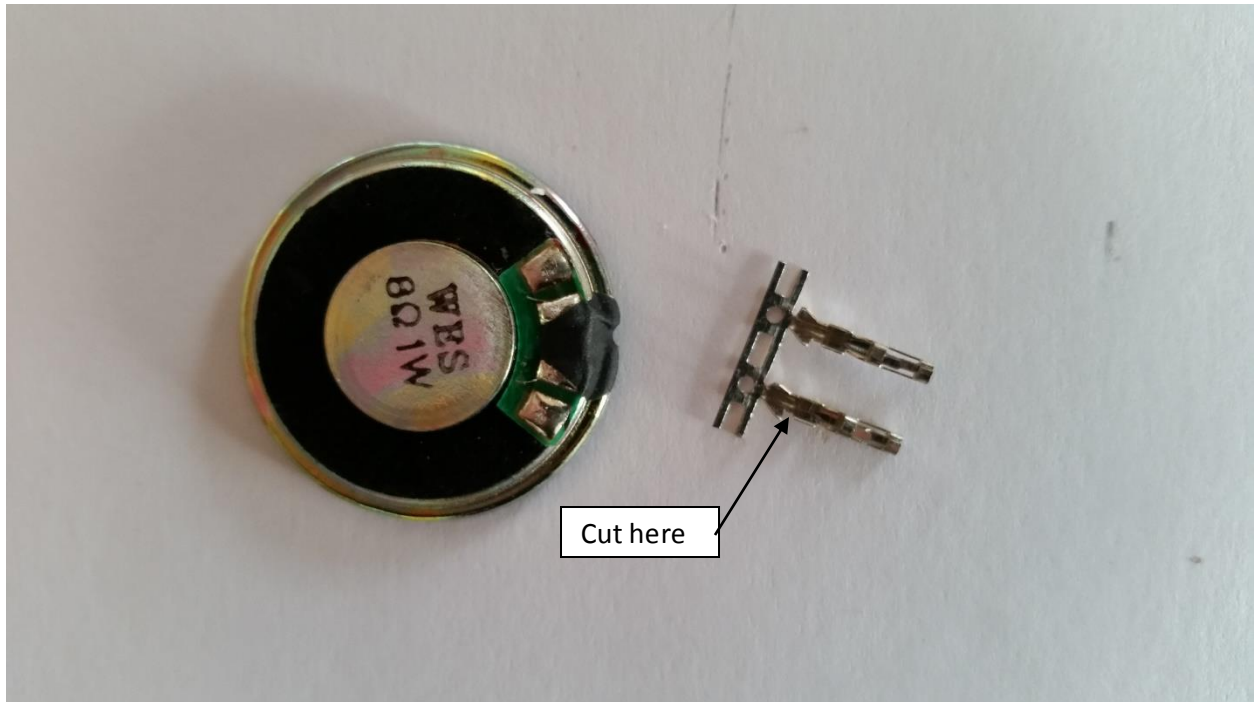


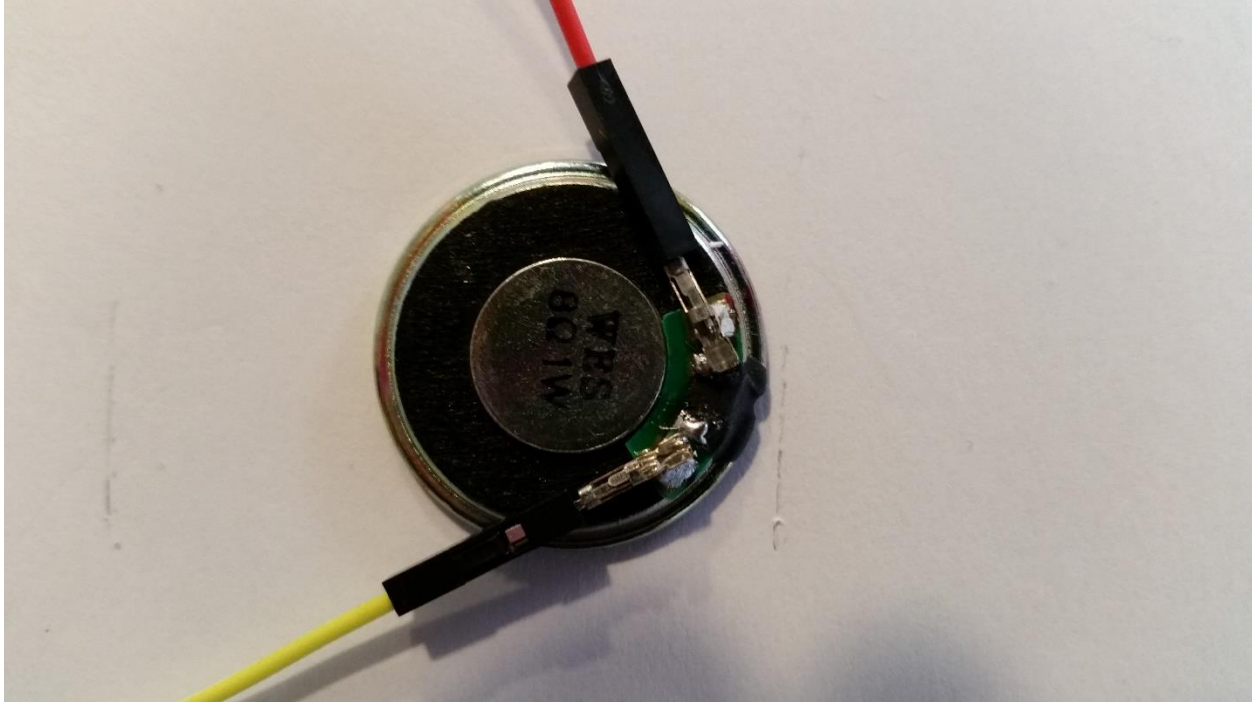
## GoldSTEM\_Lesson\_13\_ Speaker\_Sound\_Music

For this experiment we will be using a new component the 8 Ohm Speaker.

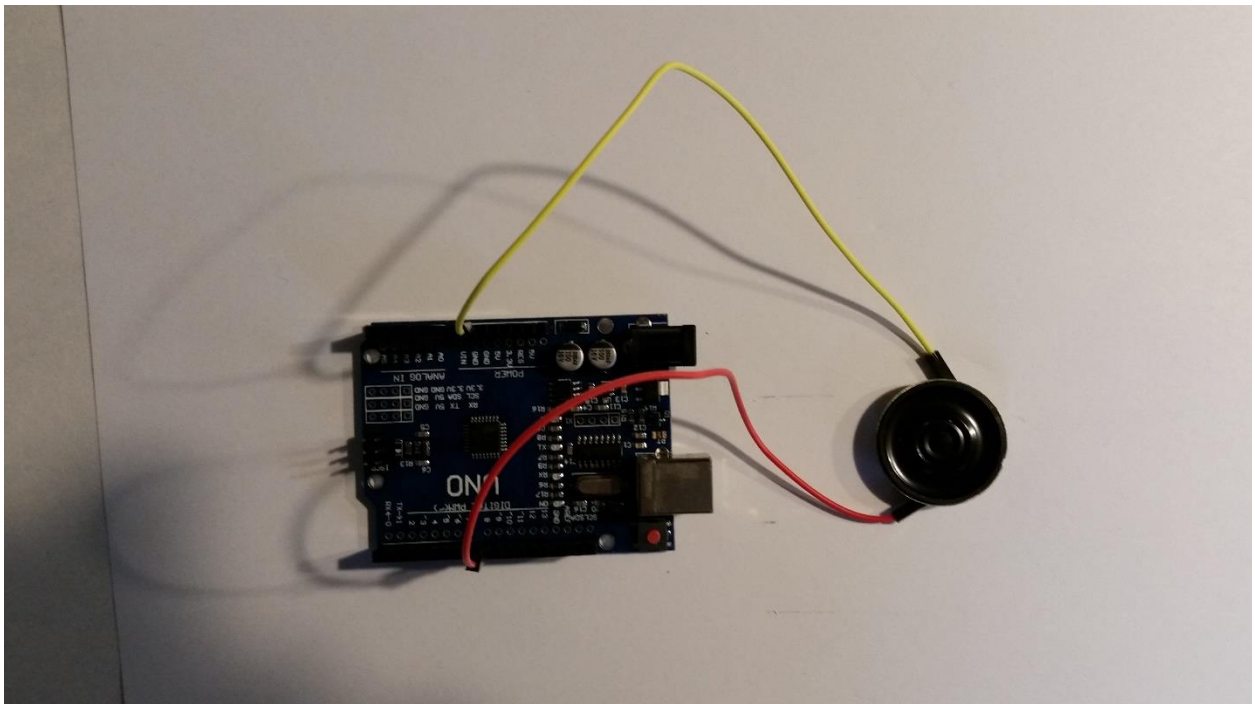
We will also need to solder the two terminals to the speaker. If you do not have soldering experience ask for help.



Find the speaker and the two terminals.  
Cut both of the terminals here you can use a scissor.



Solder the terminals as shown tint the terminals with solder.  
It is handy if you insert a jumper as shown to hold the terminals in place.



No need for a breadboard for this experiment.

## Wiring the circuit

Red jumper to UNO DIGITAL 8  
Yellow jumper to POWER GND

## Notes

Press the reset button on the UNO to hear the music again.

## Load the Code

```
//GoldSTEM_Lesson_13_Speaker_Sound_MusicGoldSTEMtm 3-7-2016

#define NOTE_C4 262
#define NOTE_G3 196
#define NOTE_A3 220
#define NOTE_B3 247

// notes
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
};

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

    //Quarter note = 1000 / 4, eighth note = 1000/8, etc.
    int noteDuration = 1000 / noteDurations[thisNote];

    //void loop () {
    tone(8, melody[thisNote], noteDuration);

    // pause between notes. 1.3%

    int pauseBetweenNotes = noteDuration * 1.30;
    delay(pauseBetweenNotes);
    // stop the tone playing:
```

```
    noTone(8);  
  }  
}  
void loop(){  
  
}
```