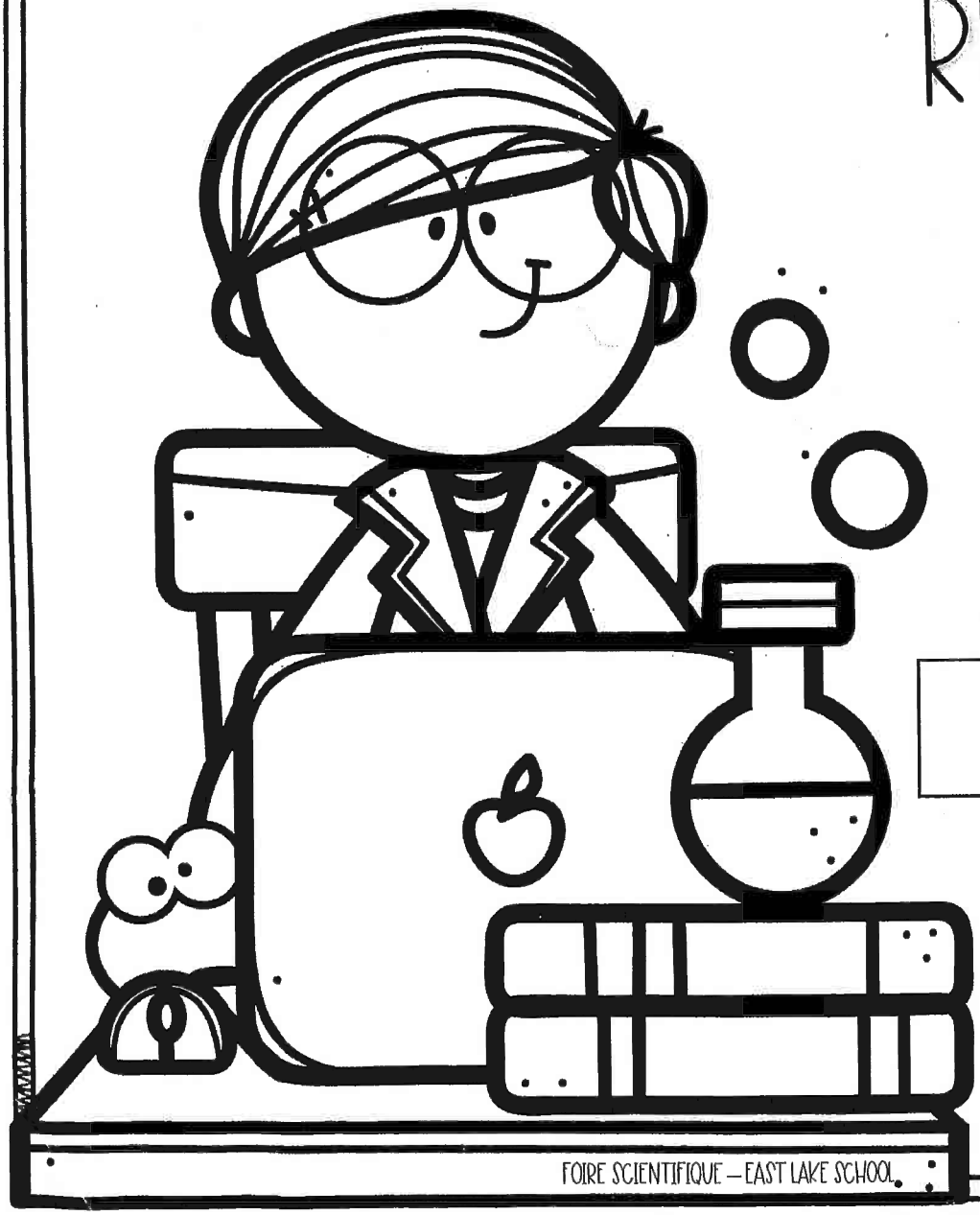
Hargun

LOGBOOK FOR A

Scientific

RESEARCH



BY

Hargun

FOIRE SCIENTIFIQUE – EAST LAKE SCHOOL

LOGBOOK FOR A

scientific

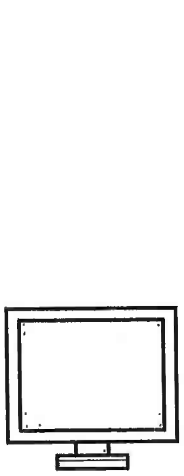
RESEARCH

BY

FOIRE SCIENTIFIQUE – EAST LAKE SCHOOL

scientific METHOD

1. Ask a question.



2. Do your research.

3. Form a hypothesis.

4. Test your hypothesis.

5. Analyze your data.

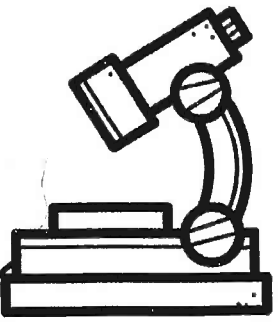
6. Draw conclusions.

IDEAS FOR THE scientific RESEARCH

Write down 5 to 10 project ideas you think you will be interested in.

1. Which type of soap removes more grease: dish soap, hand soap, or shampoo?
2. Which lightens stains better: viniger or lemon juice?
3. What hand soap brand removes the most bacteria?
4. Can blindfolded people tell the difference between bottled water and tap water?
5. What toothpaste brand can clean a shoe better?
6. Which air freshener lasts longest?
7. Which mouthwash brand kills the most bacteria?

STEPS OF THE Scientific METHOD



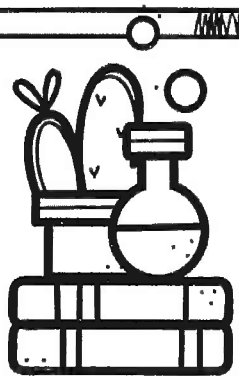
1. Ask a question.

What hand soap brand removes the most bacteria?

2. **Do your research.** Has your question been asked before? Research similar questions and write down your information. Don't forget your references **(3 websites)**.

INFORMATION	REFERENCE

YOUR ReSearch & REFERENCES



1. Use the space below to glue copies of books or website with valuable information about your topic.

2. Use the space below to write 3 titles of books with important information about your topic.

_____

_____

_____

Research

Why is handwashing important?

- Handwashing is important because it helps prevent diseases such as influenza, colds, and COVID - 19. Many of these diseases can be spread by unwashed hands from one person to another. These diseases can be very harmful for young children and the elderly. There are specific times that you should wash your hands. Such as after you go outside, after using the toilet, before and after eating any food, and also after coughing and sneezing.

  Source: www.betterhealth.vic.gov.au

Who invented the first liquid soap?

- The first liquid soap was invented by William Sheppard on August 22, 1865. His invention was not usually found in homes, but rather in public places. He created the product by dissolving one pound of solid soap in water. After that he added 100 pounds of ammonia until the liquid became thick, like molasses, which is a by-product of sugar production. It wasn't until the 1970's that the Minnetonka corporation introduced a modern version of William Sheppard's recipe.

- Source: www.gratefulamericanfoundation.org

How long should you wash your hands for?

- You should wash your hands for at least 20 seconds with soap and water. It is much better to wash your hands with soap and water, rather than just using water alone. Many people claim that they already do this, but on a busy or occupied day people rush to wash their hands because they want to get to their next occupation. Research shows that most of us people do not wash our hands long enough for the handwashing process to work. If you set a timer for 20 seconds and wash your hands you will realise that 20 seconds is much longer than you think.

  Source: www.my.clevelendclinic.org

What is soap?

- Soap is used for cleaning and other uses. In a household setting, soaps, mostly toilet soaps, are chemical compounds that are usually used for bathing, washing and other things. Soaps are normally made by mixing fats and oils. Humans have used soap for about a period of 1,000 years. There are other types of soap just like toilet soaps and non-toilet soaps.

Source: www.en.wikipedia.org

Can washing hands too much be harmful?

- Yes, washing your hands too much can be harmful. The reason for this is because when you wash your hands more than you need to, you're not only removing dirt and bacteria, but also our skin's natural oils. Washing your hands too much can lead to rashes, itchiness, and even cracked skin. People who already have skin problems can encounter even worse problems by washing their hands too much. Washing your hands more than you need to is very harmful, but washing your hands for the right amount of time is good.

Source: www.chemscape.com

How effective is handwashing?

- Handwashing is very effective because it helps reduce the amount of medicine needed, and the likelihood that medicine resistance will develop. Handwashing can prevent about 30% of diarrhea-related illness and about 20% of breathing infections such as colds. Medicine is often prescribed unneeded for these health issues. Decreasing the number of infections by washing hands helps stop the overuse of medicine, which is the greatest factor of antibiotic resistance.

Source: www.cdc.gov

What is bacteria?

- Bacteria are small single-celled organisms that are found everywhere on Earth. We even have a lot of bacteria in our bodies and in fact, the human body is estimated to have more bacterial cells than human cells. Most of the bacteria in our bodies are actually not harmful and some are even helpful. Bacteria can come in many shapes such as ovals, circles, and even rods. Although bacteria can be helpful, it can also be harmful.

Source: www.genome.gov

What hand soap can kill bacteria the best?

- Research shows that Dial Complete Antibacterial Liquid Hand Soap is the best liquid hand soap. Research also showed that this hand soap completely washed away pretty tough odors of onions and garlic after a hand wash of about 30 seconds with warm water. Research also tells us that the scent of the hand soap smelled great and refreshing. It said that after washing hands, their hands looked and smelled clean. Research also told me that the smell did not last long, so you could get back to doing kitchen chores.

Source: www.tasteofhome.com

DEFINITIONS

Controlled variable	The things that stay the same in an experiment.
Independent variable	The thing that you change in your experiment.
Dependent variable	What you are trying to measure.

1. A student gives his teacher chocolate daily to see if she smiles more often.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONTROLLED VARIABLE
type of chocolate ?	number of smiles	the teacher

2. A scientist plays rock 'n' roll for his plants to see if it will grow taller.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONTROLLED VARIABLE
music and no music	growth of plants	soil, water, plants and sunlight

3. A consumer tests several paper towel brands to see which is the strongest.

INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONTROLLED VARIABLE
the paper towel brand	strongest paper towel	water?

YOUR Variables

Write the variables of your experiment and explain each one.

Controlled variable

- My hands
- Amount of glo germ added to hands
- Amount of soap added to hands
- Amount of time hands washed for
- the type of measurment tool used

Independent variable

The brand of hand soap I will be the only thing I will be changing in my experement.

Dependent variable

I will be measuring the amount of bacteria is left after I wash my hands thoroughly.

3. **Form a hypothesis.** Make sure your hypothesis includes all of the elements below this box.

If I test which handsoap brand will remove the most bacteria, then Dial handsoap will perform the best.

ANSWER THE FOLLOWING QUESTIONS TO HELP YOU FORM A HYPOTHESIS.

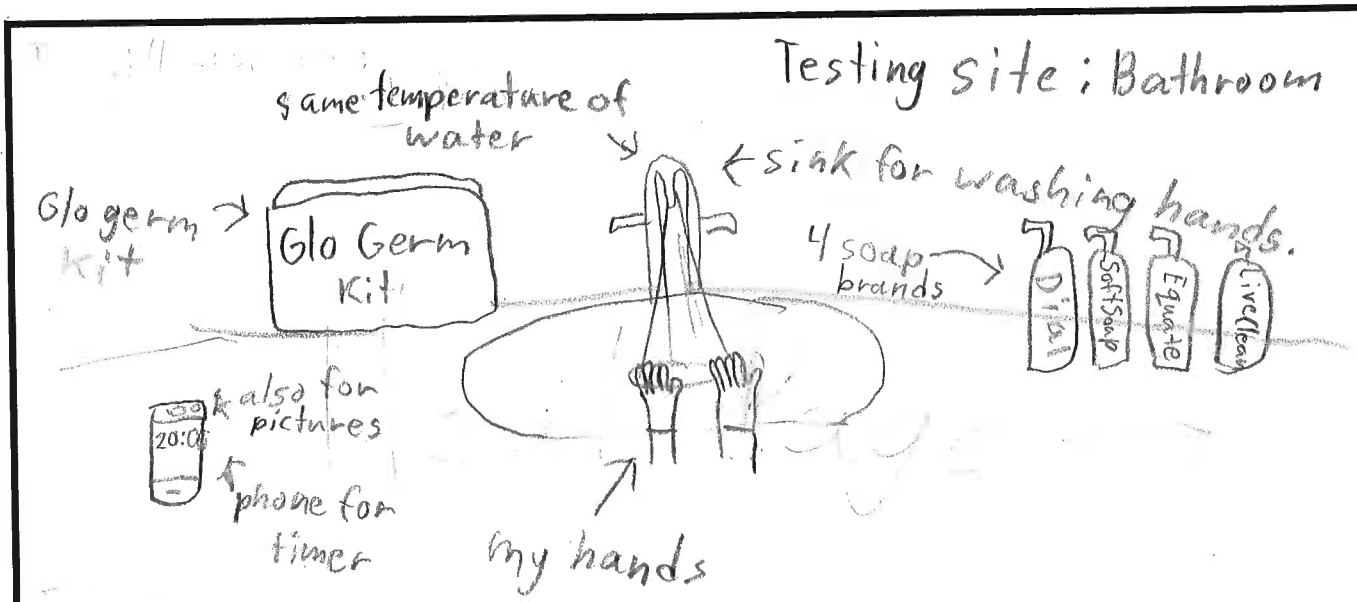
- ✓ Is your hypothesis specific and testable?
- ✓ Does it include the relevant variables?
- ✓ Does it include the predicted outcome?
- ✓ Does it include the specific group being studied?
- ✓ Is your hypothesis phrased in 1 of the 3 possible ways?
  - ☑ If... then
  - ☐ Correlation / effect
  - ☐ Comparison

YOU CAN USE THE PREVIOUS PAGES TO READ ABOUT VARIABLES AGAIN.

DEFINITIONS

Controlled experiment	A controlled experiment means when scientists make a hypothesis and test it by just changing one thing and making the rest the same.
Control group	A control group is the group in an experement that stays the same and does not change.
Repetition	Repetition means that you do something over, and over again.

4. Test your hypothesis. Use the the box to draw or write things that will help you design your experiment.



Collect your DATA

Perform your experiment carefully. Don't forget to **record** your data.

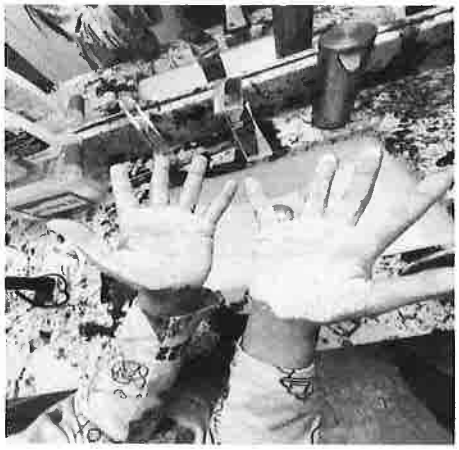
Date	Observations	Possible errors
1,25,2025	Equate	

Date	Observations	Possible errors
1,25,2025	Equate	

Date	Observations	Possible errors
1,25,2025	Equate	

EQUATE

BEFORE **TEST 1** AFTER



DIFFERENCE: 50%

BEFORE **TEST 2** AFTER

DIFFERENCE: 75%

BEFORE **TEST 3** AFTER

DIFFERENCE: 80%

LIVE CLEAN

BEFORE **TEST 1** AFTER

DIFFERENCE: 70%

BEFORE **TEST 2** AFTER

DIFFERENCE: 70%

BEFORE **TEST 3** AFTER

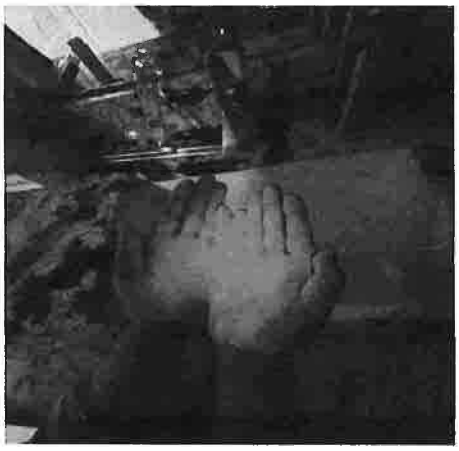
DIFFERENCE: 75%

SOFT SOAP

BEFORE

TEST 1

AFTER



DIFFERENCE: 70%

BEFORE

TEST 2

AFTER

DIFFERENCE: 80%

BEFORE

TEST 3

AFTER

DIFFERENCE: 75%

DIAL

BEFORE

TEST 1

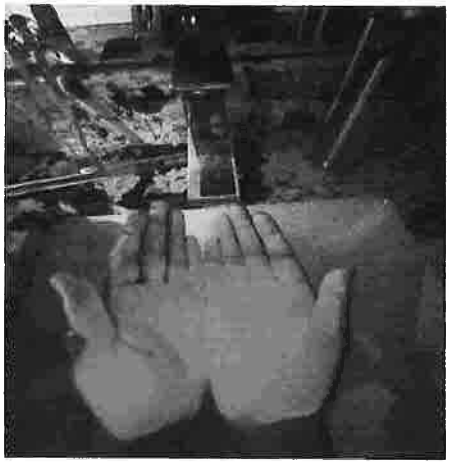
AFTER

DIFFERENCE: 85%

BEFORE

TEST 2

AFTER



DIFFERENCE: 90%

BEFORE

TEST 3

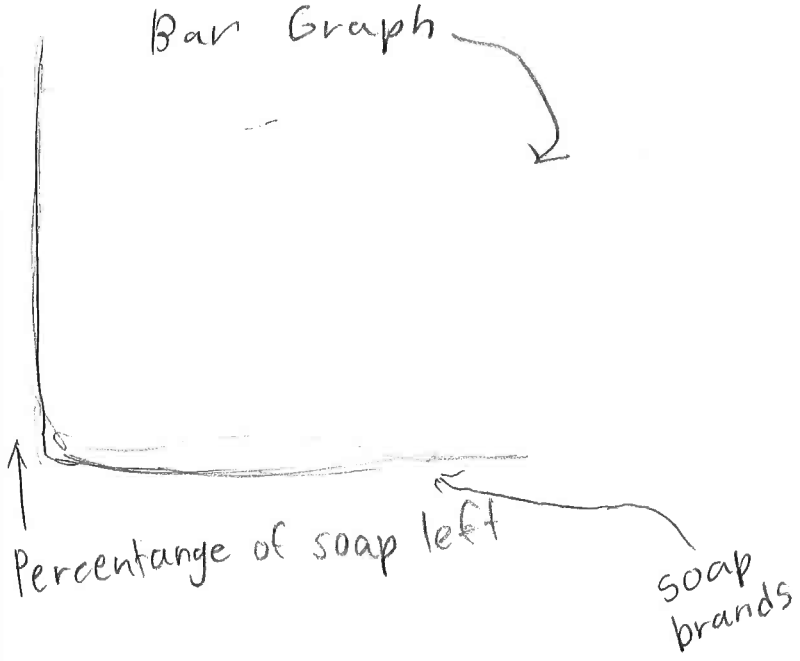
AFTER

DIFFERENCE: 85%

5. Analyze your data.

Use the space below to make rough charts or graphs that represent your data. Does your data fit your hypothesis? Why or why not?

You can also use this space to compare your data to others" researches.

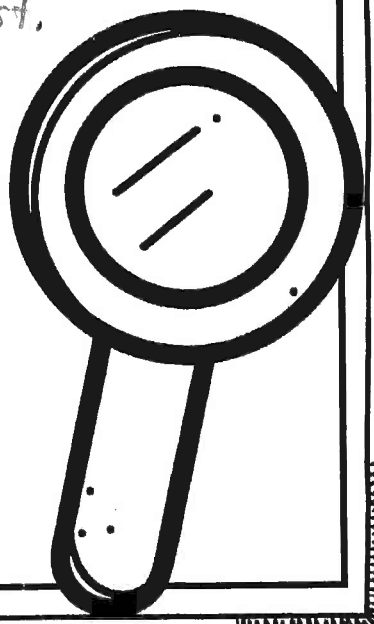


50 % ✓

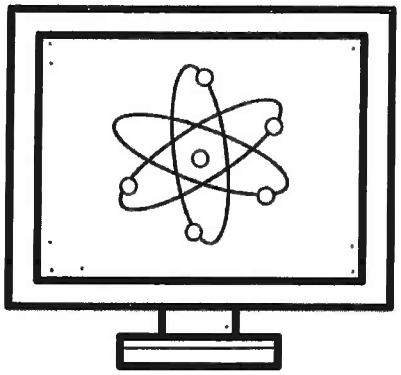
50 x

my data will fit my hypothesis because my my hypothesis was correct so I would be showing that my hypothesis did the best.

three bars together repersenting the three trials

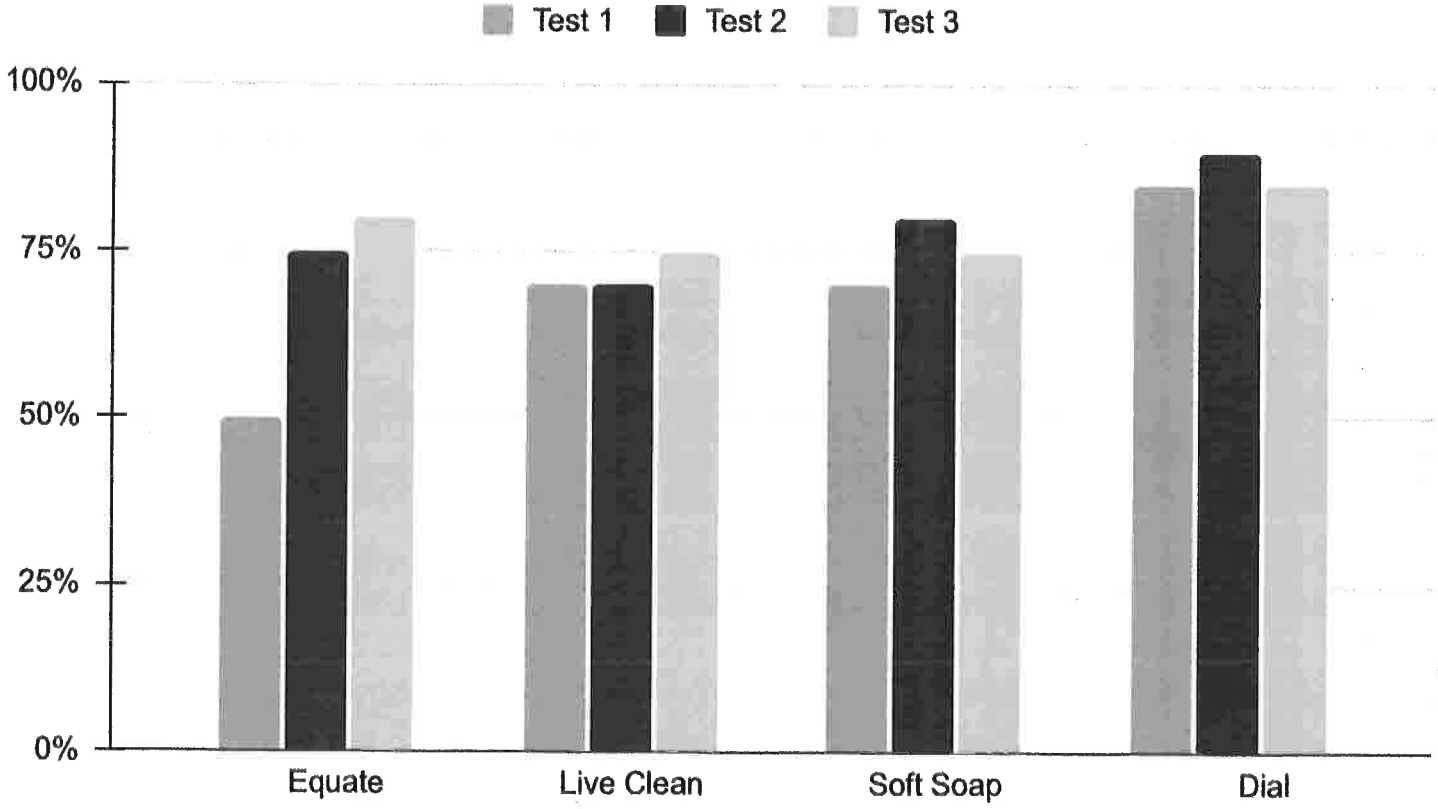


YOUR Data



Glue your graphs here.

Percentage Of Bacteria Removed



6. Draw conclusions.

What did you learn from the experiment? Was your hypothesis correct? What questions do you have now?

After my experement, I found out that **Dial** hand soap removes the most bacteria. Yes, my hypothesis was correct. I wonder if science fair also happens in different countries?

Use the space below to design your display board.