**Comp 4002 Winter 2010 Assignment #2 (Environmental Effects, Sprites, Waypoints)**

**Due: Wednesday Feb 9, 2010 (3 weeks) in the assignment box BEFORE class.**

**Worldcraft FGD file Extensions**: Add a **Sprite** class, a **Waypoint** class, and a **Pool** class to the student FGD file each with a **targetname**” variable so instances can be named. For your **Sprite** class, introduce a “**picture**” variable… to specify the name of the texture to use on the sprite; e.g., “angelFish” and make sure you provide a texture in your texture directory called “angleFish.tga” (it won’t look too good without transparency; you need a tool like Photoshop to look at transparent textures; it calls the transparent portion the alpha channel). Also, add a **waypoint** attribute initialized to the first waypoint it should target. For your **Waypoint** class, introduce a **neighbors** attribute which contains a string of comma separated names such as “place1,place2,place3”. The **Pool** class doesn’t need any other variables.

**Worldcraft .map**: Create a large pool or a canal if you wish with a bunch of waypoints and two bunches of sprites that will navigate using those waypoints; one bunch to navigate in the pool (e.g. fish), and another bunch to navigate on the land (e.g., animals or people). Also, create an instance of the **Environment** class and set the skyboxname to “redsky”. When this name is supplied, you will draw a pixel perfect skybox in your game using the textures whose names can be constructed by appending “-front’, “-back”, “-left”, “-right”, “-up”, and “-down”.

**Builder and engine extensions**: Add a “**position**” property to your sprite that you will compute from the center of the bounding box of the sprite object in the builder along with a **width** and **height** and then discard all the faces. Do the same for the waypoints… To avoid searching for waypoints in the engine, you should use the same approach that was used for textures; i.e., output all the waypoint names at the beginning of the world and replace the neighbors by the index of the appropriate neighbor… The pool object is special in that you will draw caustics on all the faces of the pool… You will also draw a skybox if there is one in the environment…

**What it should look like when you are done**. You should have a game level with a pool whose faces have ever changing caustics. The pool should contain fish that go toward their next waypoint. When they get there (or close to the target), they should randomly choose one of the waypoint’s neighbors… The same applies to the non-pool sprites. There should also be rotators and translators. So in essence, you will have a world alive with underwater and overland creatures.

**Marking check list**:

1. There are sprites moving around in the pool.
2. There are sprites moving around outside the pool.
3. Sprites are NOT all the same size.
4. There is a pool object.
5. There are caustics in the pool.
6. There is a skybox.
7. The skybox is pixel perfect.
8. Waypoint names like texture names are at the beginning of your “.wrl” file.