

Josh Charles (ISLT 9440)

## **The Size of the Universe**

<http://sudolife.org/filamentality/>

### **Intended Users**

This project is aimed towards High School science students, or Freshman College students learning about the Universe.

### **Learning Outcomes**

This project leads to an understanding of the size / magnitude of the universe, and the implications of that size. It also gets the students thinking about the possibility of extra-terrestrial life, and what the implications of that would be.

### **Assessment**

Assessment of this assignment is multi-part. The first level of assessment is grading the answers to the questions first posed in the Filamentality. These questions have objective answers and reflect whether or not the students has read and understood the resources provided. The questions directly address whether or not they understand the actual size of the Universe.

The second level of assessment is to grade participation in the class discussion.

The final level of assessment is their answer to the Big Question. Did they use proper English? Was there a clear thesis statement? Did they support their statement with facts?

### **Discussion**

This learning activity meets the criteria for “meaningful learning” in a few different ways. First, it reflects the Constructive strand of meaningful learning because it requires students to take the new information they have learning and apply it towards a basic question of human existence: are we alone in the universe? Their new knowledge leads them to a new understanding of our own place in the universe.

This learning activity also reflects the ‘Cooperative’ strand of meaningful learning, because the students discuss this new information among themselves. They have an opportunity to be exposed to different viewpoints and then compare those viewpoints to their own.

Finally this learning activity also reflect the Authentic strand of meaningful learning because while it communicates facts about the Universe, it also strives to create an emotional connection with the student, so that these facts are not merely consumed but fully digested and understood. Students learn the information because it's interesting and important to them personally.

### **Reflection**

Creating this learning activity turned out to be much more difficult than I thought it would be. I consider myself highly skilled at technology, so I wasn't looking at a technological problem, but a problem of how to construct something that would be effective and therefore meaningful. I went through many different topics and subjects as I started to build the project, covering a wide range from Natural Selection, to the Alien and Sedition Acts, to finally what I settled on The Size of the Universe.

One of the big problems was finding online resources that I knew would be age appropriate. For example, when I was looking for materials relating to Natural Selection, there are a lot of resources available, but I felt many of the would be difficult for a High School student to understand. I finally decided on the topic of the Universe when I was reminded of the two videos that ended up becoming the first two video resources in the Filamentality. I knew I had to use them because they were just what I was looking for: videos that represented factual information in a way that was also emotionally engaging. \

### **Evaluation of Implementation**

Since I do not work in a school, I did not have the opportunity to implement this lesson in an actually classroom, but I did pull in friends and family members who were not already familiar with the subject matter. In this pseudo-implementation, they did find the resources to be engaging, especially the videos. I'm not sure they actually took the time to look at the textual resources, but the picture resources were also highly interesting to them.