Name:_____ Dr. Reichler's Bio 325 TTh 7:30-9pm Fall 2007 Quiz 9/13

1) Why is positive proof often misleading?
Positive proof can lead to ignoring data that will disprove our hypothesis.

2) How would not following rule three of Strong Inference affect the outcome of your research?
Rule three is about getting reliable data. Without reliable data we might eliminate the wrong hyptheses.

3) Using rules one and two of Strong Inference answer the following question: What is the function of DNA in a cell?
Do Strong Inference: Hypotheses- DNA contains information. DNA provides energy. DNA gives structural support. Then design an experiment to disprove one of more hypotheses. Eliminate DNA from a cell and see what the cell cannot do.

4) We looked at an experiment where mice were injected with heat killed fatal bacteria and live non-fatal bacteria. How could you modify this experiment to demonstrate what the transforming material is?
Treat the heat-killed bacteria with chemicals that destroy different cellular components and see which destroyed component leads to the information not be transferred.

5) Would double-stranded RNA be as stable as double-stranded DNA?
No, the OH on the #2 carbon makes RNA more likely to be broken down by chemical reactions.

6) How is the definition that genes code for proteins related to two other gene definitions?
Many answers: Malfunctioning proteins are the cause of many genetic diseases. The traits we inherit are primarily based on the proteins we produce. The switches controlling development are often proteins.

7) How could you stop a transposon from moving?
By either changing the inverted repeats or eliminating the function of transposase.

8) If a muscle cell is responding to epinephrine (a hormone involved in the fight or flight response), and the response will involve a change in gene expression, where will the three steps in signal transduction occur?
Perception on the plasma membrane, Transduction in the cytoplasm to the nucleus where the response will occur

9) What are two reasons for the seemingly complex nature of signal transduction?
Amplification of the signal and signal specificity.

10) What is role of calcium in the two reasons that you gave in #9?
Calcium is an easy way to amplify a signal and different spatial or temporal distributions of calcium can give specific responses.