

Programming in QBASIC

There are hundreds of different computer languages; BASIC is a simple to use computer language first developed in 1964 (FORTRAN was developed in 1954, C in 1971 and Java in 1995). QBASIC is a version of BASIC that was supplied with free with the first PCs and continued to come with the PC until Windows 2000 and Windows XP.

Getting started

To use QBASIC on the machines in college you need a floppy disc containing the language.

- Put the floppy disc in the computer
- Restart the computer.

After a little while you should get a screen with a message “Welcome to MS-DOS Qbasic”

- Press <Esc>

Program 1

You are now ready to write a program.

- Type

```
PRINT "Hello"
```

- Click on **Run** then **Start**

You should see a screen with Hello written on it under a lot of other things. At the bottom it says “Press any key to continue”.

- Press a key
- Click on **Run** then **Start**

You should see Hello written under the previous Hello.

- Press a key
- Now press <F5>

There should now be three lines with Hello written under each other. <F5> does the same thing as **Run -> Start**

Program 2

- Change your program to

```
CLS  
PRINT "Hello"  
PRINT "world"
```

- Press <F5>

CLS stands for clear screen.

Program 3

- Change the program to
- Run the program (press <F5>)

```
CLS  
PRINT "Hello",  
PRINT "world"
```

What difference does the comma (,) make?

Program 4

- Now change the program to
- Run the program (press <F5>)

```
CLS  
PRINT "Hello";  
PRINT "world"
```

What does the semicolon (;) do?

Program 5

- Try this program
- Run the program
- The program will run until you stop it. Hold down <Ctrl> and press <Break> to stop

```
100 CLS  
110 PRINT "Hello"  
120 GOTO 110
```

What does GOTO do?

The numbers 100, 110 and 120 are called line numbers. The only line here that needs a number is 110. Why does line 110 need a number?

Program 6

- Change the program to

```
100 CLS  
110 PRINT "Hello";  
120 GOTO 110
```

Can you guess what will happen before you run it?

Program 7

- Try this program

```
100 CLS  
110 A = 3  
120 B = 5  
130 C = A + B
```

```
140 PRINT A
150 PRINT B
160 PRINT C
```

A and B are called variables. You can give A and B any value

Program 8

- Change the program to subtract 14 from 30.

Program 9

You can improve the format. Use the example below to make the output of your program easier to read.

```
100 CLS
110 X1 = 3
120 X2 = 5
130 Z = X1 * X2
140 PRINT X1; " times "; X2; " equals "; Z
```

Program 10

You can change a program to allow the user to put their own numbers in.

- Type in this program

```
100 CLS
110 INPUT number1
120 INPUT number2
130 result = number1 / number2
130 PRINT number1; " divided by "; number2; " equals "; result
```

- Run the program

A “?” appears on the screen

- Type in a number and press <return>

Now another “?” appears

- Type in another number and press <return>

Program 11

You can make the program easier to use by adding some words

```
100 CLS
110 INPUT "Enter a number"; first
120 INPUT "Enter another number"; second
130 sum1 = first + second
140 PRINT first; " plus "; second; " equals "; sum1
```

Notice that the variable names can have lots of letters and digits but it must start with a letter.

Program 12

- Write a program to work out the value of resistor to use with an LED when the user puts in the supply voltage.

Program 13

This program uses another type of variable

```
100 CLS
110 INPUT "Enter your name"; name$
120 PRINT "Hello "; name$
```

Any variable that ends in \$ is called a "string". String variables store letters instead of numbers so are not used in calculations.

Change the program to say goodbye

Program 14

Try this program

```
100 CLS
110 INPUT "Enter a number"; first
120 INPUT "Enter another number"; second
130 PRINT first; " plus "; second; " equals "; first + second
140 INPUT "Do you want to do another calculation"; answer$
150 IF answer$="y" THEN GOTO 90
```

What does line 150 do?

Program 15

- Write a program to calculate the frequency of a 555 astable.

Program 16

This program counts

```
100 FOR X=1 TO 15
110 PRINT X
120 NEXT X
```

Can you explain how this program works

Program 17

- Change the program and explain its output

```
100 FOR index=1 to 12
110 fives=index*5
120 PRINT "1 x "; index; " = "; fives,
```

130 NEXT index

Program 18

- Write a program to output a times table