**3D Modeling: Choosing 3D Shapes to Accurately Replicate 2D Images**

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For this assignment, I was tasked with selecting a 2D image and recreating it as a 3D model using basic geometric shapes. The purpose of this exercise is to demonstrate the application of fundamental 3D modeling techniques and to understand the geometric composition of everyday objects. The image I chose depicts a typical desktop workspace, featuring several common objects such as a computer monitor, a desk, and various office accessories. This selection offers a clear and relatable scene, making it ideal for detailed geometric analysis and modeling. The image I am working with is presented below, allowing readers to visualize the original setup that will be replicated through 3D modeling techniques. This visual reference ensures that anyone reviewing this analysis can clearly understand the appearance of the items I aim to recreate.

A computer on a desk

Description automatically generated***Selected Image***

***Selected Major Objects from the Image:***

1. Computer screen
2. Stand for the computer screen
3. Desk
4. Black mug
5. Square container with pencils
6. Pencils

**Detailed Replication Using 3D Shapes**

***Computer Screen and Stand:***

* Screen: I would select a flattened box for the screen due to its slim profile, which suggests minimal thickness.
* Base of the Stand: For the descending part of the stand from the back of the monitor to the desk, I would use a flattened prism, reshaped into a trapezoidal form for accuracy. To reshape it, I would half it by cutting it horizontally, if using the prism from the picture of 3D shapes, then take the top half and rotate it 180º. For the portion of the stand extending forward on the desk, I would use a plane to capture its flat, elongated characteristics.

***Desk:***

* The desk surface, being broad and flat, would be efficiently modeled with a plane, providing a stable and substantial base for the other objects.

***Black Mug:***

* For the mug’s body, I would use a tapered cylinder, reflecting the cup’s contour as it narrows towards the bottom. The handle would be created using an elongated torus, cut in half, to accurately simulate the real handle’s shape.

***Square Container for Pencils:***

* The container would be represented by a box to match its rigid, rectangular form. To indicate that it is open at the top, I would place flattened cylinders along each top edge to soften the edges while maintaining the container’s overall squared shape.

***Pencils:***

* The shafts of the pencils would be modeled as elongated, skinny cylinders, with cones at the ends to depict their pointed tips.

**Use of Multiple Shapes**

Several items, such as the computer monitor's stand and the black mug, require combinations of different shapes to achieve a more detailed and faithful 3D representation. This approach ensures structural and visual accuracy.

**Simplifications**

In streamlining the model, the keyboard and books were omitted to focus on the most visually significant items. While the screen could be simplified to a single plane if the program being used allows differentiation of colors and details, the square container could also be reduced to just a box if finer details are not essential.