

Name _____

Mythbusters

Season 1, Episode 1, Exploding Toilet episode who gets wetter portion.

The Myth: If caught in a rainstorm, you will stay drier by running for shelter instead of walking.

Experimental setup: The mythbusters set up a controlled experiment to compare the amount of rainwater absorbed by walking versus running a set distance.

Background Questions: (Answer before watching the episode)

1. Define, in your own words, each of the steps of the scientific method:

Question-

Hypothesis-

Experiment-

Analysis-

Conclusion-

2. The question to be answered by this segment of Mythbusters is "Do you get wetter by walking or running in the rain"? Given this question, what hypothesis do you have?

3. Explain why a hypothesis is not just a guess.

4. The Mythbusters have two options: conduct the experiment indoors in controlled conditions, or outdoors in nature. What are the pros and cons of each?

5. What is the independent variable to be tested in this experiment?

6. What is the dependent variable to be measured in this experiment?

7. Why is it important to have a control group when conducting an experiment?

Application Questions: (Answer after watching the episode)

8. The goal of a controlled experiment is to only alter the variable that is to be tested leaving all others constant. What variable do the Mythbusters account for in their experimental design?

List at least three.

- 1.
- 2.
- 3.

9. How was the experiment that the two meteorologists designed different than that of the Mythbusters?

10. Adam and Jamie each did 4 trials: walking without wind, running without wind, walking with wind, and running with wind. Do you think this is enough data? Explain how sample size can affect the outcome of an experiment.

11. What conclusion did the Mythbusters make as a result of this experiment? Did their conclusion agree or disagree with that of the two meteorologists? Which do you think is a more accurate conclusion? Explain your choice.

12. The mythbusters redesigned their experiment in a later season and collected different data. How did their procedure differ this time? Do you feel their data from the second attempt is more or less reliable? Explain your reasoning.

13. How does the fact that their results differed the second time help explain the “nature of science”?