

Requirements:

A floppy diskette is required for storing programs.

The following programs should be typed in as an exercise in seeing how Flow Control programs work, and the use of their programs. At the end of the programs to be typed in are exercises that you should complete to help you better understand the programming instructions listed below.

Program 2.3.1: - Flow Control FOR

```
CLS
FOR i% = 0 TO 15
COLOR i%
PRINT "Text Color "; i%
NEXT i%
END
```

Deskcheck 2.3.1:

Output 2.3.1:

Program 2.3.2: - Flow Control FOR

```
REM
'
CLS
FOR ncolor = 0 TO 15
COLOR 15, 1
bgcolor = 15 - ncolor
PRINT "Foreground :"; ncolor; ", Background :"; bgcolor;
COLOR ncolor, bgcolor
PRINT "Prints out this colour text, on this background"
NEXT ncolor
```

Deskcheck 2.3.2:

Output 2.3.2:

Program 2.3.3: Flow Control FOR

```
REM
'
'FOR counter = start TO end [STEP increment]
'    [statementblock]
'NEXT [counter [,counter]...]
'
'Declare the Variables
'
Sum = 0
COLOR 12, 1
CLS
INPUT "what is the number to be summed"; n

FOR i = 1 TO n
Sum = Sum + n
NEXT i
PRINT "The sum of 1 + ... + n (when n is > 1) is"; Sum
```

Deskcheck 2.3.2:

Output 2.3.2:

Programming Exercises

Primary school children are often given a Times Table to memorise, practise multiplication.

1. Draw a flow chart for the SUM program 2.3.3
2. Write a program to output the 2 x Table.

Output Sample:

```
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
..
..
2 x 12 = 24
```

3. Write a program using FOR loop structures to output the Times Tables from 2x, 3x, up to 10x (from 1 to 12)

Output Sample:

```
2 x 1 = 2
2 x 2 = 4
..
..
3 x 1 = 3
3 x 2 = 6
..
..
9 x 1 = 9
9 x 2 = 18
..
..
10 x 1 = 10
10 x 2 = 100
..
..
10 x 12 = 120
```

4. Following is a sample code for a program to calculate the factorial of any given number. Draw the flowchart for the program.