Activity Solution (Learning about “Ones” and “Zeros”)

Notes:

- After completing the activity, students should have finished the following program to generate Morse code using the Basic Stamp.

```plaintext
' {$STAMP BS2}
' {$P BASIC 2.5}

address VAR Byte
character VAR Byte
n VAR Nib
length VAR Nib

'Morse codewords are aligned to the left of the byte
'dit’ . is represented by 0
'dah’ - is represented by 1

'Numbers 0 through 9 with length bits:
DATA @48, %11111101, %01111101, %00111101, %00011101, %00001101,
  %00000101, %10000101, %11000101, %11100101, %11110101

'Letters A through Z with length bits:
DATA @65, %01000010, %10000100, %10100100, %10000011, %00000001, %01000100,
  %11000111, %00000010, %01110011, %01010010, %11010010, %01000011,
  %00000001, %10000001, %01000001, %00100011, %00010100, %01100011,
  %10010100, %10110100, %11000100

main:
```
SERIN 16, 84, [address]
READ address, character
DEBUG CR, DEC ? address, BIN ? character
GOTO morseout
GOTO main

morseout:
length = character.LOWNIB
length.BIT3 = %0
FOR n = 0 TO length-1
  SELECT character.BIT7
  CASE 0
    HIGH 0
    FREQOUT 10, 50, 3000
    LOW 0
    PAUSE 200
  CASE 1
    HIGH 0
    FREQOUT 10, 200, 3000
    LOW 0
    PAUSE 200
  ENDSELECT
  character = (character << 1)
NEXT
RETURN