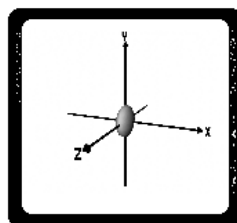


Nesta aula trabalharemos o nó Transform o campo scale que especifica uma escala, que pode ser não-uniforme (que distorce o objeto, modificando suas proporções originais).

Vejamos os exemplos a seguir:

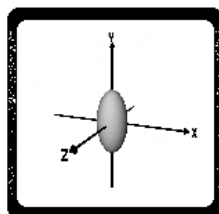
Alterando a escala no eixo Ox.

```
#VRML V2.0 utf8
Transform {
  scale 0.5 1.0 1.0
  children [
    Shape {
      appearance Appearance {
        material Material {}
      }
      geometry Sphere {}
    }
  ]
}
```



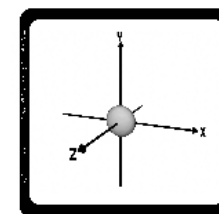
Alterando a escala no eixo Oy

```
#VRML V2.0 utf8
Transform {
  scale 1.0 2.0 1.0
  children [
    Shape {
      appearance Appearance {
        material Material {}
      }
      geometry Sphere {}
    }
  ]
}
```



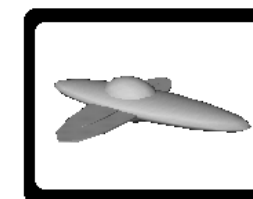
Alterando a escala no eixo Oz

```
#VRML V2.0 utf8
Transform {
  scale 1.0 1.0 0.5
  children [
    Shape {
      appearance Appearance {
        material Material {}
      }
      geometry Sphere {}
    }
  ]
}
```



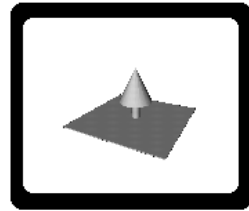
Construindo uma nave

```
#VRML V2.0 utf8
Group {
  children [
    DEF Asa Transform {
      scale 0.5 1.0 1.5
      children Shape {
        appearance DEF Cor Appearance {
          material Material {}
        }
        geometry Cylinder {
          radius 1.0
          height 0.025
        }
      }
    },
    DEF Corpo Transform {
      scale 2.0 0.2 0.5
      children Shape {
        appearance USE Cor
        geometry Sphere {}
      }
    },
    Transform {
      scale 0.3 2.0 0.75
      children [
        USE Asa,
        USE Corpo
      ]
    }
  ]
}
```



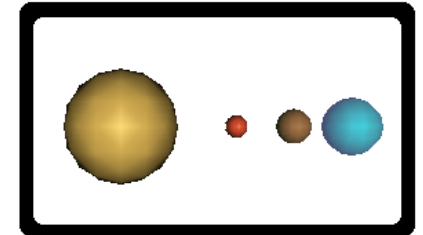
Criando uma árvore

```
#VRML V2.0 utf8
Group {
  children [
    # base
    Shape {
      appearance DEF Cor Appearance {
        material Material {}
      }
      geometry Box {
        size 12.0 0.1 12.0
      }
    },
    # Arvore
    Transform {
      translation 0.0 1.0 0.0
      scale 1.0 1.0 1.0
      center 0.0 -1.0 0.0
      children [
        # Tronco
        Shape {
          appearance USE Cor
          geometry Cylinder {
            radius 0.5
            height 2.0
          }
        },
        # Copa
        Transform {
          translation 0.0 3.0 0.0
          children Shape {
            appearance USE Cor
            geometry Cone {
              bottomRadius 2.0
              height 4.0
            }
          }
        }
      ]
    }
  ]
}
```



Criando alguns planetas

```
#VRML V2.0 utf8
Group {
  children [
    #Sol
    Shape {
      appearance Appearance {
        material Material {
          diffuseColor .89 .73 .34
          specularColor .27 .13 .13
          ambientIntensity .0933
          shininess .31
        }
      }
      geometry Sphere {}
    },
    # Definição das orbitas
    DEF Mercurio Transform {
      translation 2.0 0.0 0.0
      center -2.0 0.0 0.0
      children Shape {
        appearance Appearance {
          material Material {
            diffuseColor .88 .32 .2
            specularColor .82 .28 .28
            ambientIntensity .113
            shininess .8
          }
        }
        geometry Sphere { radius 0.2 }
      }
    },
    DEF Venus Transform {
      translation 3.0 0.0 0.0
      center -3.0 0.0 0.0
      children Shape {
        appearance Appearance {
          material Material {
            diffuseColor .5 .3 .19
            specularColor .08 .08 .05
            emissiveColor .12 .13 .08
            ambientIntensity .0833
            shininess .17
          }
        }
        geometry Sphere { radius 0.3 }
      }
    }
  ]
}
```



```
    }  
  },  
  DEF Terra Transform {  
    translation 4.0 0.0 0.0  
    center -4.0 0.0 0.0  
    children Shape {  
      appearance Appearance {  
        material Material {  
          diffuseColor 0 .35 .25  
          specularColor 0 .16 .18  
          emissiveColor .27 .32 .46  
          ambientIntensity .0533  
          shininess .06  
        }  
      }  
      geometry Sphere { radius 0.5 }  
    }  
  },  
]  
}
```