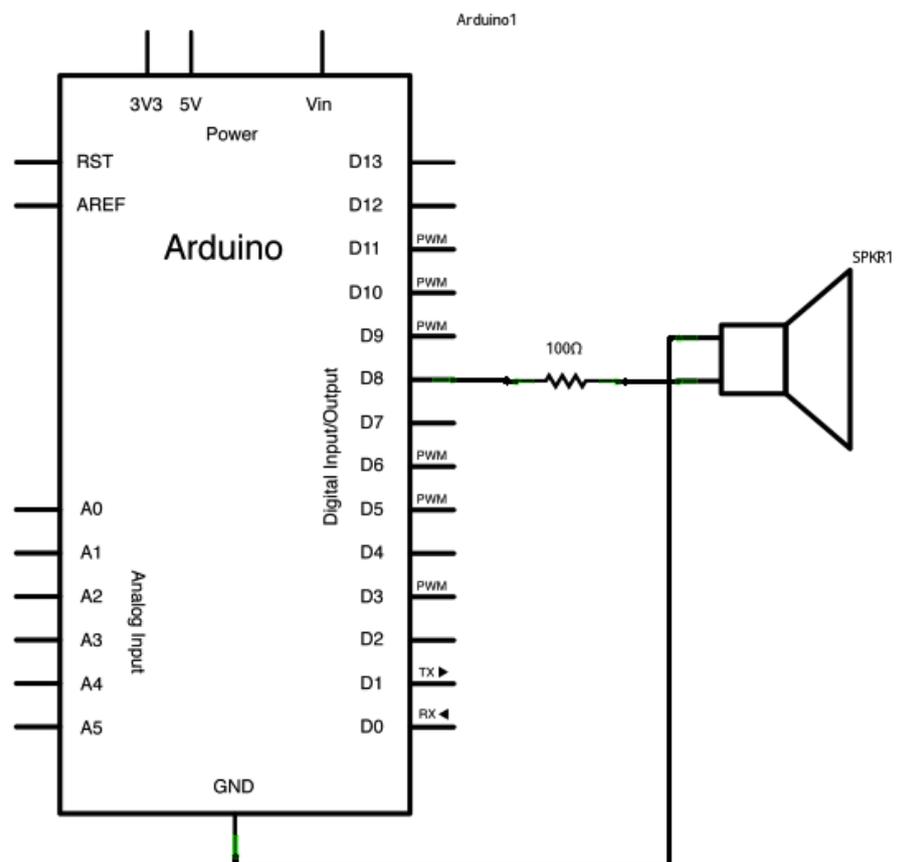
### HARDWARE REQUIRED

Arduino Board  
1 Piezo Buzzer  
1 100 ohm resistor  
breadboard  
hook-up wires

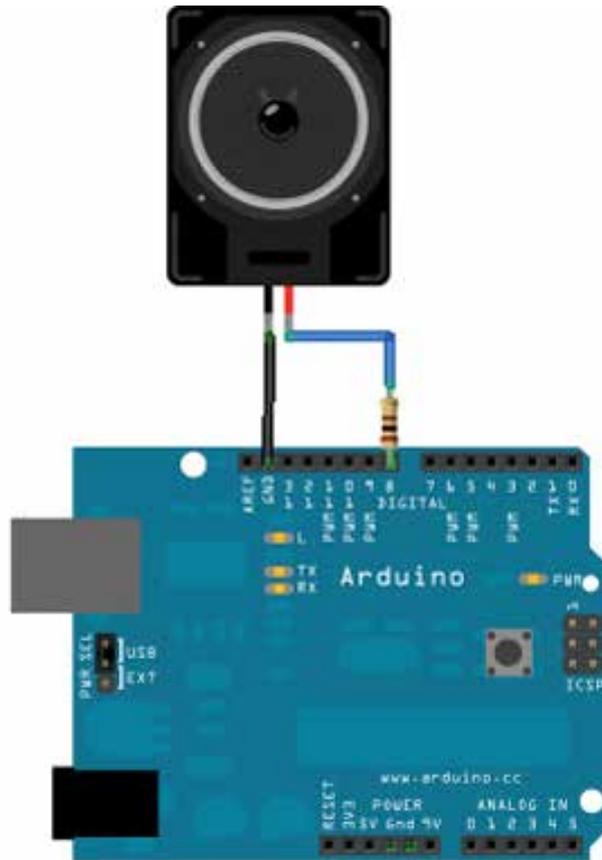
### CIRCUIT

The code below uses an extra file, `itches.h`. This file contains all the pitch values for typical notes. For example, `NOTE_C4` is middle C. `NOTE_FS4` is F sharp, and so forth. This note table was originally written by Brett Hagman, on whose work the `tone()` command was based. You may find it useful for whenever you want to make musical notes.

### SCHEMATIC



IMAGE



CODE

```
// notes in the melody:
int melody[] = {
  NOTE_C4, NOTE_G3,NOTE_G3, NOTE_A3, NOTE_G3,0, NOTE_B3,
  NOTE_C4};

// note durations: 4 = quarter note, 8 = eighth note, etc.:
int noteDurations[] = {
  4, 8, 8, 4,4,4,4,4 };

/*
Melody
Plays a melody

circuit:
* 8-ohm speaker on digital pin 8

created 21 Jan 2010
modified 30 Aug 2011
by Tom Igoe

This example code is in the public domain.

http://arduino.cc/en/Tutorial/Tone

*/

void setup() {
  // iterate over the notes of the melody:
  for (int thisNote = 0; thisNote < 8; thisNote++) {

    // to calculate the note duration, take one second
    // divided by the note type.
    //e.g. quarter note = 1000 / 4, eighth note = 1000/8, etc.
    int noteDuration = 1000/noteDurations[thisNote];

    // use pin8 to output sound
    tone(8, melody[thisNote],noteDuration);

    // to distinguish the notes, set a minimum time between them.
    // the note's duration + 30% seems to work well:
    int pauseBetweenNotes = noteDuration * 1.30;
    delay(pauseBetweenNotes);
    // stop the tone playing:
    noTone(8);
  }
}

void loop() {
  // no need to repeat the melody.
}
```