



The PICAXE 08M has SPECIAL RAM (Random Access Memory) set aside for these VARIABLES and special NAMES for their ADDRESSES

#### RAM USAGE FOR THE PICAXE 08M

**BITS:** there are 16 special 1 bit VARIABLES NAMED Bit0 thru Bit15  
these BIT VARIABLES are located INSIDE the 1st two BYTE VARIABLES  
so BIT0-BIT7 are the bits INSIDE BYTE 0 and  
BIT8-BIT15 are the bits INSIDE BYTE 1

**BYTES:** there are 14 special 8 bit VARIABLES NAMED B0 thru B13

**WORDS:** there are 7 16 bit VARIABLES NAMED W0 thru W6  
these WORD variables occupy the same RAM as the BYTE variables  
and simply use the RAM BYTES in PAIRS to create 16 bit values  
W0 is BYTE1 & BYTE 0 (MSB/LSB)  
W1 is BYTE3 & BYTE 2  
etc  
W6 is BYTE 13 & BYTE 12

Since there is a very LIMITED space/RAM for VARIABLES, in complicated programs GOOD GEEKS (programmers) try to use the appropriately sized VARIABLE for the data contained therein:

a ON/OFF, YES/NO, TRUE/FALSE variable would be in a BIT VARIABLE  
a number between 0 & 255 would be in a BYTE VARIABLE  
and a number between 0 & 65535 would be in a WORD VARIABLE

so

This program monitors a potentiometer to see if it has EVER been turn more than half way  
if so, an LED turns on  
if not, the LED remains off

WHY? Say the potentiometer is really a shock sensor and you want to track  
whether the board had received a LARGE shock while in use....

```
SYMBOL ON_OFF=Bit0      'LED status in Bit0 now NAMED ON_OFF with 0=off & 1=on
SYMBOL LED=2            'LED on Pin2 with 330ohm resistor to +5V
SYMBOL POT=1           'wiper of 10K potentiometer on Pin1
                        '          with 100ohms to +5 and ground on the other legs
SYMBOL OHMS=B6         'potentiometer reading stored in VARIABLE B6 now NAMED OHMS

ON_OFF=0               'preset LED status to OFF
WHAT: READADC POT,OHMS 'take an A/D reading on POT (Pin1) and save in OHMS (B6)
      IF OHMS<128 THEN LITE 'pot reading less than halfway?...
      ON_OFF=1           'change LED status to ON
LITE: IF ON_OFF=1 THEN ON 'check LED status
OFF: HIGH LED          'LED OFF
      GOTO WHAT         'keep watching the pot!

ON: LOW LED            'LED ON because pot has gone more than half way
                        '          at some time in history.....
      GOTO WHAT         'keep watching the pot!
```

END OF TRANSLATION!