

Name: _____

Date: _____

Hr: _____

Scientific Method with Mythbusters

The Myth: If caught in a rainstorm, you will stay drier if 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 these steps of the scientific method:

Observation –

Question –

Hypothesis –

Experiment –

Data analysis –

Conclusion –

2. What is the question that the Mythbusters are asking?
3. Come up with a hypothesis for this question. “if... then... because” statement
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?

Indoor:

Outdoor:

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. What are some **controls (constants)** for this experiment?

8. Why is it important to have controls in experiments?

9. 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? Why/why not?

10. This is the data table based on the Mythbusters' results. Calculate the mass of water absorbed in each trial and the water absorbed per second for each trial.

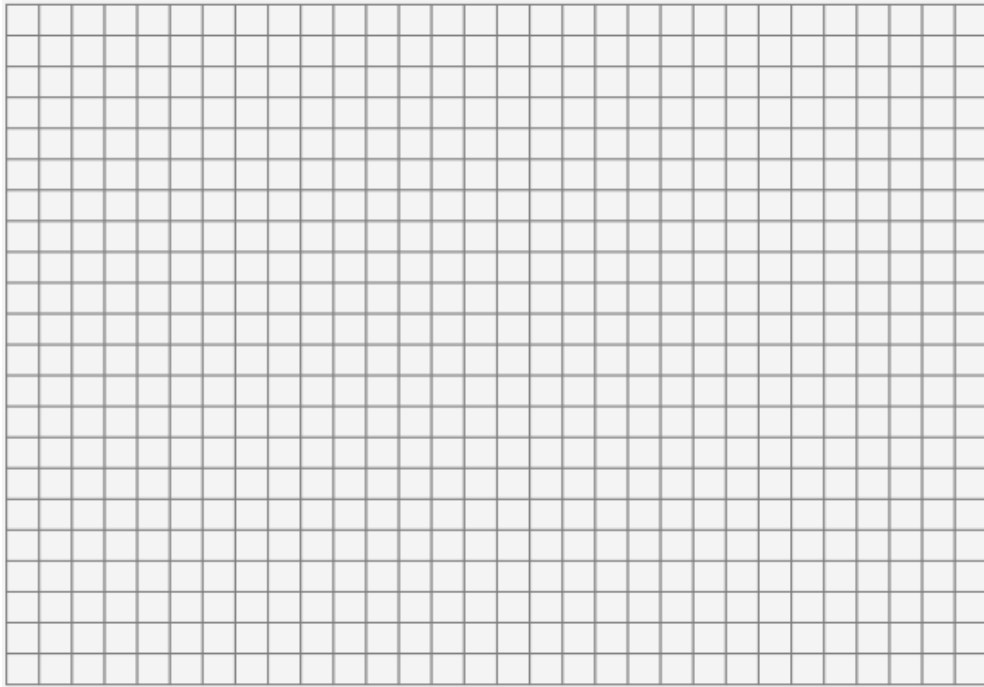
Trial	Wind	Time (s)	Initial Mass of Suit (g)	Final Mass of Suit (g)	Water Absorbed (g)	Water absorbed per second (g/s)
Adam walk	No	18.28	757	785		
Jamie walk	No	17.84	757	790		
Adam run	No	7.06	757	799		
Jamie run	No	6.59	757	793		
Adam walk	Yes	17.40	757	789		
Jamie walk	Yes	17.56	757	788		
Adam run	Yes	6.98	757	801		
Jamie run	Yes	6.51	757	790		

11. Calculate the average amount of water absorbed in the running and walking trials:

Avg. Water Absorbed (Running) =

Avg. Water Absorbed (Walking) =

12. Based on the data recorded in the table above, generate a **scatterplot graph**. Mark the walking trials on the graph with an “x”, and the running trials with an “o”. The independent variable should go on the x-axis, and the dependent variable on the y-axis. Label both axes!



13. 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.