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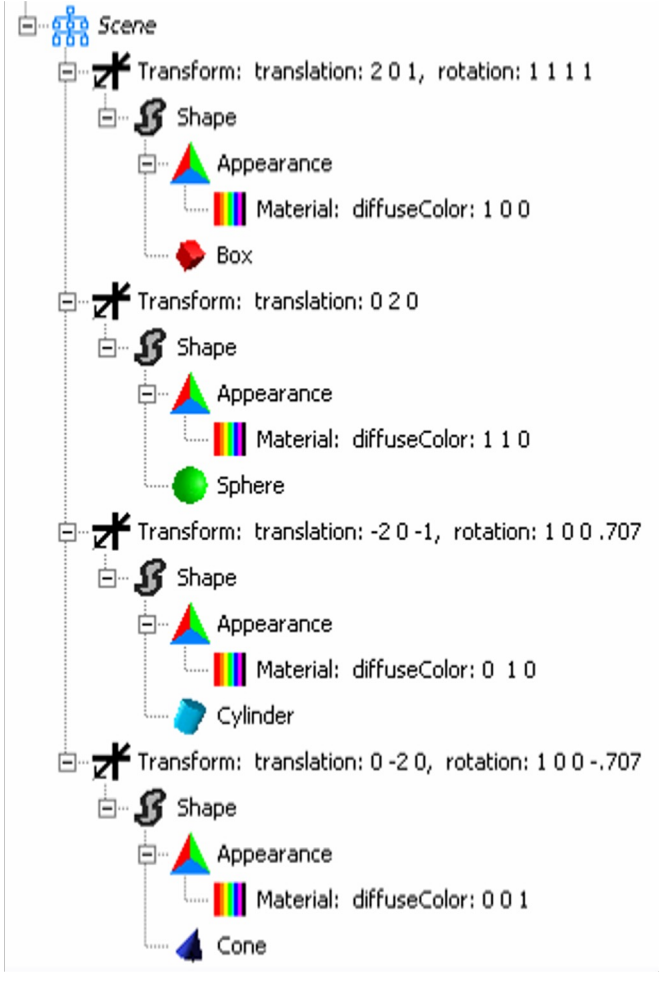
Computação Gráfica

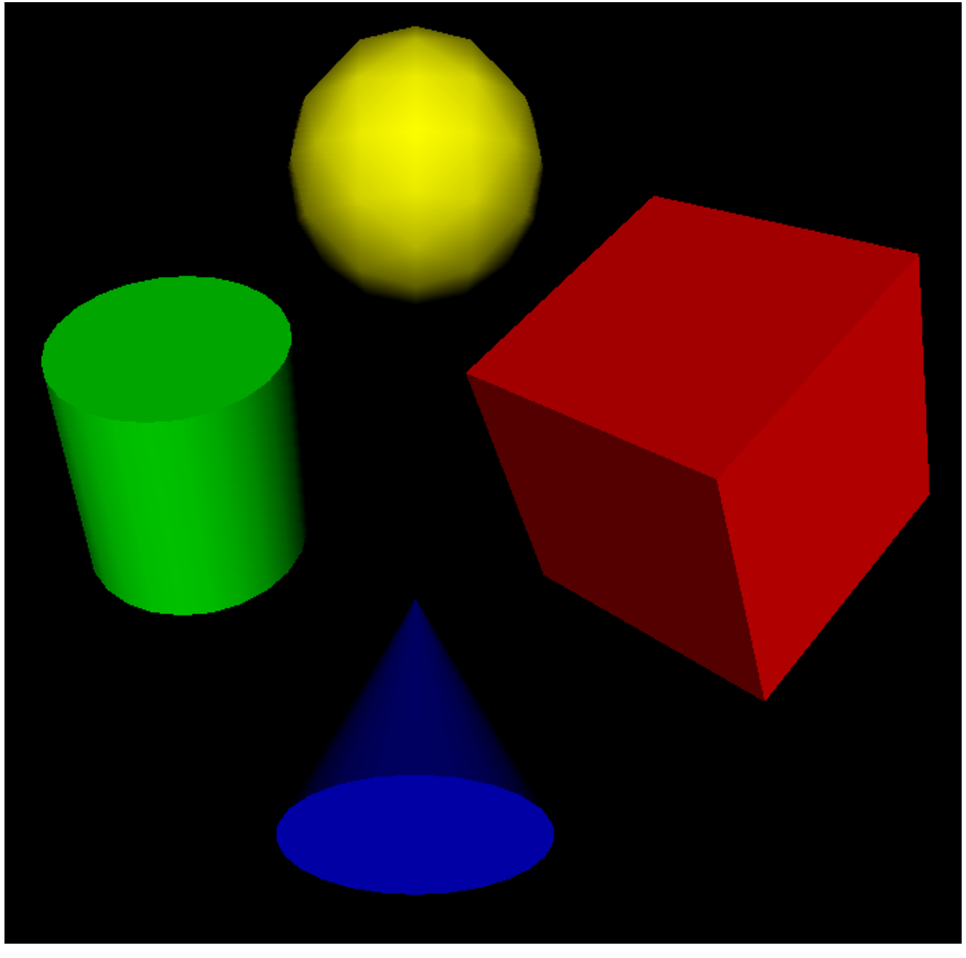
Aula 13: Primitivas 3D

Kahoot

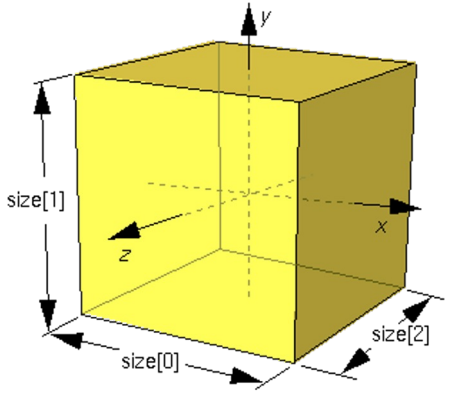
Entrar em Kahoot.it : https://kahoot.it/

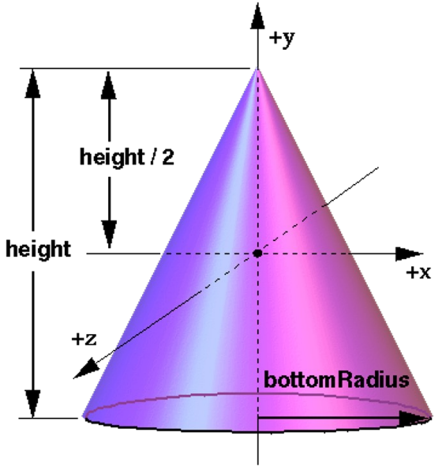
Formas e Transformações (X3D-Edit)

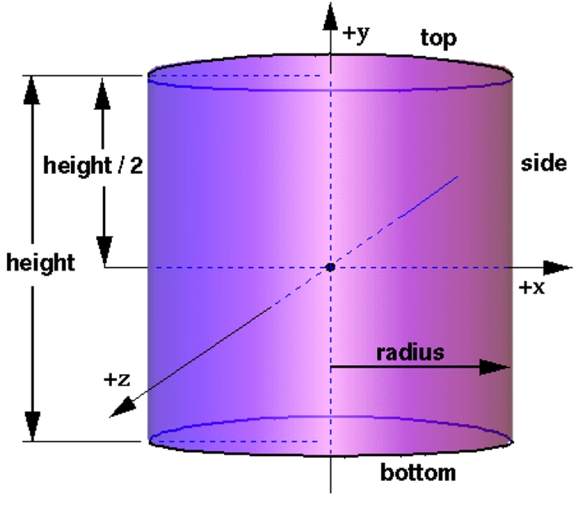


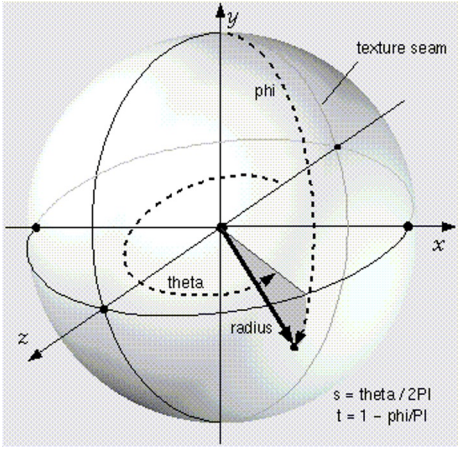


Especificação de algumas primitivas









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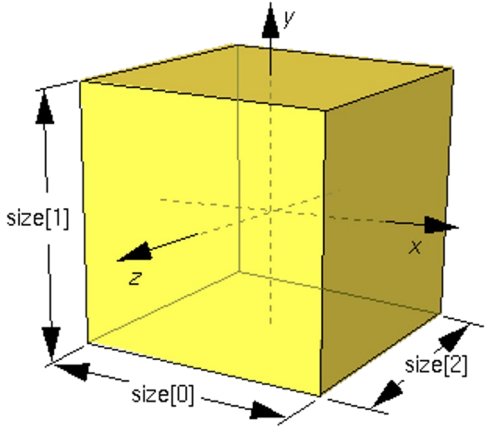
Box

O nó **Box** especifica uma caixa 3D paralelepípeda retangular centrada no (0, 0, 0) no sistema de coordenadas local e alinhado com os eixos de coordenadas locais. Por padrão, a caixa mede 2 unidades em cada dimensão, de -1 a +1. O campo **size** especifica as extensões da caixa ao longo dos eixos X, Y e Z, respectivamente, e cada valor do tamanho deve ser maior que zero.



Box : X3DGeometryNode {

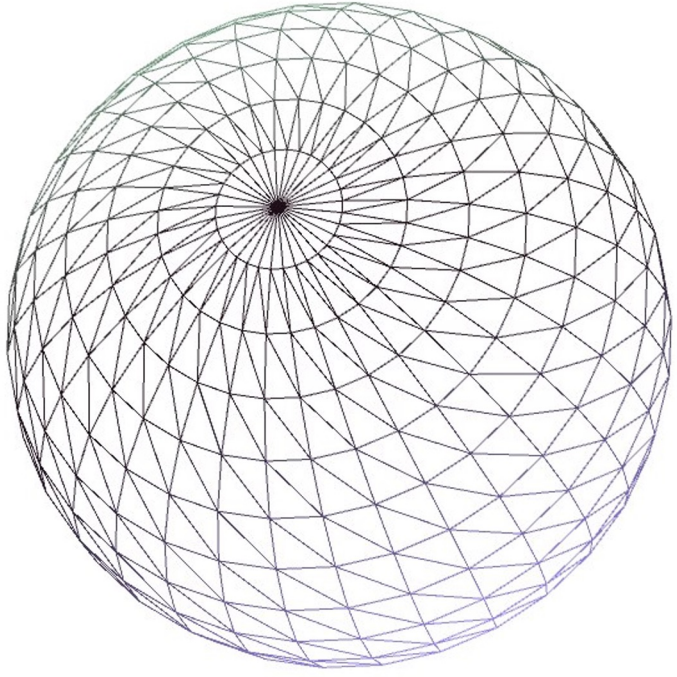
SFNode	[in,out]	metadata	NULL	[X3DMetadataObject]
SFVec3f	**[]**	**size**	**2 2 2**	**(0,∞)**
SFBool	[]	solid	TRUE	

}

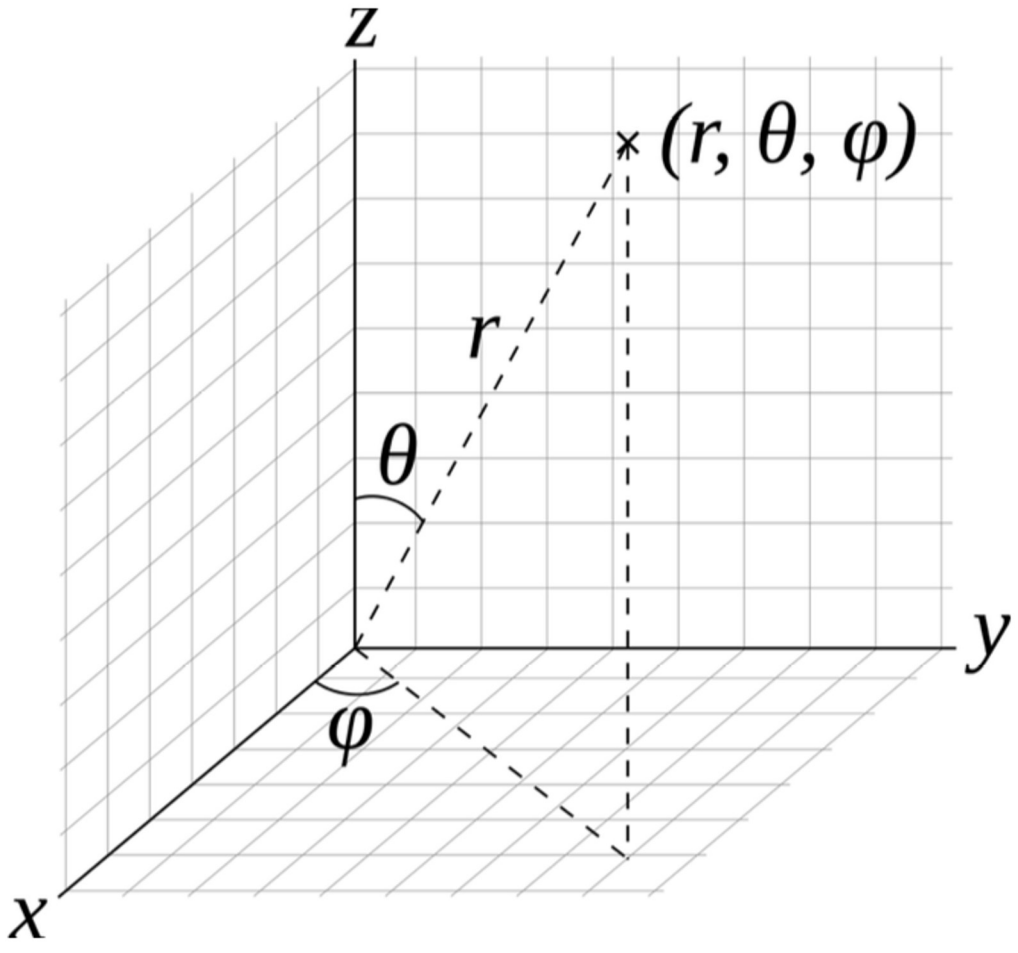
https://www.web3d.org/documents/specifications/19775-1/V3.3/Part01/components/geometry3D.html#Box

Geração de Esferas em 3D

Você é capaz de gerar um esfera 3D composta por vértices e arestas? Qual seria a sua técnica?



Revisão de Coordenadas Esféricas



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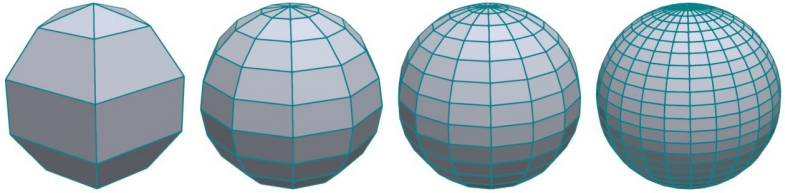
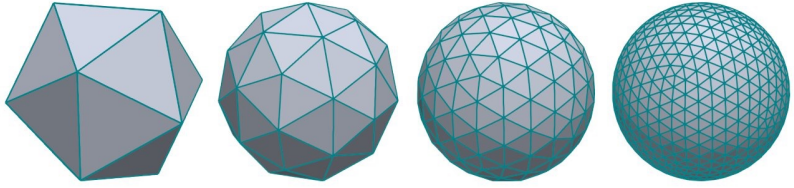
Mais malhas de esferas

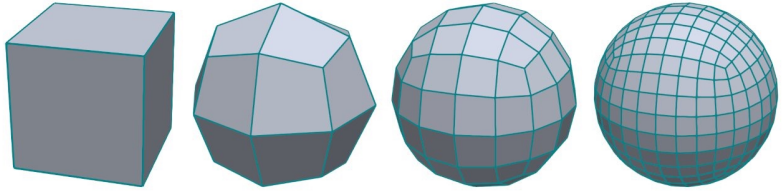
- UV sphere



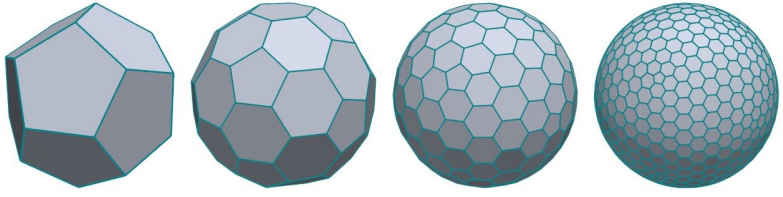
- Icosphere



- Quad sphere



- Goldberg polyhedra



https://www.danielsieger.com/blog/2021/03/27/generating-spheres.html

Especificação das primitivas

Box : X3DGeometryNode {
SFNode [in,out] metadata NULL [X3DMetadataObject]
SFVec3f [] size 2 2 2 (0,∞)
SFBool [] solid TRUE
}

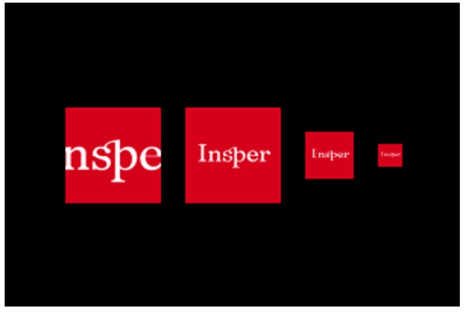
Cylinder : X3DGeometryNode {
SFNode [in,out] metadata NULL [X3DMetadataObject]
SFBool [] bottom TRUE
SFFloat [] height 2 (0,∞)
SFFloat [] radius 1 (0,∞)
SFBool [] side TRUE
SFBool [] solid TRUE
SFBool [] top TRUE
}

Cone : X3DGeometryNode {
SFNode [in,out] metadata NULL [X3DMetadataObject]
SFBool [] bottom TRUE
SFFloat [] bottomRadius 1 (0,∞)
SFFloat [] height 2 (0,∞)
SFBool [] side TRUE
SFBool [] solid TRUE
}

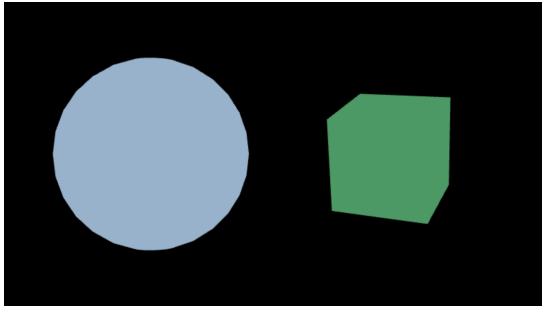
Sphere : X3DGeometryNode {
SFNode [in,out] metadata NULL [X3DMetadataObject]
SFFloat [] radius 1 (0,∞)
SFBool [] solid TRUE
}

Quinta parte do projeto 1

textura.x3d



texturas.x3d



primitivas.x3d

https://lpsoares.github.io/Renderizador/

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Computação Gráfica

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