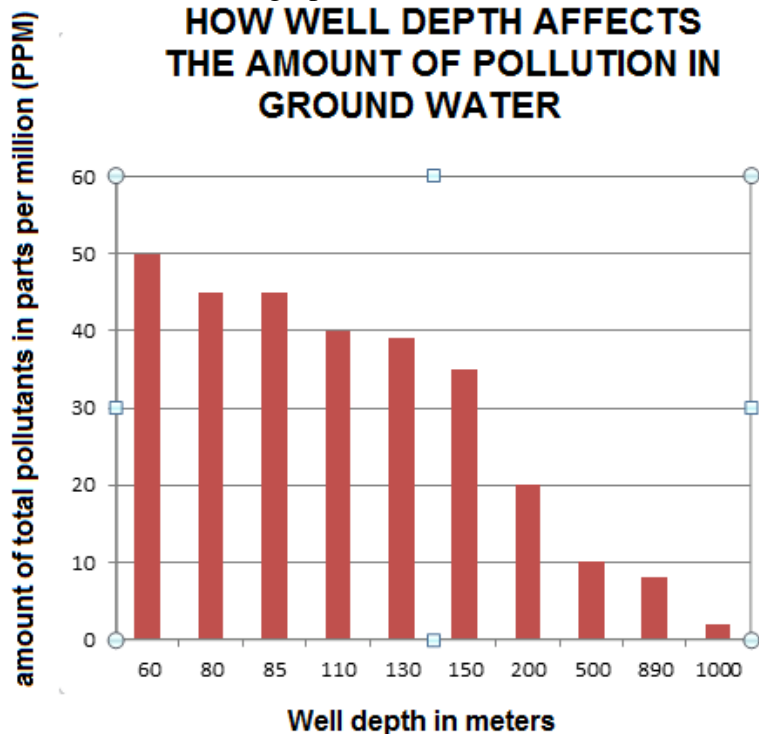


The Scientific Method Final Exam Review

A scientist wants to study how the depth of a well affects water quality. She gets water samples from 10 different wells in the Astante watershed. She did not use wells from other watersheds to make the test fair. Each well sampled was a different depth. Each well had all the same tests performed on it. The water was tested for bacteria, nitrites and nitrates, pesticides, and hydrocarbons. The pollutants from all four categories were added together to get an overall pollution rating.

microorganisms	Tiny bacteria, viruses, or parasites that might come from sewage and waste that accidentally seeps into ground water
Nitrites and nitrates	Forms of nitrogen that come from human and animal waste as well as crop fertilizers that may seep into ground water
pesticides	Chemicals used by farmers to kill bugs that eat crops that might seep into ground water
hydrocarbons	Chemicals from spilled gas or oil that seeps into ground water

The results of the study are summarized in the graph below:



1. What is the possible hypothesis for this experiment? (What is the experimenter's best guess as to what the result is going to be?)

DEPTH OF THE WELL WILL HAVE SOMETHING TO DO WITH HOW POLLUTED THE WATER IS

2. What was the independent variable in this study?

WELL DEPTH

3. What was the dependent variable?

AMOUNT OF POLLUTION

4. What is the sample size, and was it good or not?

10 WELLS—WOULD BE BETTER IF THERE WERE MORE

5. What are some of the controlled variables?

ALL WELLS ARE IN THE SAME WATERSHED & ALL WELLS RECEIVED THE SAME TESTS

6. Based on the data, what conclusion did this scientist come up with?

THE DEEPER THE WELL, THE LESS POLLUTION THERE IS