

## Title: Night Sky Scene: A WebGL Cottage Landscape

Model features a beautifully lit cottage on a farm, with a nice view of the night sky complemented by fireflies and green grassland. There's also a spaceship there to potentially go explore the stars.

### Personal Details:

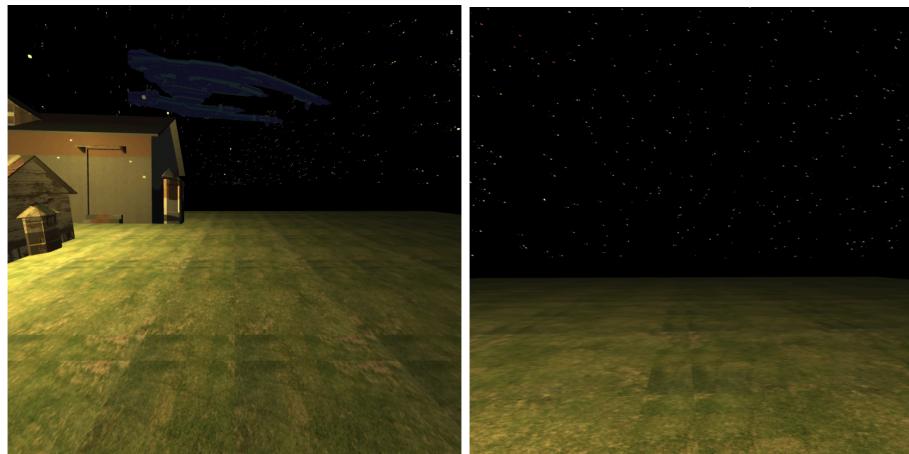
Name: Brighton Sibanda

Netid: bns4987

### Description:

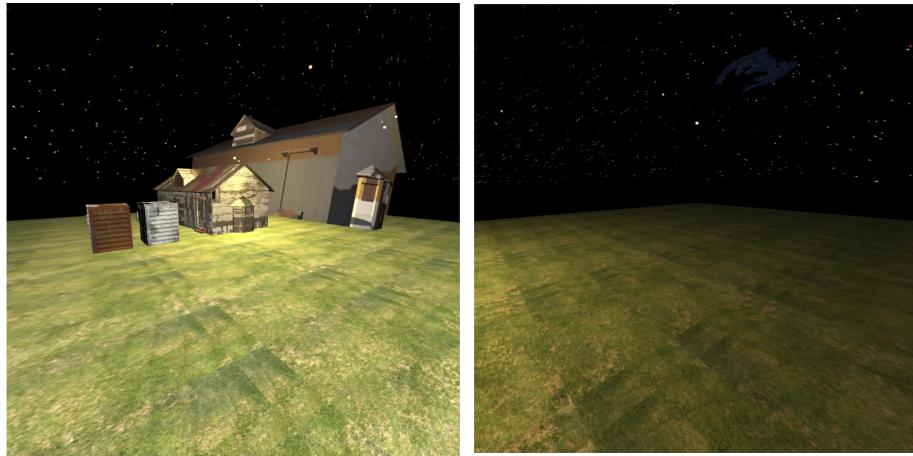
This project features a night sky scene with multiple 3D models placed in a landscape. The main elements include a textured field, two cottages, shipping containers, a spaceship, and atmospheric effects like stars and fireflies. The camera can be controlled by the user to navigate around the scene. The spaceship can be launched with a button click, making it fly away into the night sky. The scene is illuminated by fireflies that gently pulse and move around the cottages, creating a magical atmosphere. Stars twinkle in the background. A point light can be toggled and adjusted using sliders to change the lighting conditions of the scene.

### Images:



**Figure 1a (left)** → Night scene showing cottages with firefly illumination

**Figure 1b (right)** → A better view of the night sky and the grass



**Figure 2a (left)** → Night scene showing cottages lit with both fireflies and the white light

**Figure 2b (right)** → Spaceship in mid-launch, flying away from the scene.

### Files:

- main.js → Main JavaScript file containing WebGL setup, rendering, and animation logic.
- main.vert → Vertex shader for the WebGL program
- main.frag → Fragment shader for the WebGL program
- extras.js → Contains constants
- utils.js → Helper functions (to decongest my main.js file)
- resources/ → Folder containing all 3D models and textures:
- Index.html → file for running the model on the browser.

### Instructions for use:

The camera can be controlled using the following keys:

- W: Move camera forward
- S: Move camera backward
- A: Rotate camera right
- D: Rotate camera left
- R: rotate camera down
- F: rotate camera up

The spaceship can be launched by clicking the "Launch" button in the interface.

The scene lighting can be adjusted using the sliders for X, Y, and Z positions, as well as specular power. The light can be toggled on/off using the checkbox.

For the best experience, try viewing the scene from different angles to appreciate the firefly effects around the cottages. I only have **10** fireflies with light capabilities, so not all of them will light up, and they pulse meaning their light intensity will vary.

#### Rubric Items for check:

1. Multiple 3D models → Two cottages, shipping containers, spaceship, green grass.
2. Texture Everything → All models use appropriate textures, **except the point stars, light source, and (point light) fireflies.**
3. Lighting effects → White light with adjustable position and intensity, plus firefly glow effects (10 pulsating yellow firefly lights).
4. Animation → firefly pulsing, spaceship rotation and launch sequence.
5. User interaction → Camera controls, spaceship launch button and lightsource movement.

#### Additional Notes:

- My model works smoothly on Safari, but may be somewhat slow on chrome.