// Hyve Tuning

// Skot Wiedmann

// 2018.02.05

// Pin 9 is audio output

// Pin 0, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12 are buttons to ground for each note

// Actual frequencies of the notes C6 through B6 with zero added for easy coding below

const int noteFreq[] = { 1976, 1865, 1760, 1661, 1568, 1480, 1397, 1319, 1245, 0, 1175, 1109, 1047 };

int noteCount[13]; // The number of clock cycles counted for each pitch

void setup ()

{

TCCR1A = 0b01000000; // Setup timer to toggle on compare match

TCCR1B = 0b00001001; // Setup timer for CTC mode

for (int i=0; i<13; i++){

pinMode (i, INPUT\_PULLUP); // Setup all the button inputs

noteCount[i] = 16000000 / noteFreq[i]; // Populate note counts based on frequency

}

pinMode (9, OUTPUT) ; // Setup audio output

}

void loop ()

{

for (int i=0; i<13; i++){

if (digitalRead(i) == LOW && i!=9) { // Scan through buttons for any pressed, skip output pin

OCR1A = noteCount[i]; // Update timer count for the note pressed

}

}

}