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September 16, 2019

FAS5901- Essay #1

 Science is a way to understand our surroundings and the observations we make about our surroundings.

- Science is a straightforward, rational process following a set of rules embodied in the "scientific method". (Russell, 1931)

- Testing a hypothesis, induction,  deduction, abduction.

- I would also include something saying that science is a process, and theories and laws are not just simply hypothesized and then accepted.

- Can be broad or narrow, but should normally have a structure, but I believe it can be pretty loosely experimented on, but that might not be publishable material.

-There is a distinction between facts and theories. The text (Rusell, 1931) that many scientists confuse theories and and facts. A fact is an observation or sense of impression that has not yet been consciously interpreted and about which no scientific claim has been made on the observation. A theory is a generalization that goes beyond facts. Theories made predictions which are statements about facts that we don't know yet. So my interpretation of the definitions are that facts just tell us about one observation, but theories help explain many observations.

- Method and Prediction

To start testing a theory, the text discusses induction and deduction. Induction is when a scientist makes a series of observations and then after consideration , form a hypothesis and then do a series of tests to determine if the deduced facts are observed.  Deduction is the process by which scientists decide that predictions a theory makes and to see if the predictions are correct.

Understanding what the differences between facts, theories, methods and the process of testing science can help us determine the question we are asking and if the hypothesis we are proposing makes sense to the observations.

It would be important for decision-makers and scientists to know what science is or isn't because if they don't understand, then they can't explain it to other people correctly. It also can be difficult to explain something to the general public in a way that they will understand since mostly their understanding of science is pretty low (in the United States).

This could lead to false information spreading, or people simply not believing statistics or facts presented. Something like that is going on with climate-change, where people are really resilient to the idea that humans have impacted the climate through emissions and have cause the rate of the climate change to increase, even though there is a lot of support evidence for this.  The inability to make the distinction on what is science what isn't can be really detrimental to ecology, because a lot of ecology is based on complex modeling and not necessarily hard science observations. There are also wicked problems in soft sciences with low predictive power, that would be difficult to make a distinction because it might not be considered science to some people.