Asteroid Navigation

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Graphics

1. ## Objectives
   A. Using Math to do viewing, Making an interactive graphical application.
      a. To ensure we can "move" the camera in the scene

2. ## Equipment
   A. A computer that can run a modern web-browser

3. ## Lab Preparation
   A. Make sure you understand chapters 4 and 5.

4. ## Lab Instruction
   A. Phase 1: Asteroids
      a. Create an enclosed 8 sided object.
      b. This will represent your asteroid.
      c. Create 200 asteroids and randomly place them in a space between-100 and 100 for the X and Y and -10 and 10 for the Z value.
      d. All asteroids should be able to spin on all axis.
         i. Each asteroid will randomly rotate on each axis between .01 and .5
         ii. All asteroids will be different.
   B. Phase 2 Camera Movement
      a. The camera needs to be able to rotate left and right (with 'a' and 'd').
      b. The camera needs to move forward and backward (with 'w' and 's').
      c. The camera should move up and down with z and x.
      d. The camera CANNOT go through any asteroids and there should be no clipping.
   C. If the player pushes a button that represents "fire", a bullet should be spawned in front of the camera and go flying out the direction the camera if facing. (You could spawn in a little below the center of the camera if you want).
      a. If you hit an asteroid three times it will be destroyed.

5. Lab Rubric

	10	5	0
Phase 1: Asteroids are randomly placed within space	Perfect	Asteroids are statically set	Only one or two asteroids
Phase 1: Asteroids randomly spin	Perfect	Asteroids only spin in one axis	Asteroids do not spin.
Phase 2: Camera can move	Perfect	Camera can only move forward/backward OR rotate	The camera cannot move in the direction it is facing.
Phase 3: Camera cannot move through asteroids.	Perfect	Asteroids stop camera but the camera can see "inside" them.	The camera is not affected by asteroids.
Phase 4: Bullets	Perfect	Bullets spawn but do not destroy asteroids	Syntax errors or no bullets.
Total	/50		

6. Lab Report Requirements

No Report Necessary.