**APCSP Activity 1.1.2 Conclusion Questions**

Learning Target: Generate and organize information in order to communicate observations, processes, and results.

1. How is Lightbot like a computer?

Lightbot follows a set of instructions just like a computer would

2. How is Lightbot different than a computer?

There’s very little differences between a computer and Lightbot besides the fact that Lightbot is a digital entity

3. One aim of this course is to consider the relationship between humans and computers. Read the following background and write a journal style response to one of the two sets of questions below.

Lightbot has only a few instructions and only three variables to describe its state. Alan Turing proved that simple computers like this can do all the computation that a modern computer can do. A small set of simple instructions can produce intelligence, or at least the appearance of it.

A human brain contains roughly one hundred billion neurons: 1011 neurons. The state of the neurons' connections and chemistry in one human brain at any one instant could be represented by 1016 to 1019 zeros and ones.

In his controversial book, *The Singularity Is Near*, Ray Kurzweil projects that computers will be exceed the computational power and memory of a human brain around year 2035. He predicts a “singularity” in 2045 in which machines quickly design smarter machines on their own.

a. When computers become smart enough that we cannot tell humans and computers

apart (the Turing test), do you think that computers will experience consciousness the

way we do? Should they have rights?

Once computers are that intelligent they would experience morality along with other emotions just like we do so they should also get the same rights that everyone else has. Otherwise such a computer system would experience the same emotions that other people would experience if they were refused rights that everyone else has.

* b. Someday the technology might exist to create an artificial neuron that is able to connect to and communicate with human neurons. Suppose one human neuron in a person's brain were replaced by one artificial neuron. Suppose the artificial neuron behaved the same as the human neuron in terms of inputs, states, and outputs. Would the person still be the same person or even still a human? What if a second neuron were replaced? What if all of the neurons in the brain were replaced, one by one? At what point do you call this a computer instead of a human? Why?

The cells that make up your body isn’t what makes you, you. It’s the amount of data stored within your brain so as long as a person retains the same data and knowledge then a few artificial neurons or even replacing all the neurons entirely wouldn’t make you any less human or any less of yourself. Otherwise that would be like saying that an amputee with an artificial limb isn’t as human as average person as a person with limbs made of cells.