

surface Tension FACTS FOR KIDS

TESTABLE QUESTION:

HOW DOES ADDING SOAP TO WATER
AFFECT HOW MANY DROPS CAN FIT
ON A PENNY?

PREDICTION:

I THINK THE PENNY WILL HOLD MORE
REGULAR WATER THAN SOAPY WATER
BECAUSE SOAPY WATER IS SLIPPERY.

Procedure:

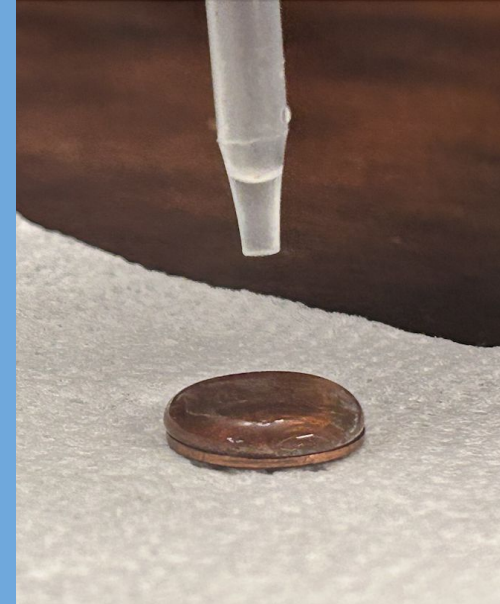
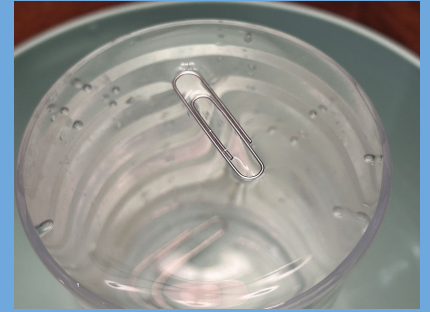
1. GET a CUP OF water.
2. PUT a Penny HEADS UP on a PAPER TOWEL.
3. HOLD an eye DROPPER CLOSE TO THE Penny and ADD one DROP OF water at a time.
4. COUNT THE number OF DROPS IT TAKES TO BREAK THE surface TENSION (WHEN THE water SPILLS).
5. DRY THE Penny OFF.
6. DO STEPS 2-5 TWO more TIMES.
7. MAKE SOAPY water BY adding DISH SOAP INTO water.
8. REPEAT STEPS 2-5 THREE TIMES WITH THE SOAPY water.

BACKGROUND:

I CHOSE THIS PROJECT BECAUSE I WANTED TO EXPERIMENT WITH WATER MIXING WITH SOMETHING TO SEE HOW IT CHANGES THE WATER.

IN MY RESEARCH I FOUND OUT THAT WATER IS MADE OF HYDROGEN AND OXYGEN AND THAT IS WHY IT IS CALLED H_2O . WATER DROPS LIKE TO COMBINE TOGETHER WHICH MAKES A DOME SHAPE. THIS IS CALLED SURFACE TENSION. SURFACE TENSION IS KIND OF LIKE A SKIN ON THE SURFACE OF WATER THAT LETS THINGS LIKE WATER BUGS SIT ON TOP OF IT.

THIS PROJECT IS IMPORTANT BECAUSE WE USE SOPY WATER AND SHOULD KNOW WHEN SOAP AND WATER MIX.



constant conditions:

INDEPENDENT VARIABLE: TYPE OF water (TAP VS SOAPY)

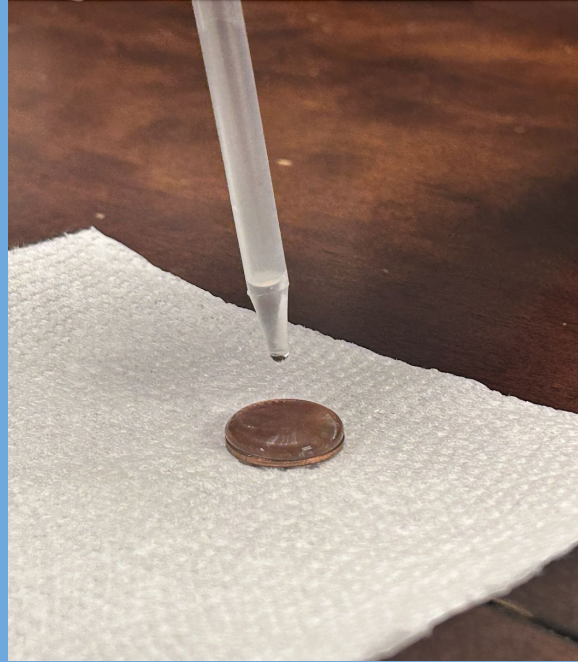
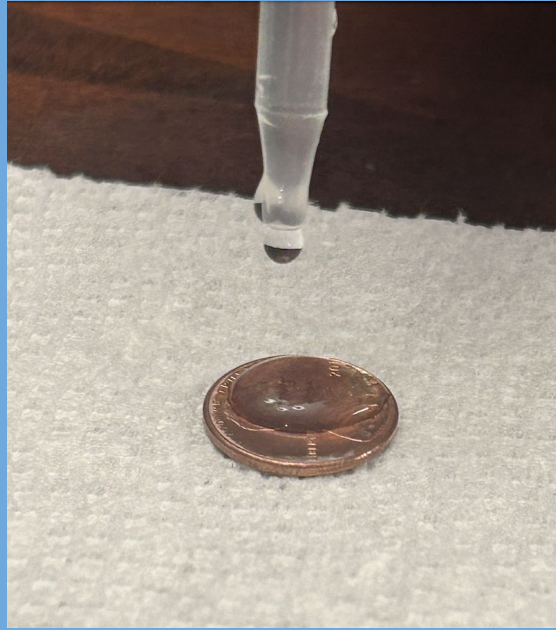
DEPENDENT VARIABLE: THE number OF DROPS IT TAKES TO BREAK THE SURFACE TENSION

constant conditions: same eye DROPPER, HOLD THE DROPPER VERTICAL, same PENNY, DRY PAPER TOWEL

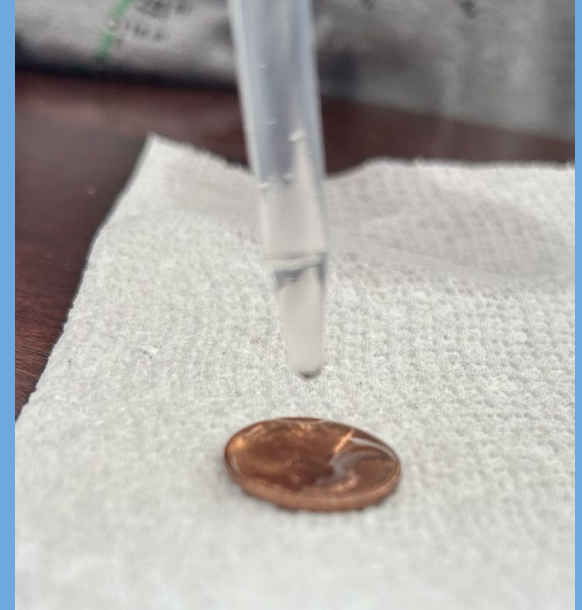
DATA TABLE:

TYPE OF water	NUMBER OF Pennies Needed TO Break THE surface Tension			
	TEST 1	TEST 2	TEST 3	Average
TaP	21	22	15	19
SOaPY	11	12	14	12

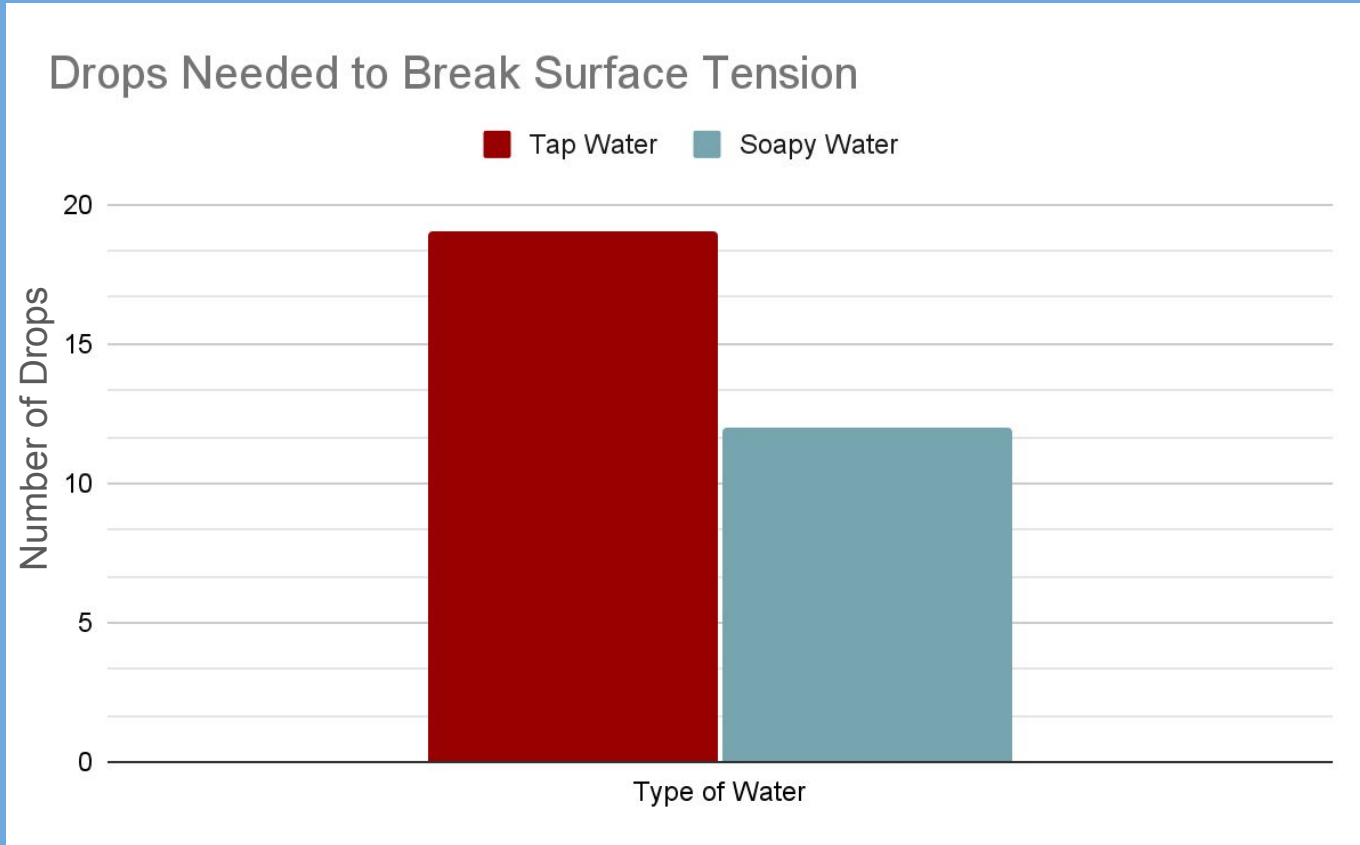
TAP water



soapy water



GRAPH:



conclusion:

I FOUND OUT THAT WHEN THE WATER SWITCHED TO THE SOAPY WATER THE DOME SHAPE WENT DOWN INTO A FLAT SHAPE. THIS MADE IT HOLD LESS WATER DROPS. THIS SUPPORTED MY PREDICTION. I THOUGHT THE PENNY WOULD HOLD MORE REGULAR WATER, AND IT DID. I THINK THIS MEANS THE SOAP BREAKS THE SURFACE TENSION OF THE WATER.

IF I COULD CONTINUE THIS PROJECT I WOULD TRY TO FLOAT AN ALUMINUM FOIL BOAT ON REGULAR WATER AND SOAPY WATER TO SEE HOW MANY PENNIES THEY HOLD BEFORE SINKING. I THINK THIS WOULD BE INTERESTING BECAUSE THE BOAT ISN'T ON TOP OF THE SURFACE TENSION SO I WANT TO KNOW IF THE REGULAR WATER WOULD STILL DO BETTER.

SaFeTy:

PUT ALL eLeCTRONIC DeViCES aWay
FRom THE TeST aRea So THEy DON'T
GeT WeT IF There aRe SPILLs.

PUT THE Penny on a PaPeR ToWeL
TO CaTCH any SPILLING WaTeR.

DUMP THE SoaPY WaTeR RiGHt
aWay so no one acciDeNTaLLy
DRINKS IT.

Research sources:

What is water?

<https://www.amnh.org/explore/ology/water/what-is-water>

Surface tension:

<https://www.usmint.gov/learn/kids/resource/s/coin-activities/test-surface-tension#:~:Text=water%20is%20made%20up%20of,this%20is%20called%20surface%20tension.>

What is surface tension:

<https://kidsactivitiesblog.com/12902/what-is-surface-tension/>