An Introduction to 3D Modelling:

An Inquiry & Video Scavenger Hunt

**PART 2: The Basics of 3D**

**A Video Scavenger Hunt**

In the spaces below, use the “Introduction to 3D” video clips to respond to the following questions about navigating in 3D space, 3D geometry, textures and materials, and rendering. If you miss something, you might want to look it up online. Please use a different font colour (not black) to record your responses.

A: Understanding 3D Space – “As Easy as X, Y Z”

1. What are the 3 dimensions (or, “axes”) we use to represent the 3D world? List and explain each.

2. How can changing a 3D object’s coordinates (ex. 1,4,7) impact the object? Hint: There are 4 ways.

B: Modelling and 3D Geometry – “What is Geometry” and “Polygonal Structures”

1. What basic geometric shape are all 3D models made up of, and why?

2. What other types of shapes can you model in? Why?

3. What are “primitives” and what are they used for? Give 3 examples.

4. What is a “polygon”? What is meant by “polygonal modelling”?

5. Identify and define the 3 sub-objects we are able to manipulate within a polygonal surface?

C: Textures and Materials – “What is a material”

1. What is a “material” in the context of 3D modelling software?

2. By using different materials, what qualities can we apply to a model to make it seem more real?

3. What is the function of a “shader”?

D: Rendering Images – “Rendering as virtual photography”

1. What is “rendering”? What is the result of “rendering” a 3D model?

2. Compare the process of rendering to the process of photography. How are they similar? Different?

3. Are the camera and lighting within 3D modelling software real or simulated? Explain.

4. Why is lighting such an important factor in 3D Modelling?