// 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);
      }

    ENDCG
    }
  }
}
```

We assign the result of this calculation to the variable **p**…

which has a type of **float**

We then use **p** to build…
a **float3** representing the red, green, and blue color channels

We then assign this **float3** to the variable **y**; making it clear that our **float3** color comes from our **i.wpos.y** value

NOTE: Since the *red*, *green*, and *blue* channels all have the *same value* (*p*) this is a greyscale shader - as **p** *approaches 0* the color will be darker shades of grey (*until the color becomes black when p equals 0*) and as **p** *approaches 1* the color will be lighter shades of grey (*until the color becomes white when p equals 1*)

NOTE: This is why it's rare to let a **normalize**d value go beyond 1: **float3** represents colors as *red*, *green*, and *blue* values between 0 and 1 - values greater than 1 don't make any sense to a graphics card

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          float3 y = float3(p, p, p);

          return float4(y, 1);
        }

      ENDCG
    }
  }
}
```

We use this **float3** as the first 3 arguments…