Week 8: USD I.

**Motivation:**  
USD, do anything, anywhere! The future is here, and it’s from Pixar.

**Learning Objective:**  
Methodology of: scene layout, ascii editing, hierarchical systems  
Concepts of: layers, overrides, scope, xform, groups, parents, children

**Schedule:**

Part 1:

* What is USD?
  + The big takeaway here is that USD can be used anywhere by anyone, in a layered, non-destructive way. Multiple users, multiple files
  + The other thing to mention is the hierarchy, compare and contrast to the Maya outliner and groups if people don’t quite get the idea.
* Who uses USD? Exploration of what engines support USD data, and how this will impact the future of gameDev.
* Authoring in USD: the layer editor, the outliner hierarchy.
* Parent and Child relationships
* USD Stage, USD Prims
* Creating the simplest of stages with the Monster
  + Parent and Child prims
  + USD layer editor
  + Using the outliner
  + Viewing in the script editor
  + USD file formats – usd, usda, usdc
* Working with display colour and display opacity to bring vertex colour into engine
* Save stage – how it works as an “auto-save”
* Scene scale and units on export and save usd scene compound

**Break: 10m**

Part 2:

* Working with and creating USD Variants. From the PowerPoint:
  + Make the flowers variant set
  + Make the vertex colours variant set
  + Explore both in Maya and Unreal Engine
  + Encourage adding variants and getting used to the system

**Break: 10m**

Part 3:

* USD instancing
  + Open the file supplied from week 3 and go through the USD point instancer setup as a quick graph walkthrough to explain
* Building our own point instancer (from PowerPoint)
  + Stages and sublayers
  + Creating the King – USD references
  + Defining the USD point Instancer
  + Building the overrides
  + Creating the crowd
* USD Material Binding
  + Defining a material prim
  + Preview surfaces
  + Textures
  + Scope and Xform prims
  + Binding materials
  + Material variant sets
* Optional homework – Take an asset you have built in Maya and make a USD version using what we have learned today