

// MinTuts/Procedural Terrain.shader

```
Shader "MinTuts/Procedural Terrain" {
    SubShader {
        Pass {
            CGPROGRAM

            #pragma vertex    vert
            #pragma fragment  frag

            #include "UnityCG.cginc"

            struct v2f {
                float4 pos    : SV_POSITION;
                float3 wpos   : POSITION1;
            };

            v2f vert(float4 vertex : POSITION) {
                v2f o;

                o.pos = UnityObjectToClipPos(vertex);
                o.wpos = mul(unity_ObjectToWorld, vertex);

                return o;
            }

            float4 frag(v2f i) : COLOR {
                float  p = i.wpos.y * 0.015;
                float3 y = float3(p, p, p);

                return float4(y, 1);
            }
        }
    }
}
```

First things first: create our output data structure

Then we populate **v2f**'s **pos** and **wpos** properties

This function is available because... we **#included** Unity's **Cg** helper functions

We pass the **vertex** input parameter to this function

Since **SV_POSITION** and **POSITION** have the same semantic meaning (the **vertexs** position in object, aka local, space)...

passing **vertex** results in our local/object coordinates... being transformed to clip space coordinates

NOTE: Even though the **semantics** are identical, the values for **o.pos** and **vertex** will be different because... they are defined in different spaces; local/object space... and clip/camera's field of view space

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Next, we call **mul** - a function built into **HLSL**