### BASIC Stamp Programming Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description [example]</th>
</tr>
</thead>
<tbody>
<tr>
<td>debug</td>
<td>Display info on host PC [debug dec x] [debug &quot;hello&quot;]</td>
</tr>
<tr>
<td>end</td>
<td>Stop program execution. Used at end of program</td>
</tr>
<tr>
<td>for...next</td>
<td>Loop. For marks start of loop, next marks end [for j = 1 to 3]</td>
</tr>
<tr>
<td>freqout</td>
<td>Use to generate sounds</td>
</tr>
<tr>
<td>gosub addr</td>
<td>Jump to subroutine marked by label addr [gosub alert]</td>
</tr>
<tr>
<td>goto addr</td>
<td>Jump to program line marked by label addr [goto start]</td>
</tr>
<tr>
<td>high n</td>
<td>Set pin n to +5V where n = 0 to 15 [high 3]</td>
</tr>
<tr>
<td>if cond then addr</td>
<td>Conditional branch [here: if in4 = 1 then here]</td>
</tr>
<tr>
<td>input n</td>
<td>Configure pin n to act as an input [input 2]</td>
</tr>
<tr>
<td>low n</td>
<td>Set pin n to 0V where n = 0 to 15 [low 3]</td>
</tr>
<tr>
<td>output n</td>
<td>Configure pin n to act as an output [output 1]</td>
</tr>
<tr>
<td>pause x</td>
<td>Pause program for x millisec, x = 0 to 65,535 [pause 1000]</td>
</tr>
<tr>
<td>pwm</td>
<td>Pulse-width modulation on a pin to generate analog outputs</td>
</tr>
<tr>
<td>random var</td>
<td>Random number generator, leaves result in word variable var</td>
</tr>
<tr>
<td>rctime</td>
<td>Use to measure value of potentiometers</td>
</tr>
<tr>
<td>return</td>
<td>Return from subroutine</td>
</tr>
<tr>
<td>serin</td>
<td>Read in serial data</td>
</tr>
<tr>
<td>serout</td>
<td>Send out serial data</td>
</tr>
<tr>
<td>toggle n</td>
<td>Toggle state of output pin n where n = 0 to 15 [toggle 3]</td>
</tr>
</tbody>
</table>

### Examples

1. Turn on LED connection to Pin 0 for 1 s.
   ```
   high 0
   pause 1000
   low 0
   ```

2. Flash LED connected to Pin 1 at 2 Hz forever.
   ```
   loop:
   toggle 1
   pause 250
   goto loop
   ```

3. With PC connected, print on the PC display the state of a switch that is connected to Pin 4. Reads switch continuously, sampling it every 100 ms. Watch display while pressing the switch to see if the PC is reading the switch.
   ```
   check:
   debug dec in4
   pause 100
   goto check
   ```

4. LED is on Pin 0, switch is on Pin 4. Turns on LED when switch is pressed.
   ```
   check:
   if in4 = 1 then check
   high 0
   ```

5. Declaring a byte length variable, using a constant, showing a for..next loop. LED on Pin 0 flashes 20 times.
   ```
   LED con 0
   i var byte
   for i = 1 to 20
   high 0
   pause 250
   low 0
   pause 250
   next
   ```

6. Using a gosub to isolate code that is called from several places in the program.
   ```
   LED con 0
   start:
   high LED
   pause 1000
   low LED
   checkswitch:
   if in4 = 1 then checkswitch
   gosub flash
   pause 3000
   gosub flash
   end
   flash:
   for i = 1 to 10
   toggle LED
   pause 250
   next
   return
   ```