HOW MUCH WATER CAN EACH TYPE OF SPONGE SOAK?

[AIM]

Our aim is to find out which sponge is the best by finding out which one can soak up the most water.

[HYPOTHESIS]

The more dense the sponge is, the more water it can hold. We assume that the artificial sponge will hold the most water.

[METHOD]

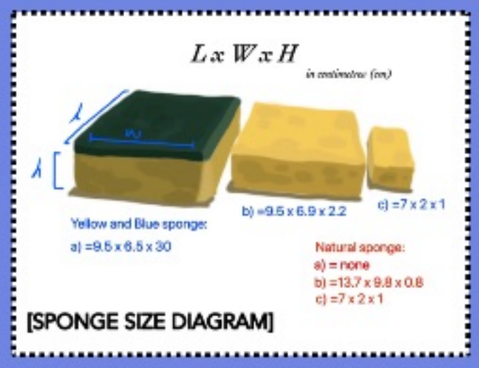
In terms of water absorption, the most effective sponge was found from three seperate types of sponges, ranging from natural to artificial. The two people in our group each conducted the experiment at home, a factor that would have affected our results.

1. First off, each sponge was cut 8 times by 7cm x 2cm x 1cm
2. The water (1/2 cup) was prepared in a cup
3. Dunk each sponge strip in the water
4. After timing 60secs, we quickly and gently took the sponge strip out and wrung out all the water collected into the measuring cup

This happened 4 times for each different sponge by each member, having 8 experiments overall and 24 experiments overall.
The reason behind having multiple tests is for accurate results for each sponge type in relation to the averages, medians, ranges and modes of the data (as displayed in the graphs below)

[VARIABLES]

Controlled variable ⇒ Amount of water used each time (mL)
Dependant variable ⇒ The amount water absorbed in each trial by each sponge (mL)
Independent variable⇒ The three seperate sponges used in this experiment (two non-scratch scourers of a different colour and one more dense normal household sponge)

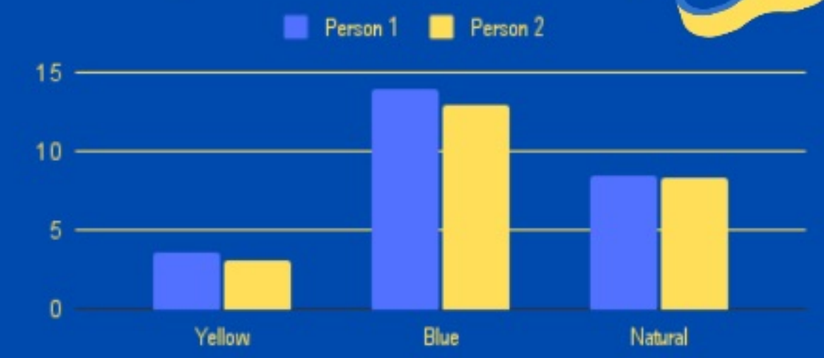


[SPONGE SIZE DIAGRAM]

[EQUIPMENT]

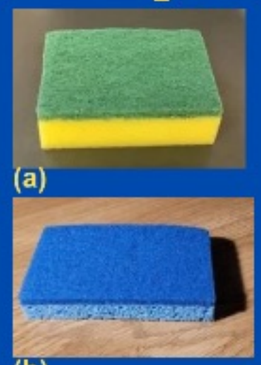
- 1 measuring jug
- 1/2 a cup of water for each trial
- 1 household sponge
- 1 Non scratch sponge scourer (yellow)
- 1 Non scratch sponge scourer (blue)
- Scissors
- Timer (i.e. iPad or phone)

[RESULT HISTOGRAM]



This graph shows the overall average from the tests conducted; it's seen that the BLUE sponge, surprisingly, absorbed the most water in each of our tests. The graph has a skewed data distributed. The difference towards it not being symmetrical is (roughly) 5mL..

[SPONGES USED]


(a)

(b)


(c)

(a) Non-scratch sponge scourer (yellow)

(b) Non-scratch sponge scourer (blue)

(c) Household sponge

[RESULT TABLES]

[WATER ABSORBED BY EACH SPONGE]
mL

Tests (60 seconds)	[SPONGE TYPES]					
	Non-scratch sponge scourer (YELLOW—ARTIFICIAL)		Non-scratch sponge scourer (BLUE—ARTIFICIAL)		Household sponge (YELLOW—NATURAL)	
	Person 1	Person 2	Person 1	Person 2	Person 1	Person 2
Trial 1	5	2.5	14	13	7	6
Trial 2	3	2.5	15	15	7	8
Trial 3	4	2.5	14.5	12	9	9.5
Trial 4	2.5	5	12	12	11	10
[MODE]			[MODE]		[MODE]	
2.5			12		7	
[MEDIAN]			[MEDIAN]		[MEDIAN]	
2.5			14.5		8.5	
[RANGE]			[RANGE]		[RANGE]	
2.5			3		5	
[AVERAGE]			[AVERAGE]		[AVERAGE]	
3.4			13.4		8.4	

From the data we have gathered, the average of the artificial sponge is 3.4mL, the average of the blue sponge is 13.4mL and the average of the natural sponge is 8.4mL. From this, we can recognize that the average amount of water the blue sponge has soaked up is far greater than the other sponges. Alongside this the Yellow Artificial sponge has the most recurring mode of 2 .5mL.

This shows the blue sponge absorbed the most water.

[CONCLUSION + EVALUATION]

After concluding with our experiments on this topic, our data findings present that the blue sponge absorbs the most of the water provided which doesn't support our hypothesis. We found the dense yellow sponge contained the most air, leading them to refuse to take in the water provided (and as shown in our data displays). The blue sponge had a different structure and texture to both the yellow ones, allowing it to intake the most water.
What we found was the sponge needed to be placed on top of the water to allow the natural process of absorption to take place; it shouldn't be held down as the water isn't given enough time to escape. Another factor that should be noted is each of our group members conducted the experiment's tests in different environments to save time and to give each member a fair role in this experiment. These factors both influence our results and should be taken into notice and changed if this experiment is ever conduced again.
In summary, and in our above graphs, we can conclude that the blue sponge is the best material to soak of the most water.