3D Graphics and BC Basic

BC Basic includes simple commands to draw lines and figures in 3D.

The starting point for all 3D object is the *World* which contains a *Container* called the *WorldContainer*.

There are a series of graphics *primitives* like the Line and Cylinder. Each of these primitives can be added to the overall *WorldContainer* (or really any container). Missing primitive include plane, cube and 3dgraph (TODO)

You can also add in a *Container*. The neat thing about a position is that you can move and rotate it. You can point a position at any other object (TODO).

You can edit each primitive and, for example, give it a new color.

Inside the *display* you can move around. The display supports several screen types: Normal, RedGreen and Cardboard. (all TODO)

You can set the background color (TODO), the ambient light (TODO) and the scene light (which is directional and can be placed on a container)(IP). Unlike other systems, BC BASIC 3D graphics lets you pick from a variety of color schemes – for example, you can pick from a 1920’s palette, etc.

**Example**: hello world. In this simplest possible example we draw a cylinder at the center of the screen. The cylinder will have a radius of 10 units and will be position in the middle of the space.

g = Graphics.World  
g.AddCylinder (10)

**Example 3**: drawing objects at specific positions. Draw 4 cylinders at the corners of a square. Make the cylinders have a radius of 7 and height of 5, and the square be 15x15 (so the cylinders will almost touch).  
g = Graphics.World  
p1 = g.AddPosition()  
p1.AddCylinder (7)  
p1.SetPosition (0, 0, 0)

g = Graphics.World  
p2 = g.AddPosition()  
p2.AddCylinder (7)  
p2.SetPosition (15, 0, 0)

g = Graphics.World  
p3 = g.AddPosition()  
p3.AddCylinder (7)  
p3.SetPosition (15, 0, 15)

g = Graphics.World  
p3 = g.AddPosition()  
p3.AddCylinder (7)  
p3.SetPosition (0, 0, 15)

Example 4: draw a cone and rotate it to point along the X axis

g = Graphics.World  
p = g.Container()  
p.AddCylinder (5, 0, 10, 21) // tall and skinny  
p.Rotate (Z, PI/2)

## Animation

The world can be animated with world.AnimationStart and AnimationEnd. Every frame, objects in the world will be updated (position and orientation)

Example 5: draw a cone and set it to constantly rotate along the X axis

g = Graphics.World  
p = g.Container()  
p.AddCylinder (5, 0, 10, 21) // tall and skinny  
rot =