Questions: Scientific Method

https://elab.hpa.edu/apes/_pdf/cengage/chapters/

Look for chapter 2

1. Primitive societies at one time would sacrifice food, animals or even people to ensure a good harvest, good weather, or other things. If the harvest was good, was this causation or correlation?
2. How is the scientific method different from this?
3. Look up Pons and Fleischmann and cold fusion. How did the rest of us know they were fake, and what part of the scientific method is relevant here?
4. What is the difference between accuracy and precision when discussing data?
5. Give an example of a dependent and independent variable in your life, and explain each
6. Bud Tuggly does an experiment on caffeine and study ability with students, using only 3 students. What is wrong with this, and why is sample size important in any experiment?
7. Create an imaginary experiment with a hypothesis, explain your result
8. You are given the following data regarding caffeine and speed of a runner around a course:

- 1 cup of coffee: average speed 6 km/hr
- 2 cups of coffee: 6.5 km/hr
- 3 cups of coffee: 7 km/hr
- 4 cups of coffee: 6 km/hr

Graph these and label with the dependent and independent variable. (take a photo of your graph for the email)

9. what could also be impacting this experiment that we did not include?

10. In this experiment, what would be a control group?

11. In 1979 Mount St. Helens erupted, covering a huge area with ash. How was this a natural experiment, and why is it different from a normal experiment?

12. Ella Finoe wants to determine the efficiency of her car. She records the odometer when she fills the gas tank as 245.4 miles, and on the gas pump, 14.3 gallons. She then calculates her miles per

gallon as 17.1608391608 mpg. What is wrong with this?

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