Week 3: Strands.

**Motivation:**  
Hair, grass, fur, cables, washing lines.

**Learning Objective:**  
Methodology of: sequences, advanced arrays, logic, following the data   
Concepts of: looping, back tracing, troubleshooting, exterior compounds, basis, ratio, watchpoints

**Schedule:**

Part 1:

* What is a strand? How is it different from a curve? What properties does it have?
* From PPT, build the Fibonacci spiral.
  + Build a sequence array
  + Looping
  + Sequence output
  + Arrays, sequence arrays, logic
  + Building the points
  + Building a strand from the points
* Back tracing and troubleshooting your work – following the noodles
* Testing compounds: watchpoint, scopes

**Break: 10m**

Part 2:

* The Road Rig – this utilises two strands to construct a road mesh. The compound to do this is supplied and does not need to be recreated. We use this compound as both the basis of the rig and as an example of external compounds, given to the artists to use in their work.  
    
  The students will use this rig to build their own version of the road:
  + How to approach and get familiar with an external compound, given to you to work with
  + Using a strand to build points
  + Adapting an external compound as a possible tool
  + Working with Inputs and outputs, keeping your data tidy
  + Rebuilding the road, using strands

**Break: 10m**

Part 3:

* The Streetlights – we are going to be scattering streetlights along both sides of the road rig built before the break, **using the strands** we built to contrast the road. This is to show the students some re-using methodology and repurposing existing data.   
    
  We are then going to use the master road strand to carve out trails in our scattered forest.  
  + Using existing strand data to build a new thing
  + Adding controls to your new rig
  + Wrapping everything up in a compound for ease of use
  + Taking this and flipping it to the other side of the road
  + Adding controls for offset, using negation
  + Polishing and publishing
* Load the existing forest project, bring in the compound you just made, and we will go through removing some of the trees’ scatter points to create gaps for a road to cut through the forest.
* Using the existing USD output built into the forest setup, this will reflect our changes in engine with very little effort.
* Recap today’s lesson, have a Q&A session with the class. Get them prepared to leave geometry and move onto Volumes next week.