

CSC 322 Introduction to Computer Graphics Spring 2025

Homework #2

Due Date: 02/05/2025

Submission Link: <https://learn.cua.edu>

The goal of this assignment is to help you become comfortable with constructing 3D objects from raw geometry using Three.js. You will create a **polyhedron resembling the Washington Monument**, implementing **basic geometry, materials, and animations**.

Tools You'll Use

1. **Three.js API** – [Documentation](#)
2. **JSFiddle** for testing – [JSFiddle Online Editor](#)

Assignment Requirements

1. Constructing the Washington Monument Polyhedron

You will create an **eight-sided** polyhedron representing the Washington Monument. Your model should follow these approximate dimensions:

- **Base width:** ~55 feet
- **Top width:** ~34 feet
- **Pyramidion height (top pyramid):** ~55 feet
- **Total height:** ~555 feet

Key Constraints:

- The **polyhedron should have 8 sides** (4 for the tower and 4 for the pyramidion).
- **No base** should be included.
- The **origin (0,0,0)** should be at the center of the base, directly below the peak.

2. Color Implementation

Each side of the polyhedron should have a **distinct color** so that all edges are clearly visible.

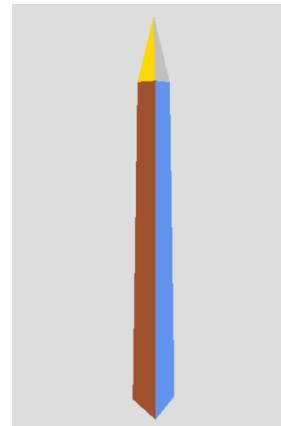
- Use **at least three different methods** for specifying colors:
 - **THREE.ColorKeywords**
 - **Hexadecimal notation**
 - **CSS strings**
 - **RGB format (must be used at least twice)**
- Document the colors you use in comments within your code.

3. Material & Rendering

- Use **the default one-sided material** so that the monument's sides disappear when viewed from below.
- *(Optional)* Experiment with **Alpha Compositing** techniques available in Three.js.

4. Animation: Rotating the Monument

After constructing the monument, implement **requestAnimationFrame** to rotate the object around the **Y-axis** continuously.



Submission Requirements

1. **Upload your completed code to your GitHub repository.**
2. **Take a screenshot** of your final model and save it as a PDF.
3. **Submit the PDF screenshot** for grading.