```
'--------Title--------

' File......LCD1.pbp
' Started....3/18/06
' Microcontroller used:  Microchip Technology PIC16F88
'                        microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
'                    melabs.com

'--------Program Desciption--------

' Prints simple message to 16 x 2 parallel
' LCD which uses Hitachi 44780 controller.
' Most hobby LCD's use this controller.

'----------Related Lessons---------

' See LCD BASICS lesson at:
' http://cornerstonerobotics.org/curriculum/lessons_year2/erii14_lcd1.pdf
'
' lcd1.pbp is used in the lesson LCD Command Control Codes at:
' http://cornerstonerobotics.
org/curriculum/lessons_year2/erii15_lcd2_lcd_command_control_codes.pdf

'------------Comments--------------

' A practical guide to interfacing and
' programming LCD modules can be found at
' www.epemag.wimborne.co.uk/resourses.htm
' or by googling everyday practical electronics lcd
' The article includes LCD pin functions.

'-----New PicBasic Pro Command-----

' The PicBasic Pro Compiler Manual is on line at:
' http://www.microengineeringlabs.com/resources/index.htm#Manuals
'
' LCDOUT Item{,Item...}
' Display Items on an intelligent Liquid Crystal Display. PBP
' supports LCD modules with a Hitachi 44780 controller or
' equivalent.
' Look around page 95 in the PicBasic Pro Compiler Manual

'---------PIC Connections---------

'       16F88 Pin           Wiring
'       ---------           ----------
'       RA0                 LCD pin 11(DB4)
'       RA1                 LCD pin 12(DB5)
'       RA2                 LCD pin 13(DB6)
'       RA3                 LCD pin 14(DB7)
'       RA4                 LCD Register Select(RS)
'       RB3                 LCD Enable(E)
'       See schematic for the other usual PIC connections
```

```
'---------LCD Connections---------

'        LCD Pin              Wiring
'       ---------           ----------
'          1                Ground(Vss)
'          2                + 5v(Vdd)
'          3                Center of 20K Pot(Contrast)
'          4                RA4(Register Select,RS)
'          5                Ground(Read/Write,R/W)
'          6                RB3(Enable)
'          7                No Connection(DB0)
'          8                No Connection(DB1)
'          9                No Connection(DB2)
'         10                No Connection(DB3)
'         11                RA0(DB4)
'         12                RA1(DB5)
'         13                RA2(DB6)
'         14                RA3(DB7)

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

' 11/28/07 Change MCU from 16F84A to 16F88
' 11/28/07 Add 16F88 oscillator and ANSEL = 0
'          initializations

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

    ANSEL = 0                   ' Configure all pins to digital
                                ' operation since not using ADC
                                ' (Analog to Digital Converter)

    OSCCON = $60                ' Sets the internal oscillator in the
                                ' 16F88 to 4 MHz

'------------Main Code------------

    PAUSE 1000                   ' Pause to allow LCD to setup

loop:

    LCDOUT $FE,1,"Hello World"   ' Clears LCD screen, displays
                                 ' Hello World

    PAUSE 500                    ' Pause 1/2 second

    GOTO loop                    ' Go to loop label

    END
```