Timetable:

Date	What we are doing
Jan 1st	starting research
Jan 8th	end of research/start of testing
Jan 31st	end of testing
Feb 1st	trifold and data
Feb 15th I think	School science fair!

Jan 1st

Topic:

- I bought a UV LED sterillzer for my toothbrush, after seeing a video about it.
- I was curious to see if it works, or if it's a scam.
- I will use toothbrushes in normal use, in different holders, with repeated tests on myself.
- I will use different storage locations UV sterilizer, upright stand, on countertop, in drawer.

Jan 1st

Research:

- Key words to use:
  - Toothbrush
  - Bacteria
  - Sterilizer
  - Environment
  - Toothbrush holder

January 1st:

Does bacteria grow on a toothbrush?

CDC.gov/oralhealth/FAQs

- How should I care for toothbrushes
  - After you brush rinse in water, let it dry and store in UPRIGHT position.
  - Don't have to use other disinfecting solutions
  - Dont have to use dishwasher microwave) UV STERILIZER.
- I'm using a UV sterilizer in my experiment to test this

Jan 3rd

Goal: To find details on bacteria growth, and to find facts to create a hypothesis.

Questions: How does bacteria grow? What kind of bacteria can grow on a toothbrush? Can I prevent bacteria growth?

- In Unit 17.1 of microbiology on bio.libretexts.org, In Gary Kaiser's lesson, bacteria replicate in a process called binary fission, where a bacterium splits in 2.
  - Bacteria can grow fast in optimal conditions, (such as a not cared for tooth brush)

Peridontal.com/toothbrush-terra-can-toothbrush-make-sick/

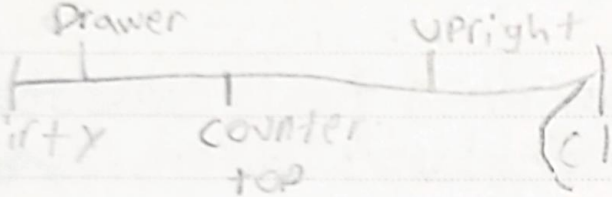
According to researchers at England's University of Manchester, an uncovered toothbrush can be home to all sorts of bacteria, including E. coli.

There is no "perfect" way to prevent bacteria growth, but if you use common sense, you should be fine. Storing it upright is safe, but I think a UV sterilizer would be safer.

Jan 8th

Hypothesis

Storage will affect cleanliness of toothbrush



Dates:

✓Jan 9th start brush and store in drawer

✓Jan 13th last brush in drawer

✓Jan 14th Culture toothbrush and start brush with countertop

✓Jan 18th last brush on countertop

cont.

✓Jan 19th Culture toothbrush and start brush upright,

✓Jan 23rd last brush upright

Jan 24th Culture toothbrush and start UV sterilizer.

Jan 28th last brush with UV

Jan 29th Culture toothbrush

Jan 14th
Toothbrushing

Methods

Materials:
- Toothbrush(s)
- Toothpaste
- Storage containers
  - Wled sterilizer
  - Upright stand
- Timer

Methods:
- Brush teeth normally for 2 min, twice a day, for 5 day
- Place toothbrush in appropriate storage condition between use.
- Repeat 3 more times

Jan 19
Culturing
Methods

Materials:

- Used toothbrush
- Gloves + Mask
- 5ml Steriles saline in 50ml sterile tube
- Pipettor with sterile 100ul pipette tips
- Agar plates
- Incubator
- Sharpie
- Spreading wands (sterile)
- Cleaning wipes

Methods:

- Put gloves + mask on
- Use pipettor to get 100ul of sterile saline
- Drop on agar plate for control, then label

Jan 14

methods cont

- Discard pipette tip
- Spread droplets with spreading wand on agar plate
- Discard spreading wand,
- Put control plate in incubator at 37°C
- Put used toothbrush in sterile saline tube
- Wait 5 minutes, stir occasionally
- Use pipettor to get 100uL of mixture
- drop mixture onto the agar plate

Jan 14

cont'

- Repeat steps 4-6
- Put Plate in incubator
- Repeat 10-13 for second agar plate
- Keep plates there for 3 days
- Count colonie
- Repeat 3 more times for other toothbrush conditions

Jan 16th

Problem! 55 hours into the incubation, I checked the plate and there are so many colonies! I have to edit the procedure so it's not impossible to count later. I took them out today at 7:00.

Feb 10th

Data analysis

	Dinner	counter	upright	CV
1	605	33	65	376
2	427	15	15	479
Control	0	0	1	1

feb 10th

Planning tri-fold

1. Title
2. Question and Hypothesis
3. Abstract
4. Background
5. Methods
6. Results
   - 6.1. Pics of all plates
   - 6.2. Pic of Plate counter
   - 6.3. Graph
7. Discussion

march 9

weeks 5-8

Data #2

	control	#1	#2
pranab	0	90	25
counter	24	5	10
Staph	2	1383	1361
UV	0	1088	814

← what happened? control had more?

Huh!??