

Using the shape object

Unlike the shapes drawn by the GraphicsWindow, which cannot be manipulated only redrawn, the Shape object can create lines, rectangles, triangles and ellipses that can be independently manipulated (e.g., rotated, moved and resized). For example the program below rotates a rectangle shape 360 degrees. Also notice that when a shape is created with the Shape object that it needs to be assigned to a variable, in this case myRectangle. After a shape has been assigned to a variable that name is used as a reference in the manipulation functions such as rotate and move.

```
1  'A program that rotates a shape 360.
2
3  'Create a GraphicsWindow
4  GraphicsWindow.Width = 640
5  GraphicsWindow.Height= 480
6
7  'Set the colour of the shape.
8  GraphicsWindow.BrushColor = "purple"
9
10 'Create a rectangle and assign to variable myRectangle
11 myRectangle = Shapes.AddRectangle(200, 50)
12
13 'Move shape to centre of the screen
14 Shapes.Move(myRectangle, 220, 220)
15
16 'Rotate the shape
17 For i = 1 To 360
18     Shapes.Rotate(myRectangle, i)
19     Program.Delay(10)
20 EndFor
```

All of the Shape object's functions such as Move() take the shape's name and relevant numbers as parameters. For example the function Zoom() needs to be passed the name of the shape, and the amount of horizontal and vertical scaling. The rotate function requires the name of the shape and the angle to rotate the shape.

Using the Rotate() and Zoom() functions together we can create an excellent 'Game Over' effect. the following program will both rotate and scale the words 'Game Over' which would look good at the end of a game.

```
1  'A program that rotates and scales text.
2
3  'Create a GraphicsWindow
4  GraphicsWindow.Width = 640
5  GraphicsWindow.Height= 480
6
7  'Set the colour of the shape.
8  GraphicsWindow.BrushColor = "Orange"
9
10 'Create a text shape and assign to variable myText.
11 myText = Shapes.AddText("GAME OVER")
12
13 'Move the text shape to centre of the screen.
14 Shapes.Move(myText, 280, 220)
15
16 'Rotate the text shape.
17 For i = 1 To 360
18     scale = i/100
19     Shapes.Rotate(myText, i)
20     Shapes.Zoom(myText, scale, scale)
21     Program.Delay(10)
22 EndFor
```

We have learnt enough now to progress to making our own short game. The following pages will be devoted to creating a simple 'catch the ball' game.