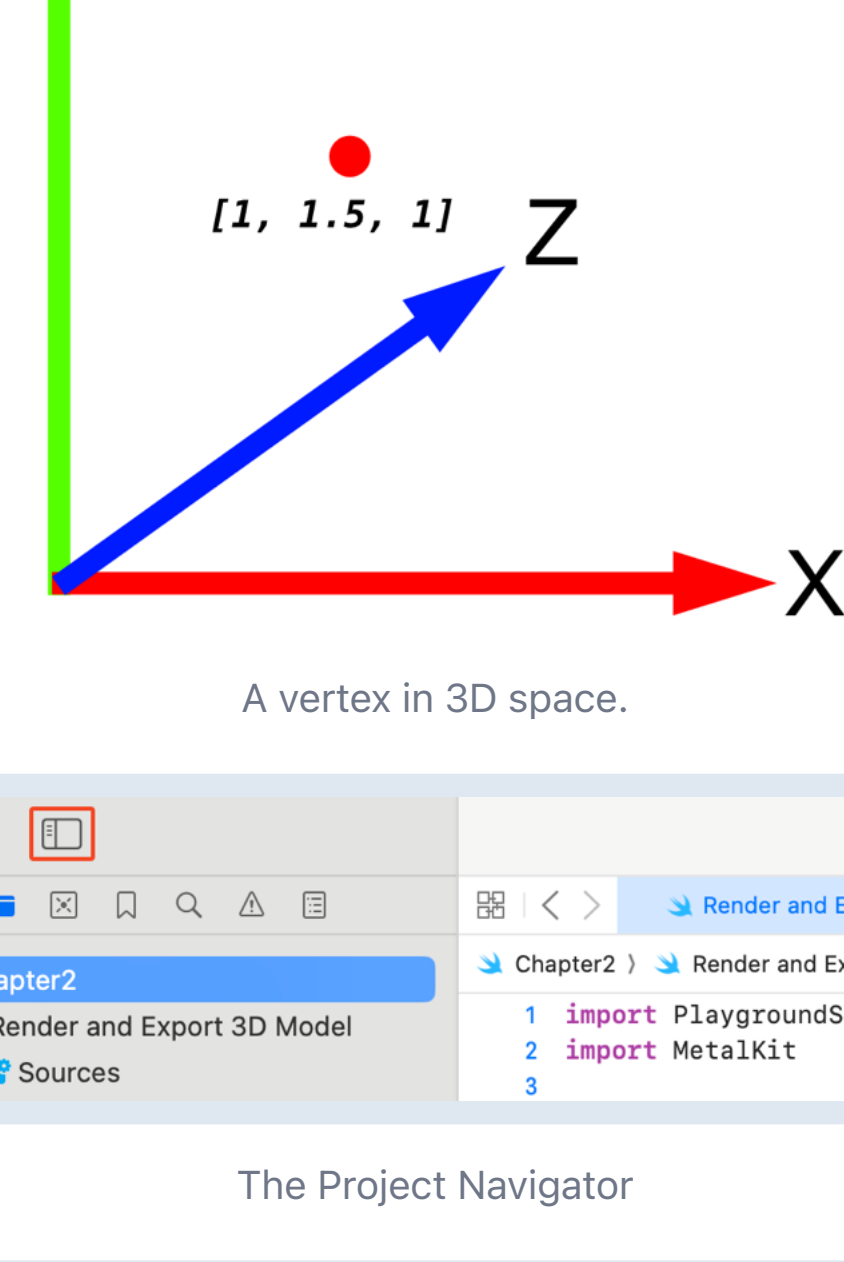
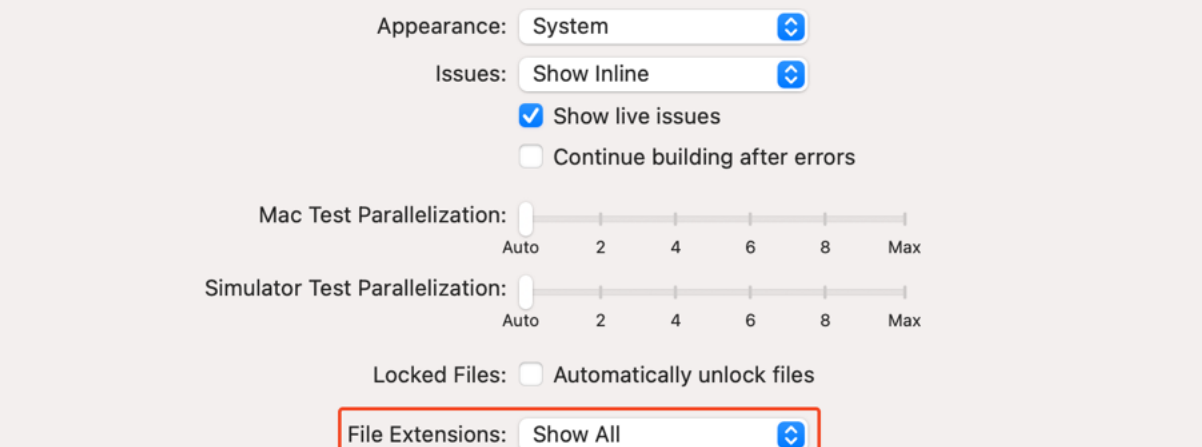


2 3D Models

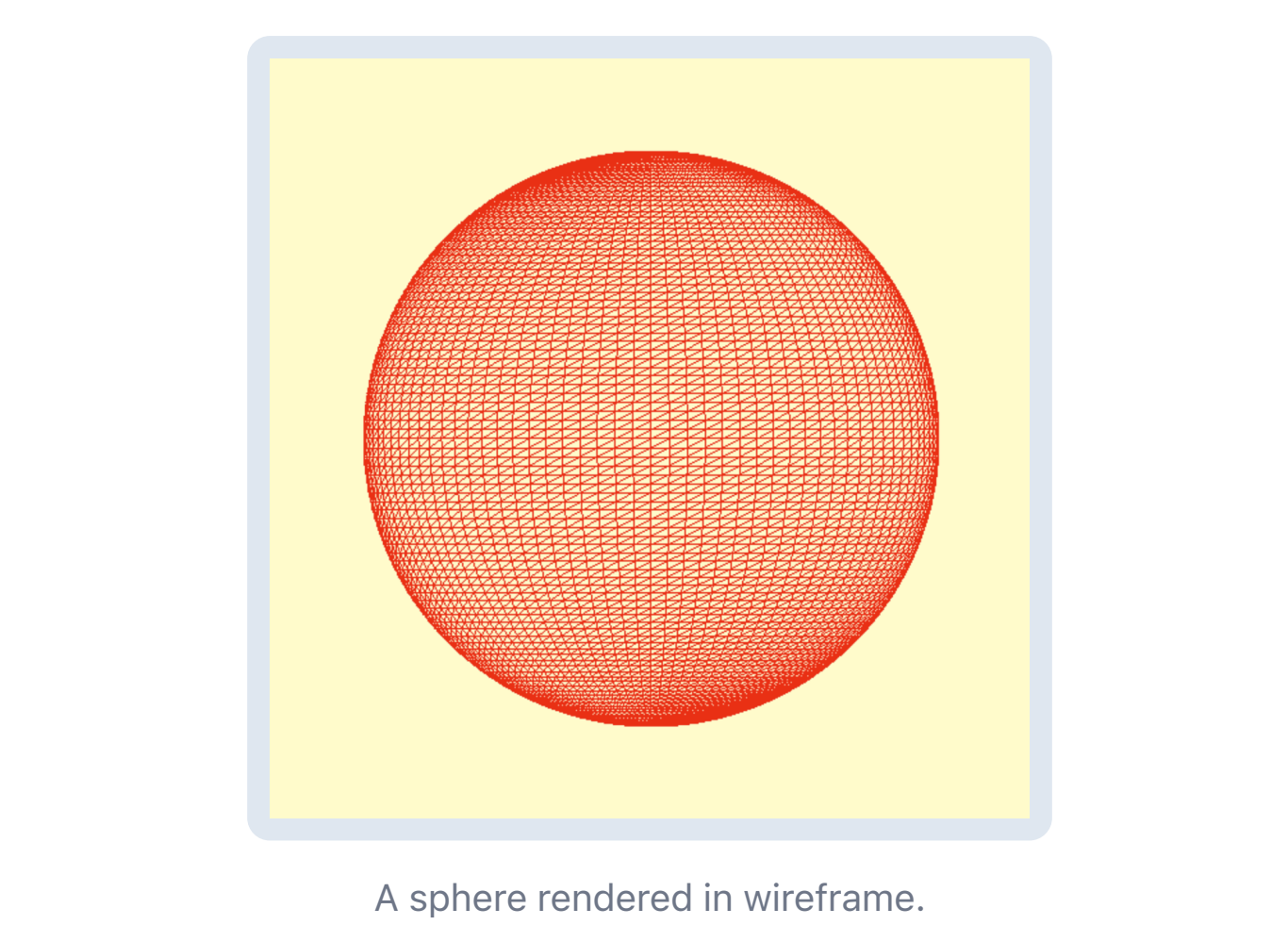
What Are 3D Models?



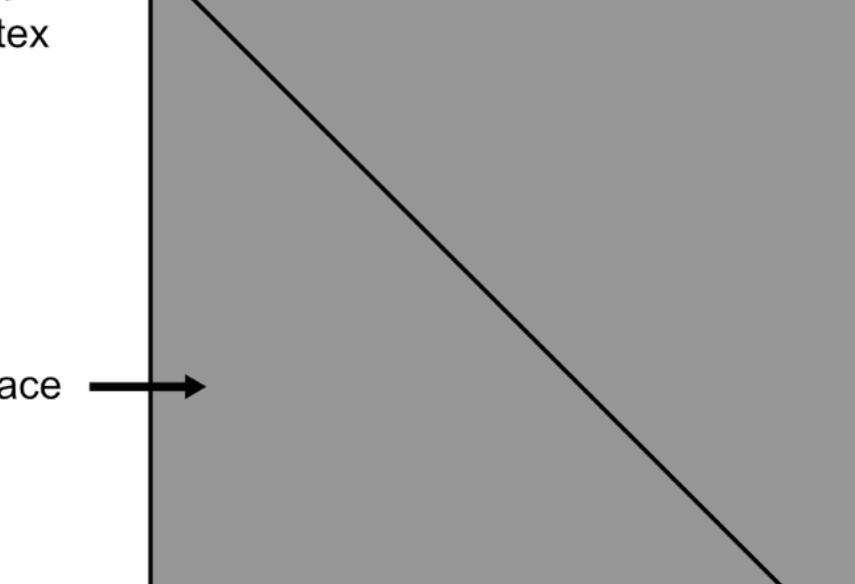
A vertex in 3D space.



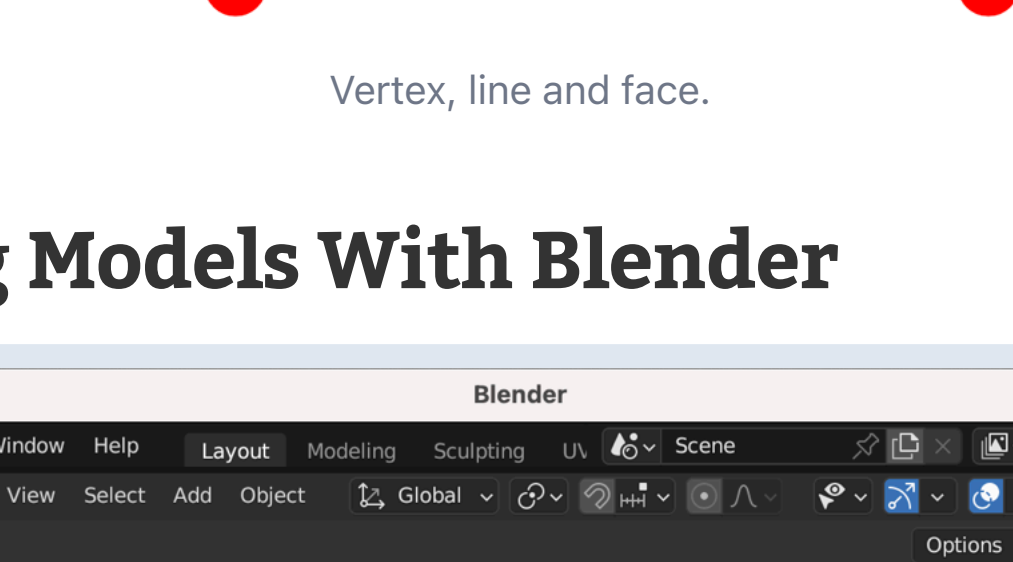
The Project Navigator



Show File Extensions

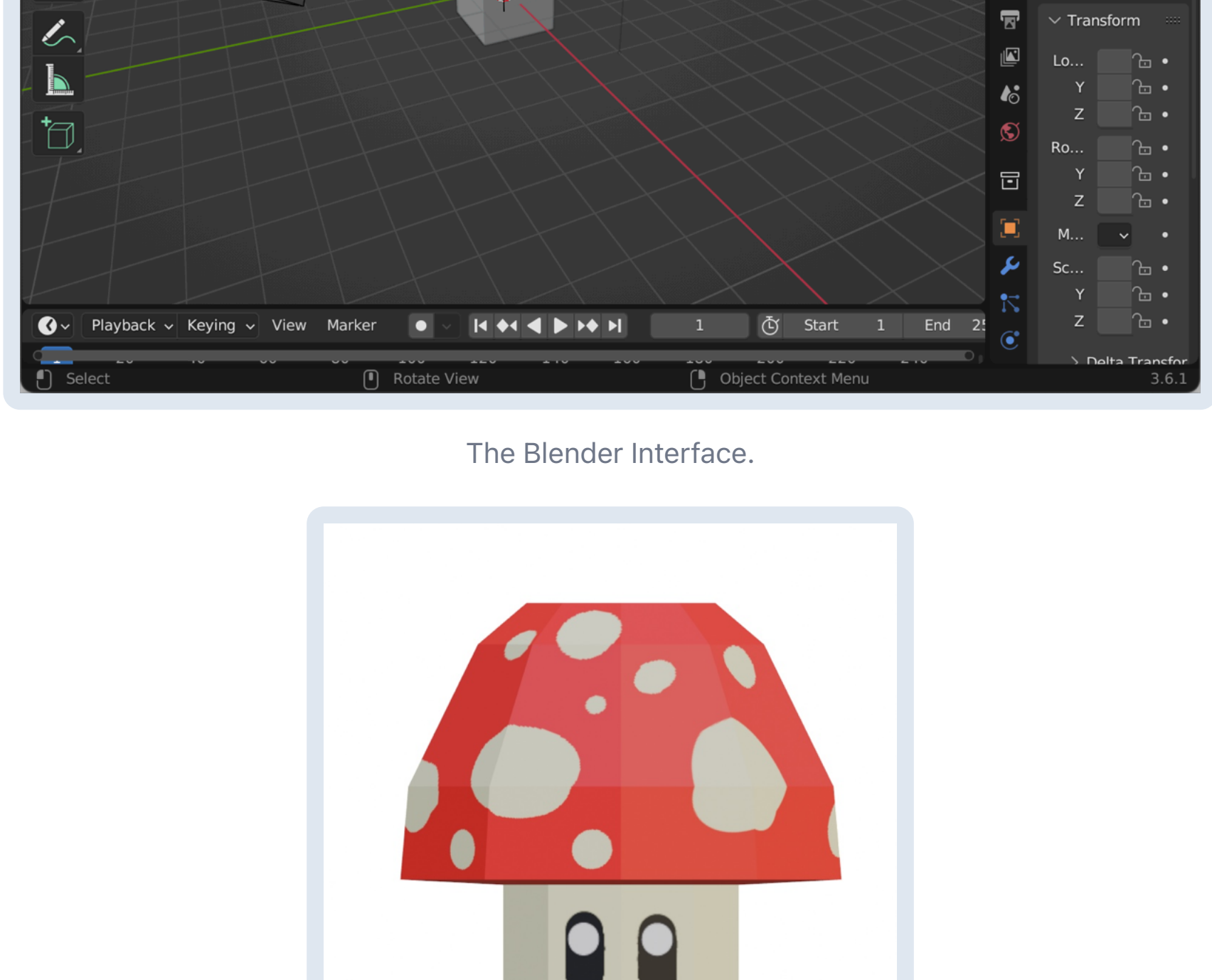


A sphere rendered in wireframe.

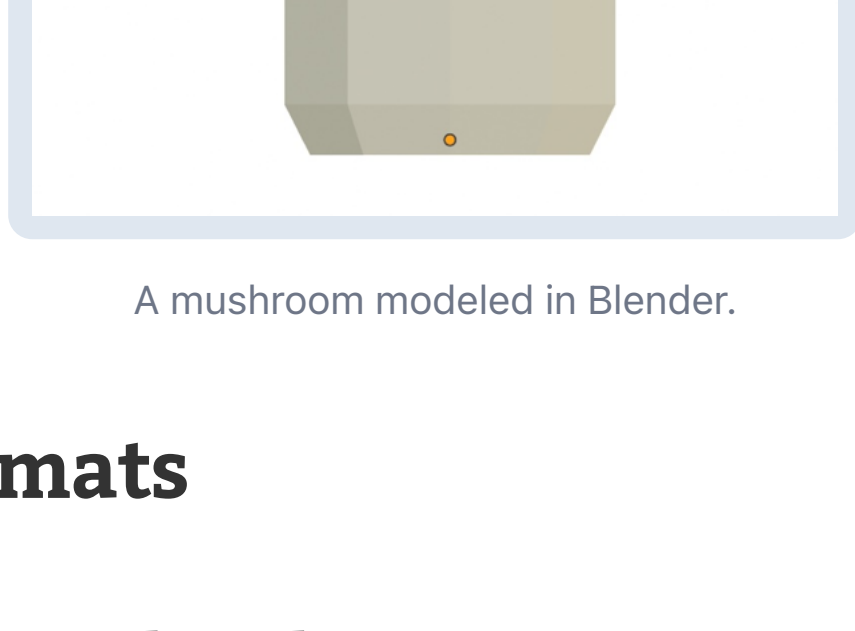


Vertex, line and face.

Creating Models With Blender



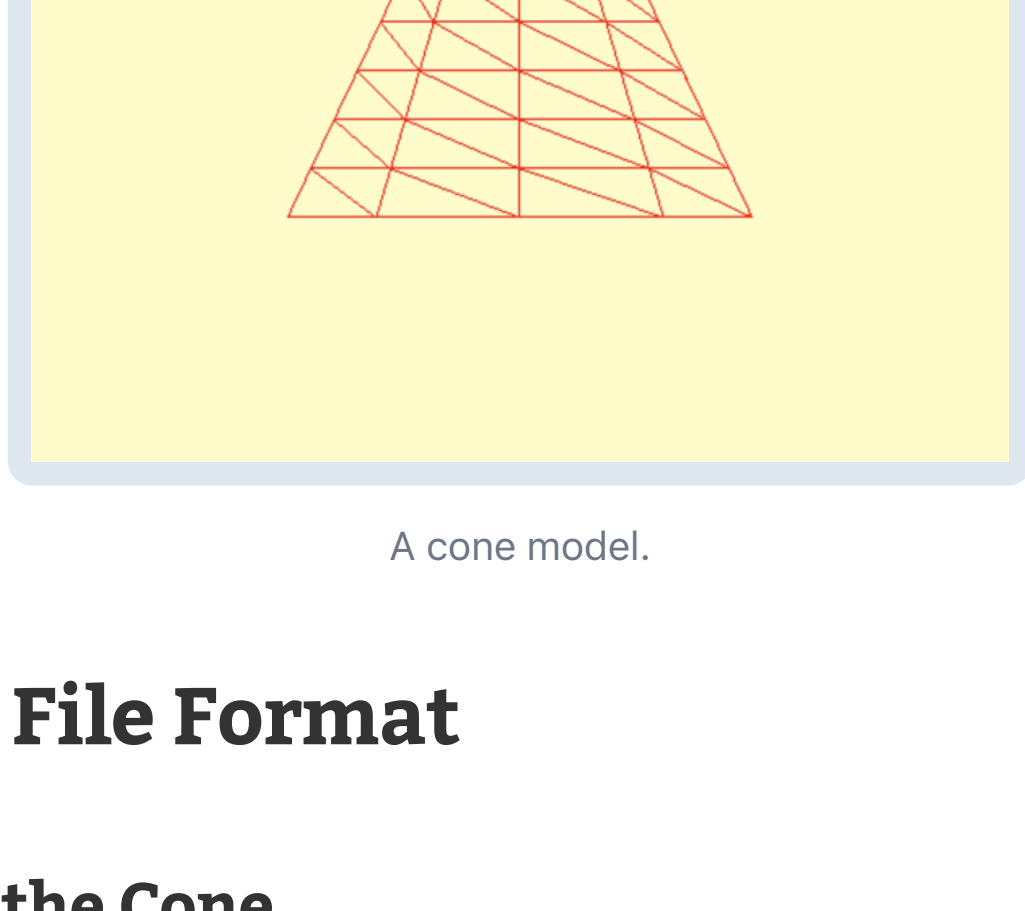
The Blender Interface.



A mushroom modeled in Blender.

3D File Formats

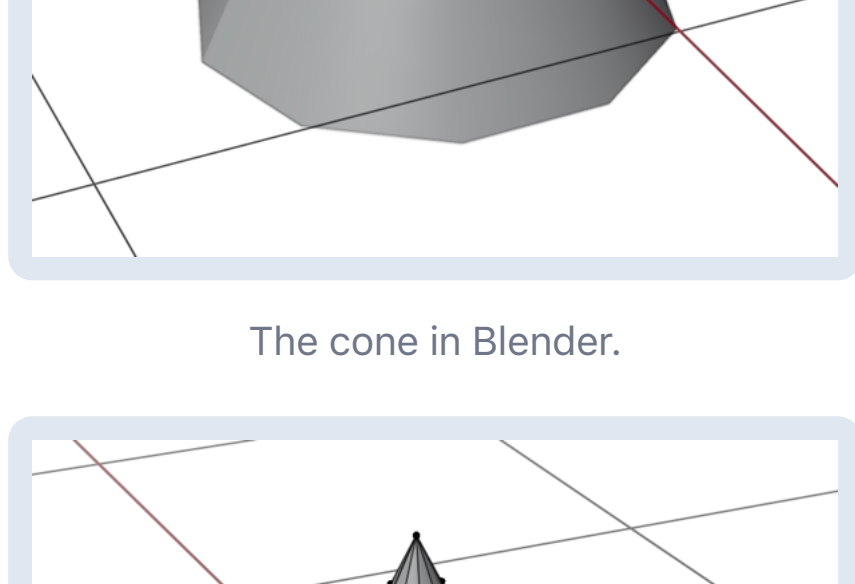
Exporting to Blender



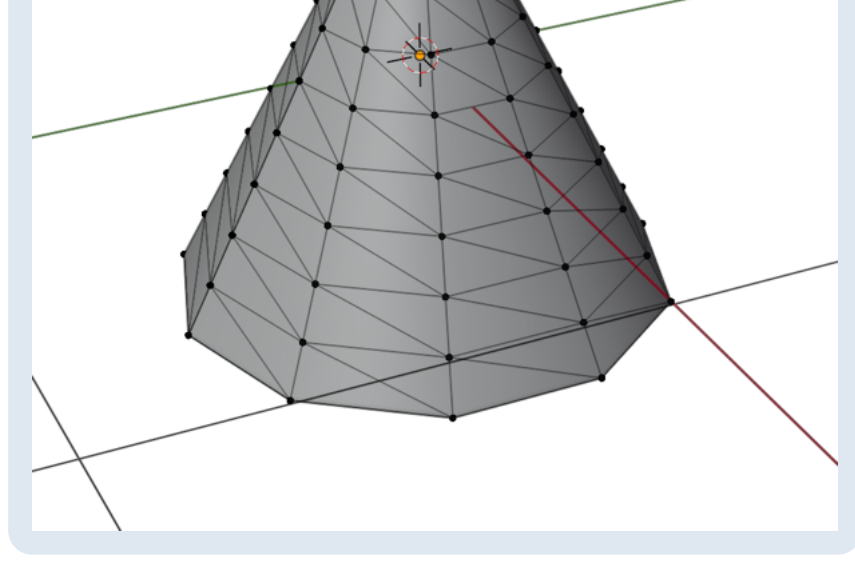
A cone model.

The USD File Format

Importing the Cone



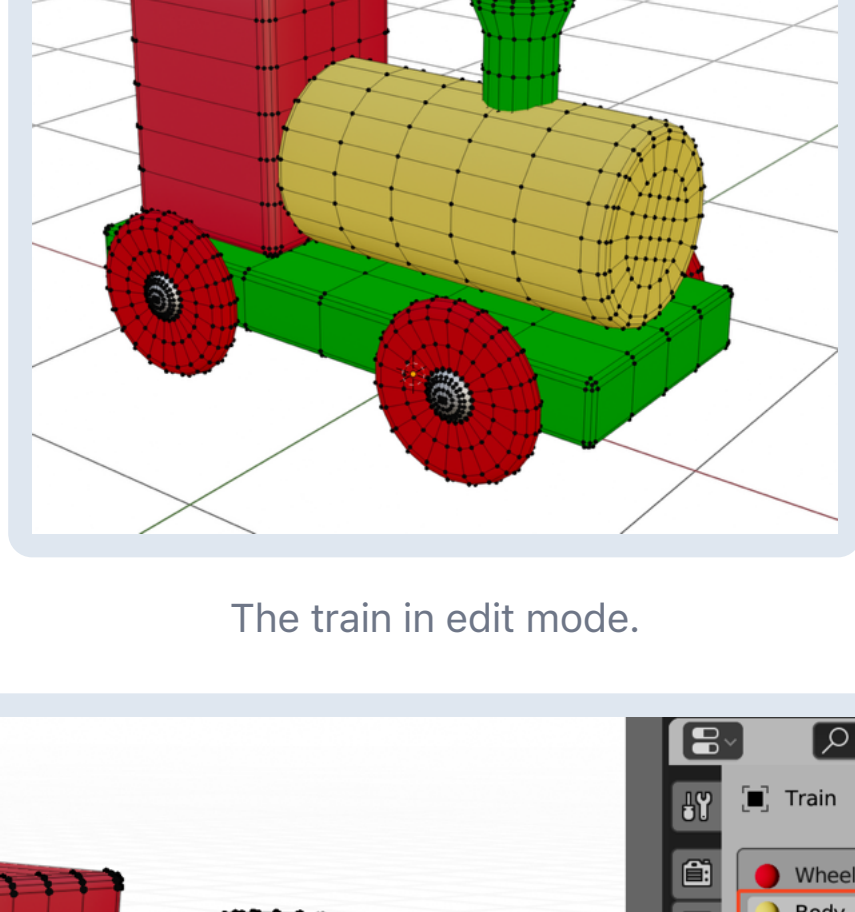
The cone in Blender.



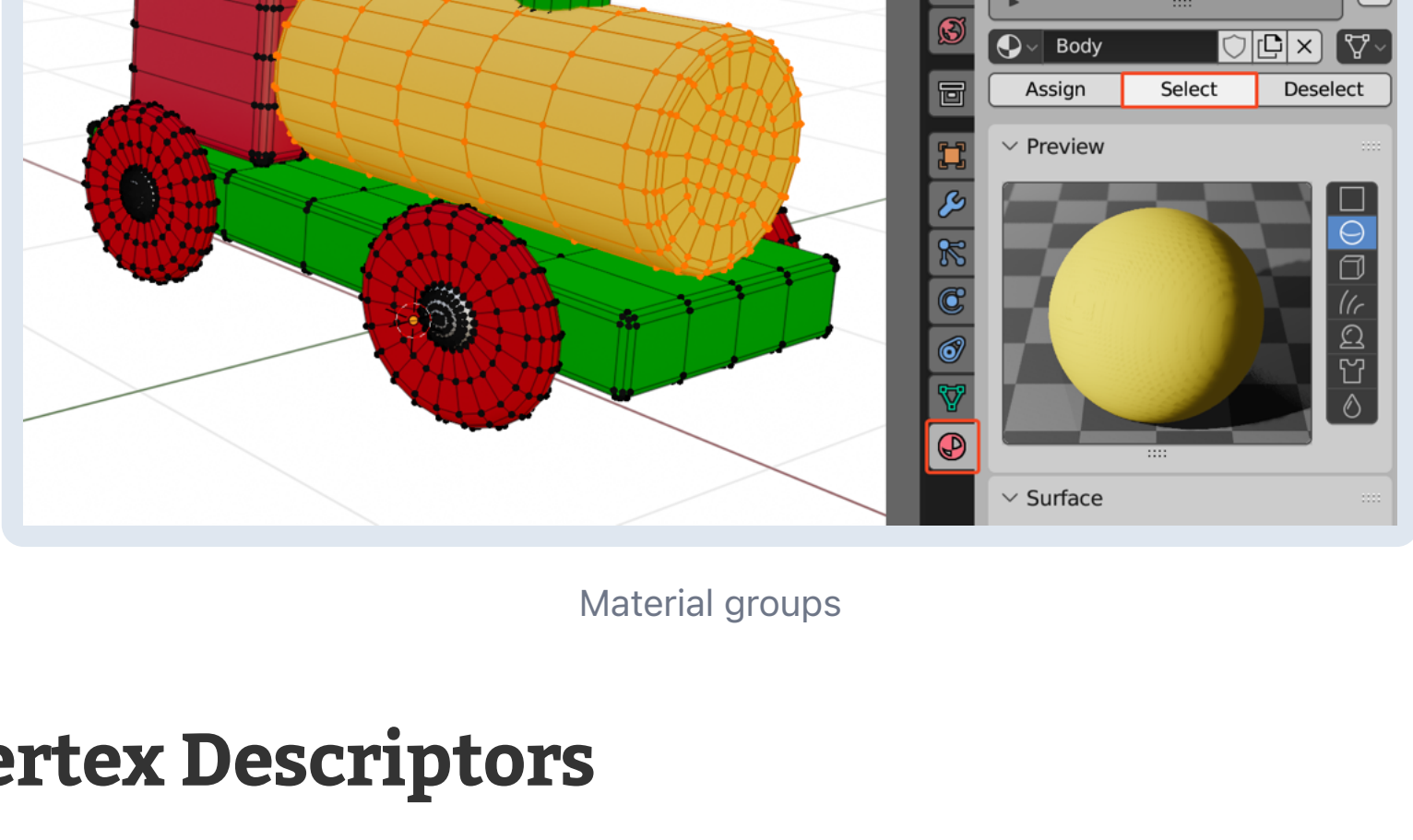
Edit mode

Materials

Material Groups



The train in edit mode.

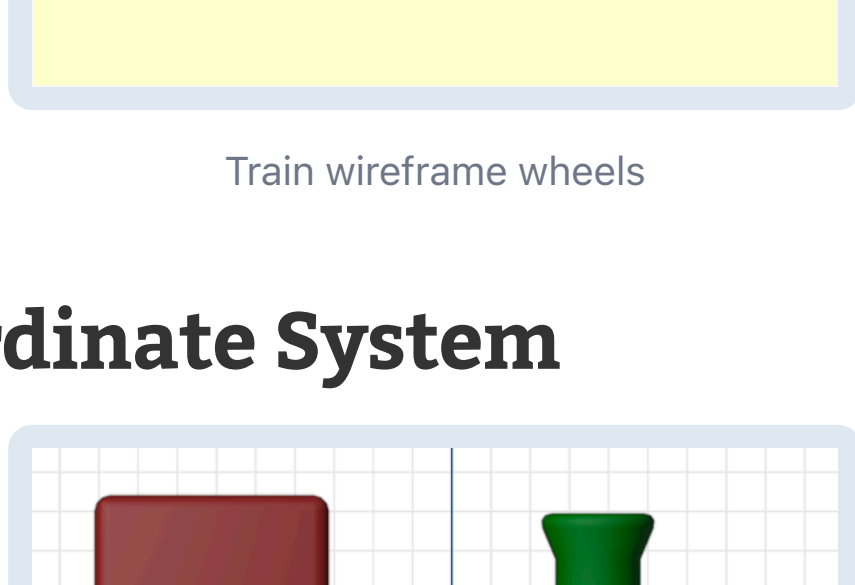


Material groups

Vertex Descriptors

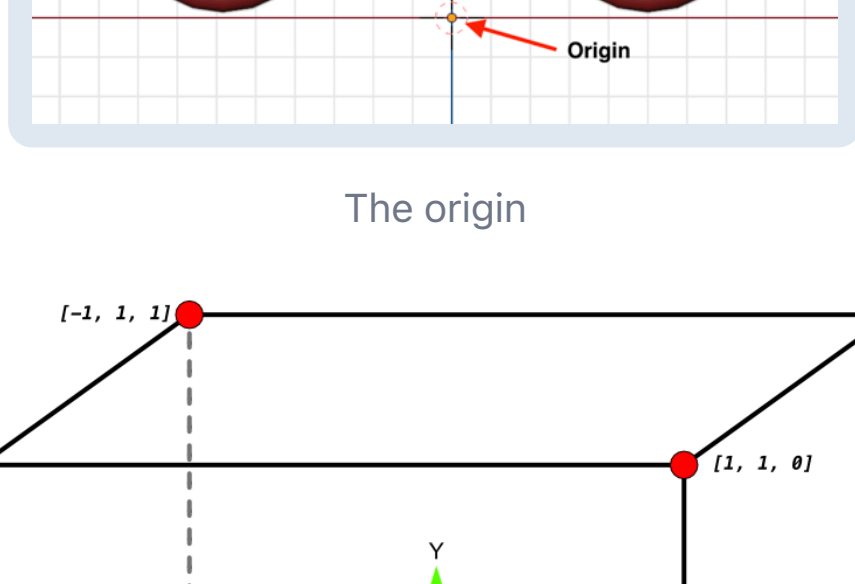
Vertex 1						Vertex 2					
0	1	0	-1	0	0	0.5	0.4	0.2	0.1	0.2	0
float3		float3		float2		float3		float3		float2	
Position		Normal		Texture Coordinates		Position		Normal		Texture Coordinates	

The vertex descriptor

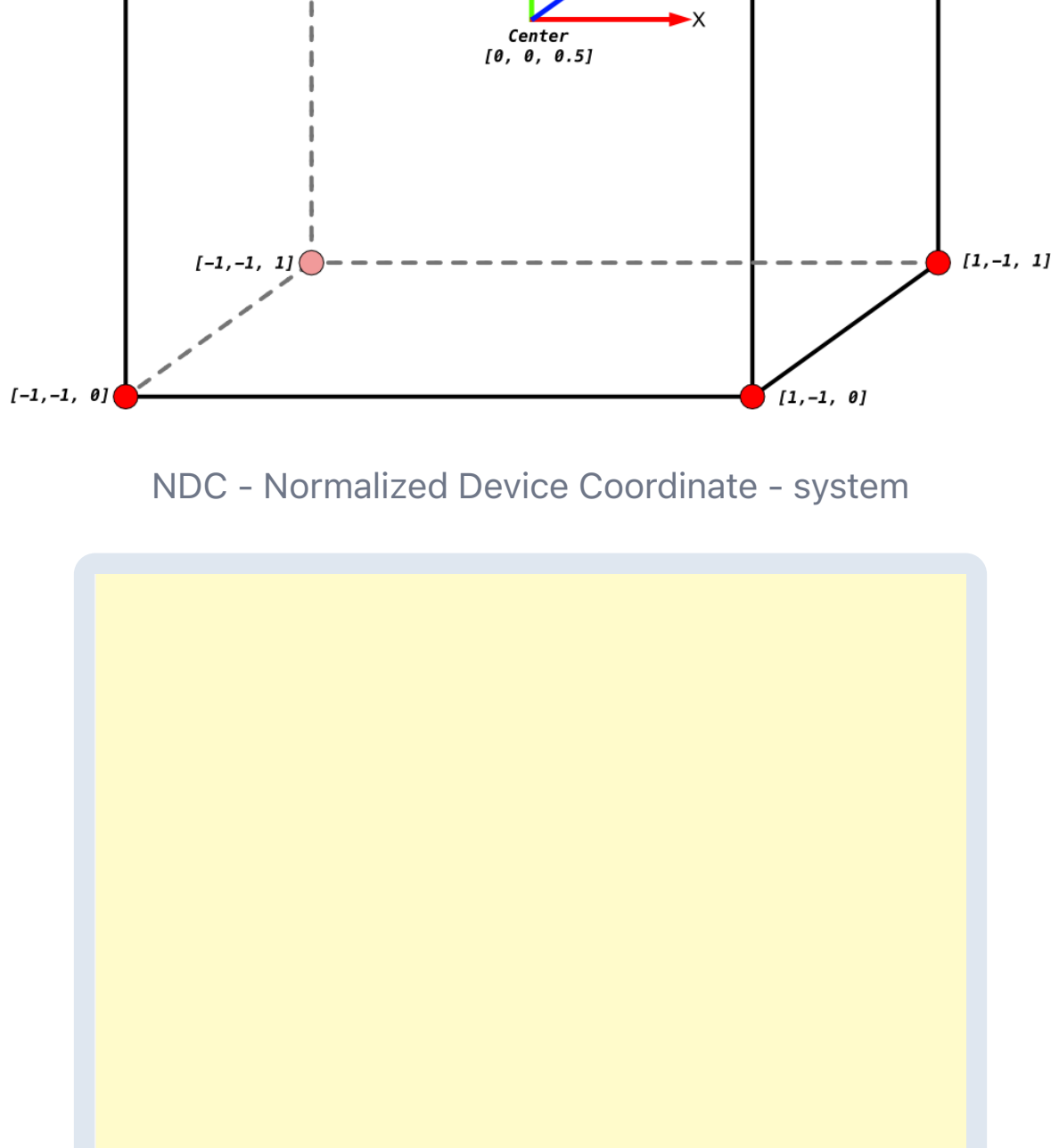


Train wireframe wheels

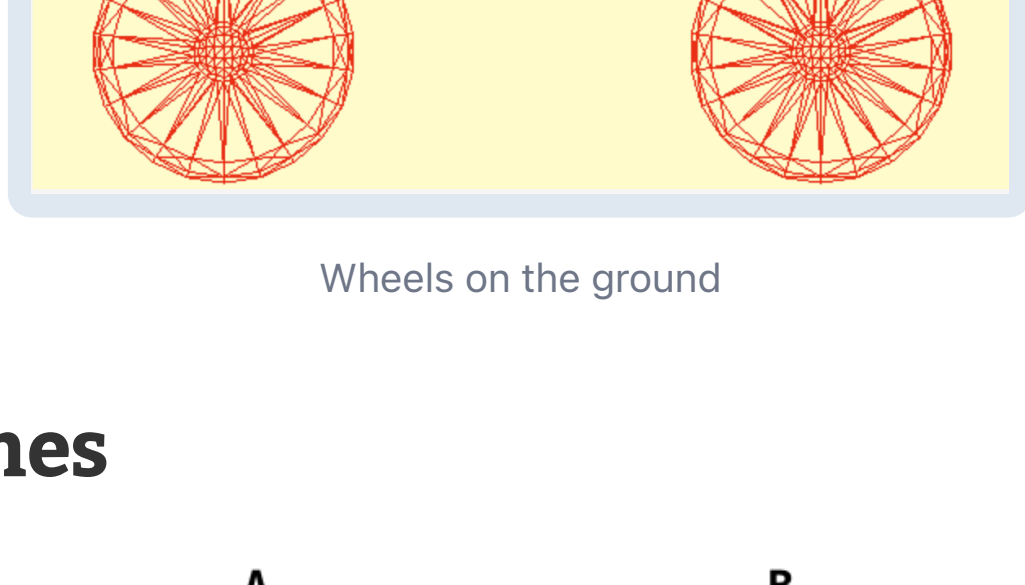
Metal Coordinate System



The origin

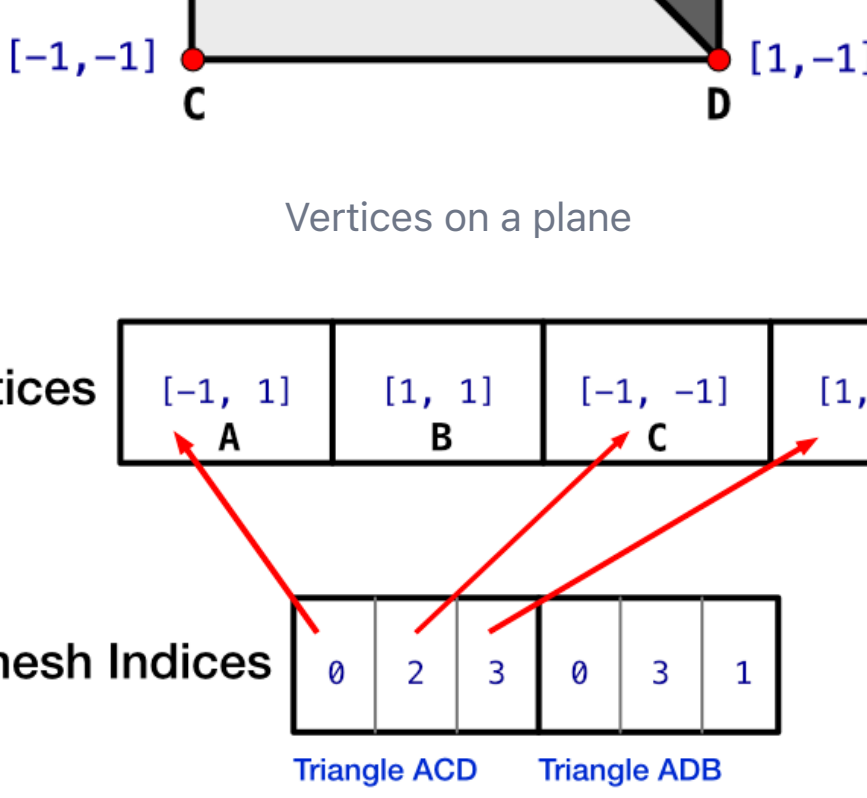


NDC - Normalized Device Coordinate - system



Wheels on the ground

Submeshes



Vertices on a plane

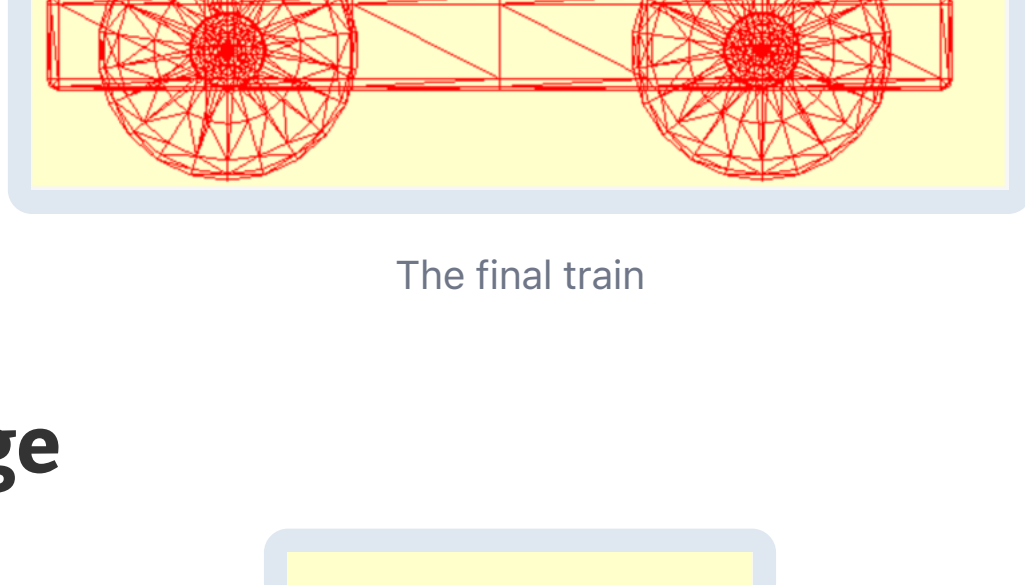
Vertices	A	B	C	D
	$[-1, 1]$	$[1, 1]$	$[-1, -1]$	$[1, -1]$

Submesh Indices	0	2	3	0	3	1
	Triangle ACD			Triangle ADB		

Submesh buffers

Winding Order

Render Submeshes



The final train

Challenge



Wireframe mushroom