Absorbing Sponges

[redacted]

Materials: 4 Natural sponges, 4 manmade sponges, triple beam balance, beaker, plastic bin, and water.

Procedure: First, I measured the mass of each sponge dry with no water in it. Then, I measured the mass of the beaker also dry. After that I filled the beaker with water, I submerged the sponge in the water for 30 seconds. When the 30 seconds were up, I let the water in the sponge drain a little bit in that beaker. I squeezed the rest of the sponge's water into the other beaker.

Using the triple beam balance, I measured the mass bucket with the absorbed water. Then I subtracted the weight of the dry beaker from the beaker's weight I just measured, finding the total amount of water absorbed. I then measured the weight of the damp sponge. I then again subtracted the sponge's total weight from the damp sponge's weight getting the weight of the water retained. After that I added the retained water and the squeezed sponge's weight together to find the total amount of water absorbed. Finally, I divided the water absorbed by the weight of the sponge's weight, finding the water to mass ratio.

Observations:

All measurements are in grams.

Type of sponge	Mass of the dry sponge (grams)	Mass of the dry beaker (grams)	Mass of the beaker with water (grams)	Mass of the water squeezed out (grams)	Mass of wet sponge (grams)	Retained water by sponge (grams)	Total water absorbed by sponge (grams)	Water per mass ratio of sponge
Large yellow kitchen sponge	113	178	2000	548	478.5	365.5	1452	1.9
Sheep's wool	61	178	2000	311	1689	72	383	52.6
Large kitchen sponge	73.9	178	1000	82.2	107.5	33.6	855.6	11.6
Yellow scotch sponge	28	289	29.1	113.1	36.7	8.7	121.8	4.4
Yellow sponge	165	178	303	126	17	1	127.8	7.63
Grass sponge	23.4	178	342	164.8	30.3	6.9	171.7	7.3
Blue scotch sponge	6.39	178	335.3	157.3	43.2	36.9	194.2	30.8
Red car sponge	800	178	1000	200	900	100	3400	0.38

Conclusion:

Question:

1. Based on your observations, which sponges held the most water and the least amount of water? Why do you think that?
2. Why is it important to get water per mass ratio for each sponge instead of the total amount of water absorbed by the sponge?
3. If you were to buy a sponge (natural or manmade) for cleaning, what would you buy and why?
4. What is the Independent variable in this experiment?
5. What is the dependent variable in this experiment?

Answer:

1. In my observations, sheep's wool held the most amount of water. The red car wash sponge held the least water. The sheep's wood was more absorbent because it was a natural sponge while the car wash sponge was manmade.
2. It is important to get the water per mass ratio because the sponges have different masses and sizes.
3. I would buy the sponge with the largest water per mass ratio. It happens that that sponge is sheep's wool.
4. The independent variable is the type of sponge
5. The dependent variable is the water per mass ratio.