Creating Spirals
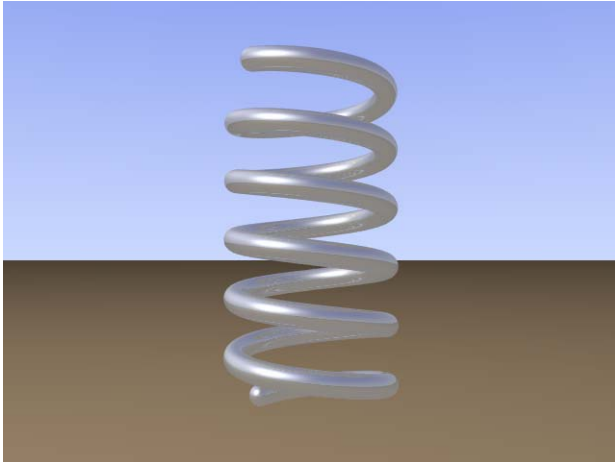

A Spiral can be created through the use of the `sphere_sweep` object. Sphere_sweep sweeps a sphere through a 3D curve described through different types of spline. The b_spline provides a nice, smooth curve through points.

The attributes of a spiral are:

- Revolutions – the number of times the spiral winds around the axis
- Spiral Radius – the radius of the spiral from the central axis
- Revolution Height – the height difference achieve through 1 revolution around the central axis
- Sphere Radius – the radius of the spiral itself

The following algorithm can achieve this task. Note that the 1st four variables can be modified for your own needs.

```
#declare revolutions=6;
#declare spiral_radius=1;
#declare revolution_height = 1;
#declare sphere_radius=0.2;

#declare revolution_count=0;
#declare point_height=revolution_height/4;
sphere_sweep
{
   b_spline
   2+4*revolutions,
   <-spiral_radius,spiral_radius, -point_height>,sphere_radius,
#while (revolution_count < revolutions)
   <-spiral_radius,-spiral_radius, (revolution_count*4*point_height) +
0>, sphere_radius
   <spiral_radius, -spiral_radius,
(revolution_count*4*point_height)+point_height>, sphere_radius
   <spiral_radius,spiral_radius,
```

```
(revolution_count*4*point_height)+2*point_height>, sphere_radius
    <-spiral_radius,spiral_radius,
(revolution_count*4*point_height)+3*point_height>, sphere_radius
#declare revolution_count = revolution_count + 1;
#end
    <-spiral_radius,-spiral_radius, (revolution_count*4*point_height) +
0>, sphere_radius
}
```

Usage patterns

Spirals occur as:

- Springs
- Curves around cylinders (e.g. columns, screw top lids)