

'-----Title-----

' File.....2 TSA Music'10.pbp
' Started....1/25/10
' Microcontroller used: Microchip Technology 16F88
' microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
' melabs.com

'-----Program Description-----

' TSA Music Production Program 2010: Track 2

'-----Revision History-----

' 2/1/10 Changed VAR to CON
' 2/11/10 Program Finalized

'-----Initialization-----

DEFINE OSC 20 ' Sets microcontroller operating frequency
 ' to 20 MHZ.

TRISB = %11111000 ' Sets up pins RB0 - 3 of PORTB as an output

PORTB = %00000000 ' Sets all pins on PORTB to low (0V).

' The variable "x" represents the eighth note. The length of time that the
' eighth note (x) is played is deteremined by the value set at 200.
' A quarter note is two times an eighth note or 2x.

x VAR WORD

' These are the constants that we used to declare the frequencies as notes.
' For example shg represents Super High G which has a frequency of 1568 Hz.

shg **CON** 1568
shf **CON** 1244
shc **CON** 1046
shbf **CON** 932
shaf **CON** 830
hg **CON** 784
hf **CON** 698
hef **CON** 622
hd **CON** 587
hc **CON** 523
hbf **CON** 466
haf **CON** 415
g **CON** 392
f **CON** 349
ef **CON** 311
d **CON** 293

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c CON 261
bf CON 233
af CON 208
lg CON 196
lf CON 174
lef CON 155
ld CON 146
lc CON 130
lbf CON 116
laf CON 103
slg CON 98
slf CON 87
slef CON 78
sld CON 73
slc CON 65
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'-----Main Code-----
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    x = 200                ' An eighth note (x) will be 200 ms long.

' line1

    PAUSE 1000            ' Pause 1000 ms before starting generating tones

    FREQOUT 1, x, ef     ' We use FREQOUT to generate a tone. 1 represents
the                       ' output pin RB1 on the Pic16F88. "x" symbolizes
frequency                 ' eighth note. "ef" (E Flat) is defined as the
                           ' 311 Hz.

    FREQOUT 1, 5*x, 0
    FREQOUT 1, 4*x, d
    FREQOUT 1, 4*x, 0
    FREQOUT 1, x, ef
    FREQOUT 1, 5*x, 0
    FREQOUT 1, 4*x, d
    FREQOUT 1, 4*x, 0
    FREQOUT 1, x, ef
    FREQOUT 1, 4*x, 0

' line 2

    FREQOUT 1, 8*x, 0
    FREQOUT 1, x, bf
    FREQOUT 1, 8*x, c
    FREQOUT 1, x, hef
    FREQOUT 1, 5*x, 0
    FREQOUT 1, 4*x, hd

' line 3

    FREQOUT 1, 4*x, 0
    FREQOUT 1, x, hef
    FREQOUT 1, 5*x, 0
```

FREQOUT 1, 4*x, hd
FREQOUT 1, 4*x, 0
FREQOUT 1, x, hef
FREQOUT 1, 12*x, 0
FREQOUT 1, 9*x, hef

'line 4

FREQOUT 1, 4*x, 0
FREQOUT 1, x, c
FREQOUT 1, 13*x, 0
FREQOUT 1, x, c
FREQOUT 1, 13*x, 0

'line 5

FREQOUT 1, x, c
FREQOUT 1, 13*x, 0
FREQOUT 1, x, hc
FREQOUT 1, 13*x, 0

'line 6

FREQOUT 1, x, hc
FREQOUT 1, 13*x, 0
FREQOUT 1, x, hc
FREQOUT 1, 13*x, 0
FREQOUT 1, 2*x, hef
FREQOUT 1, 2*x, hg

'line 7

FREQOUT 1, 2*x, hc
FREQOUT 1, 4*x, hef
FREQOUT 1, x, ef
FREQOUT 1, 5*x, 0
FREQOUT 1, 4*x, d
FREQOUT 1, 4*x, 0
FREQOUT 1, x, ef
FREQOUT 1, 5*x, 0
FREQOUT 1, 4*x, d
FREQOUT 1, 4*x, 0

'line 8

FREQOUT 1, x, ef
FREQOUT 1, 4*x, 0
FREQOUT 1, 8*x, 0
FREQOUT 1, x, bf
FREQOUT 1, 8*x, c
FREQOUT 1, x, hef
FREQOUT 1, 5*x, 0
FREQOUT 1, 4*x, hd

'line 9

```
FREQOUT 1, 4*x, 0
FREQOUT 1, x, hef
FREQOUT 1, 5*x, 0
FREQOUT 1, 4*x, hd
FREQOUT 1, 4*x, 0
FREQOUT 1, x, hef
FREQOUT 1, 9*x, 0
END
```