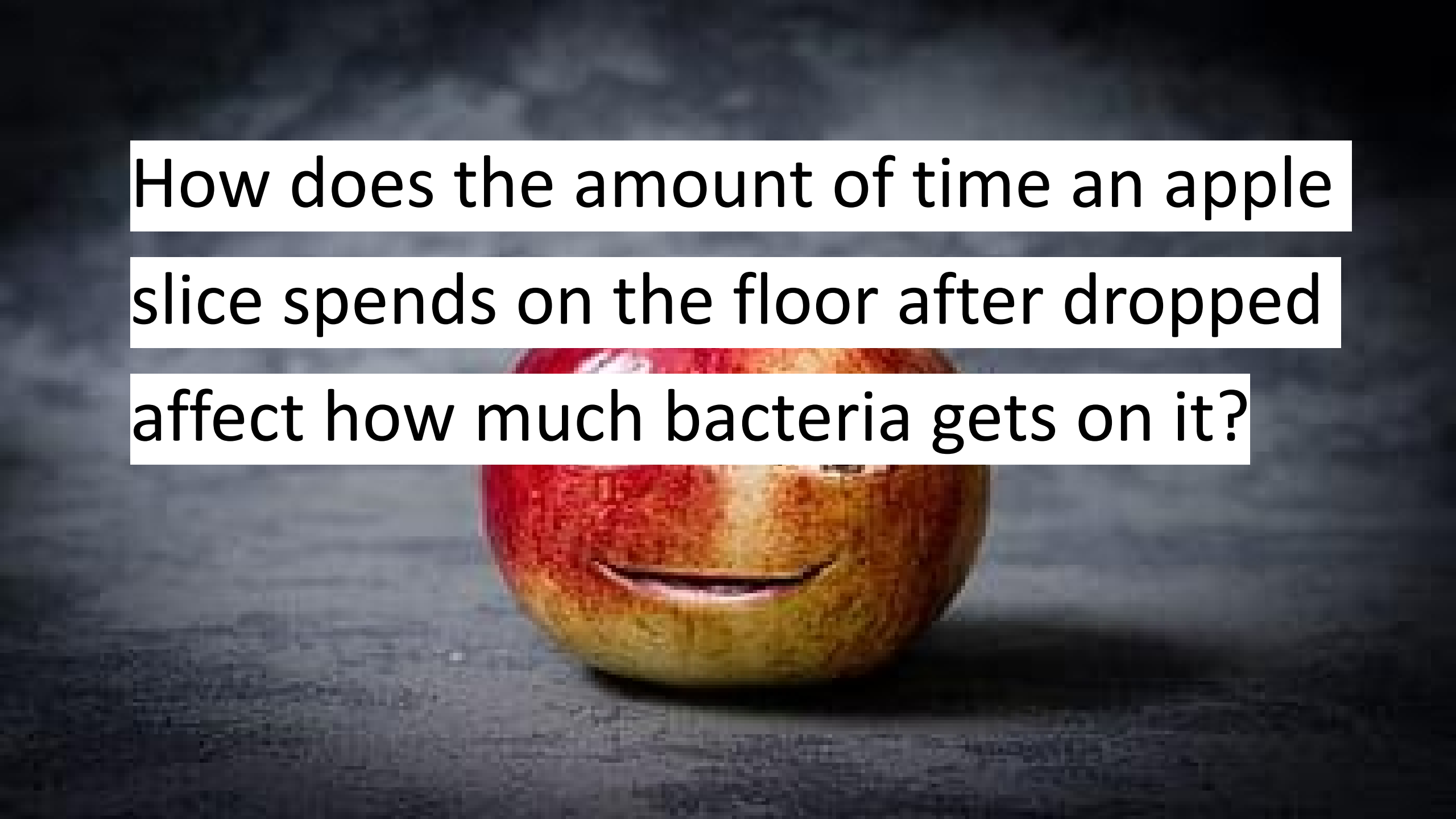
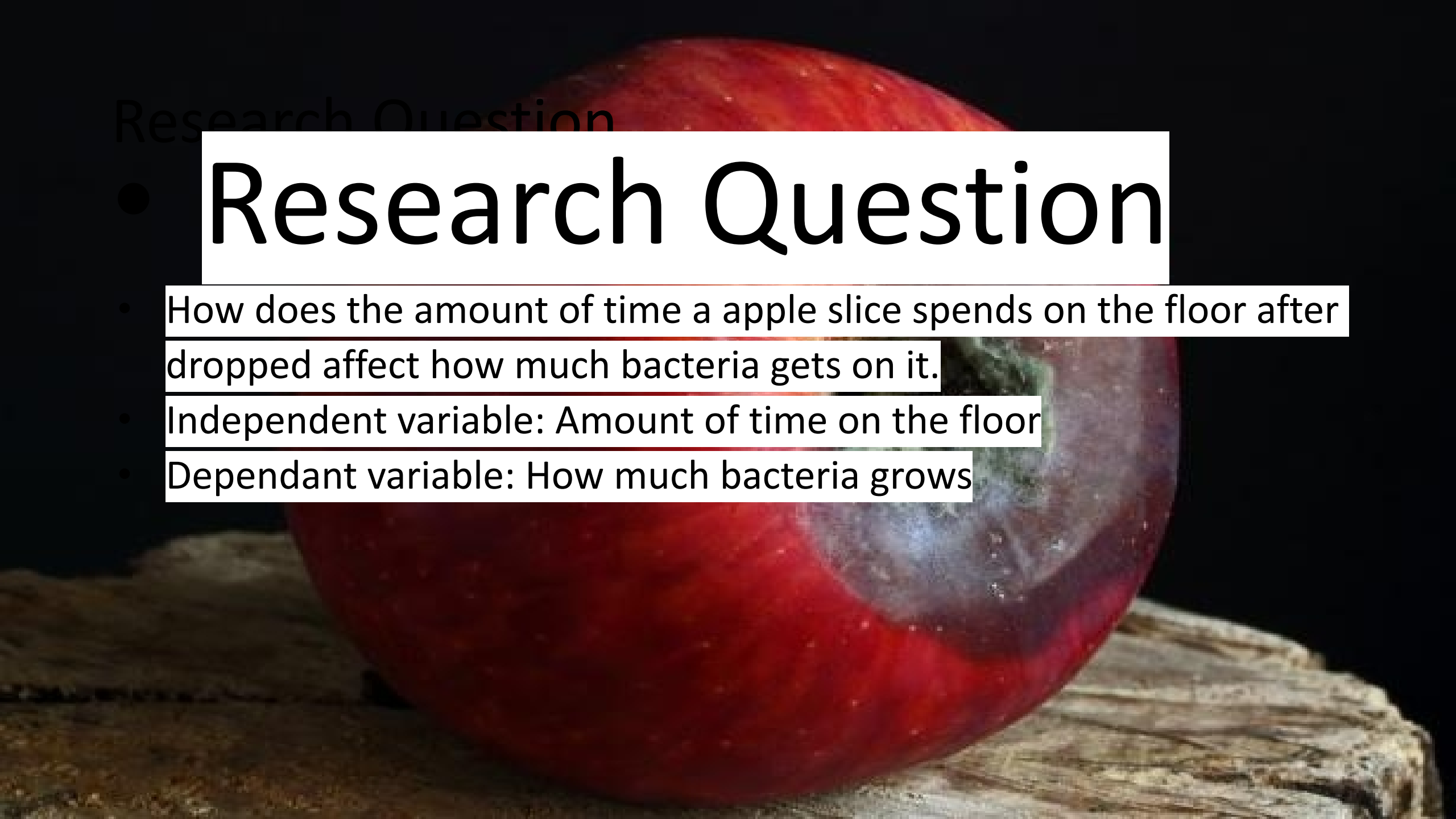

How does the amount of time an apple slice spends on the floor after dropped affect how much bacteria gets on it?

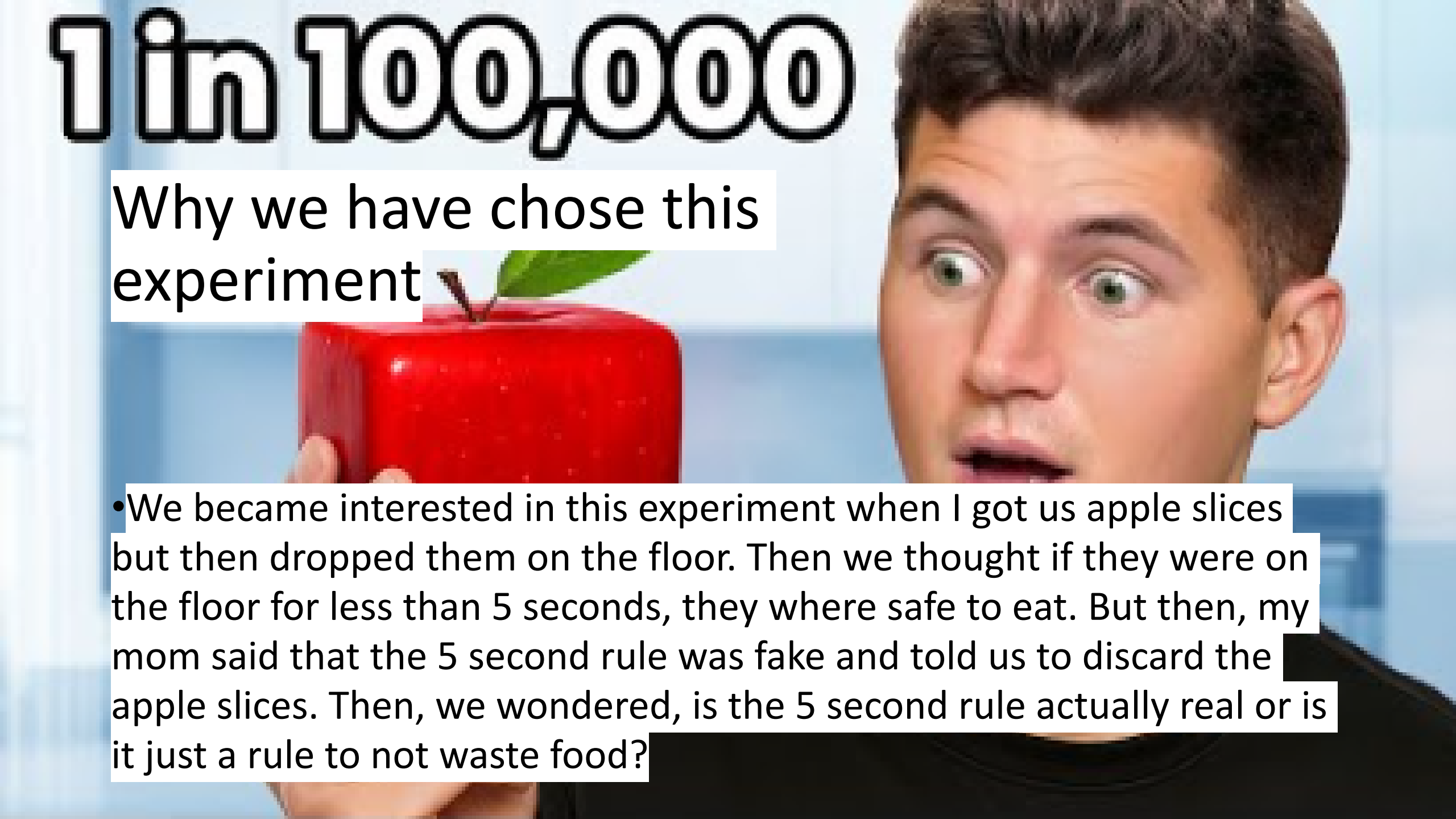
Abstract

We did this experiment to determine weather food on the floor is safe to eat after being dropped on the floor with bacteria. This experiment may help understand how fast bacteria can transfer from one object to another. With this experiment, we have found that the longer the object spends on the floor, the more bacteria and germs contaminate it and its parts.



Research Question

- How does the amount of time a apple slice spends on the floor after dropped affect how much bacteria gets on it.
- Independent variable: Amount of time on the floor
- Dependant variable: How much bacteria grows

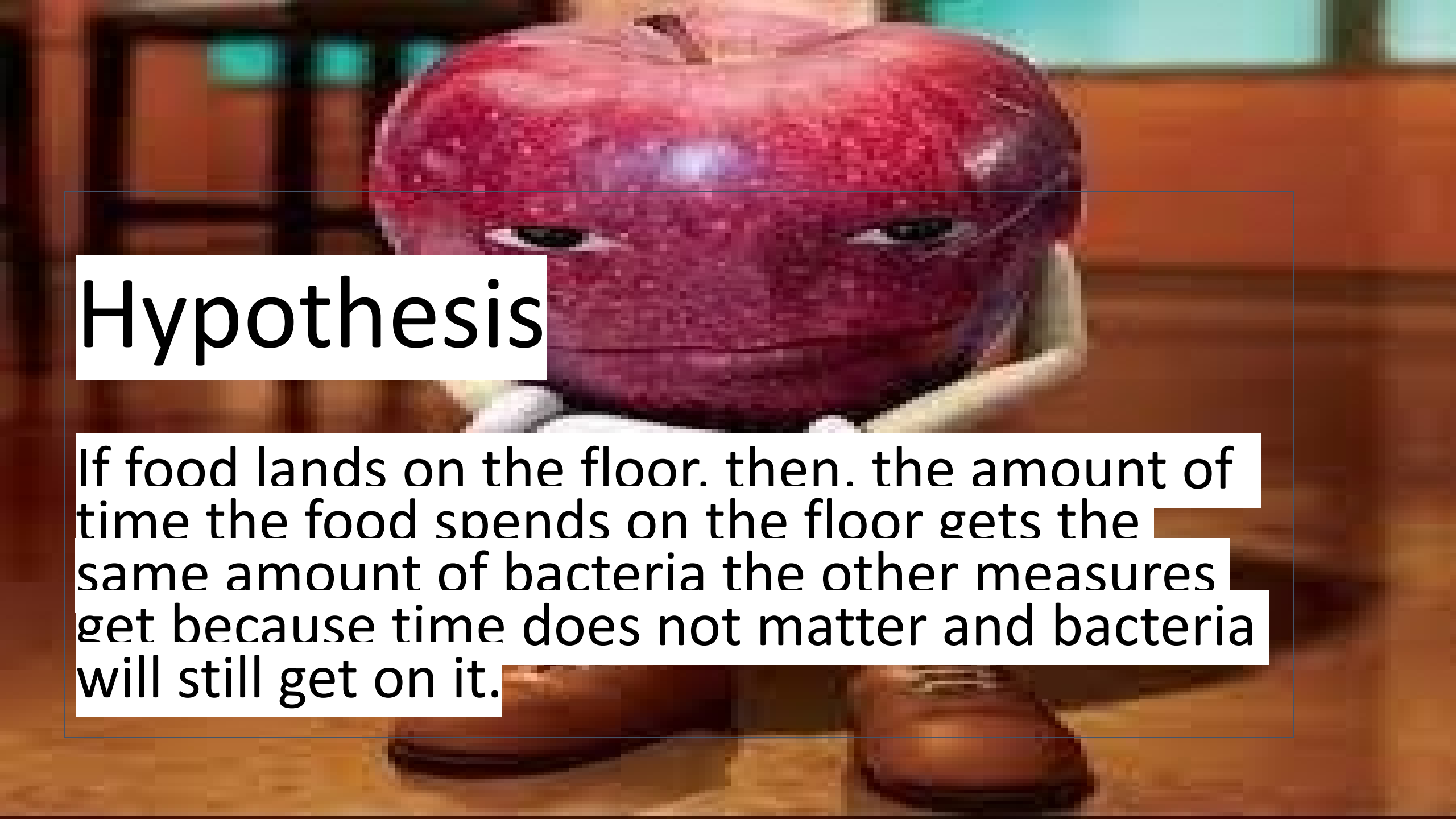


Why we have chose this experiment

- We became interested in this experiment when I got us apple slices but then dropped them on the floor. Then we thought if they were on the floor for less than 5 seconds, they where safe to eat. But then, my mom said that the 5 second rule was fake and told us to discard the apple slices. Then, we wondered, is the 5 second rule actually real or is it just a rule to not waste food?

Background research

1. Bacteria is transferred upon contact
2. Time mostly does not affect how much bacteria gets transferred
3. when food makes contact with the floor, it gets warmer and makes a better environment for the bacteria.
4. Temperature matters when bacteria is transferred.
5. Hotter temp: more bacteria
6. Colder temp: less bacteria
7. Wet food makes bacteria transfer easier
8. bacteria prefer temps between 20 degrees C-45 degrees C.
9. Bacteria reproduce more when in the temps 5 degrees C-60 Degrees C.
10. Bacteria LOVE apples



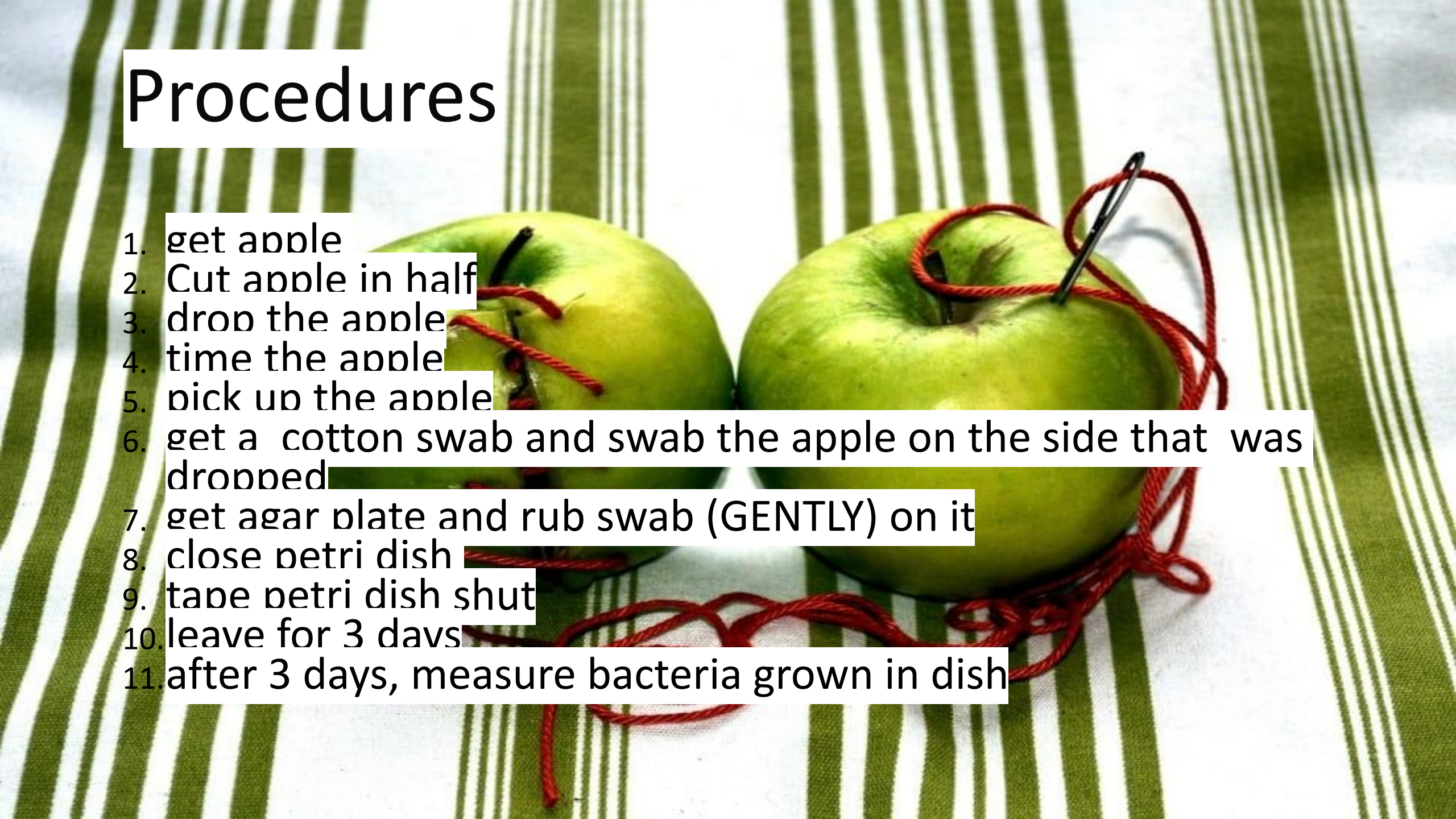
Hypothesis

If food lands on the floor. then. the amount of time the food spends on the floor gets the same amount of bacteria the other measures get because time does not matter and bacteria will still get on it.

Materials

6 agar coated Petri Dishes (with lids)
6 cotton swabs
Gala apple
Knife
Floor (with bacteria)
tape

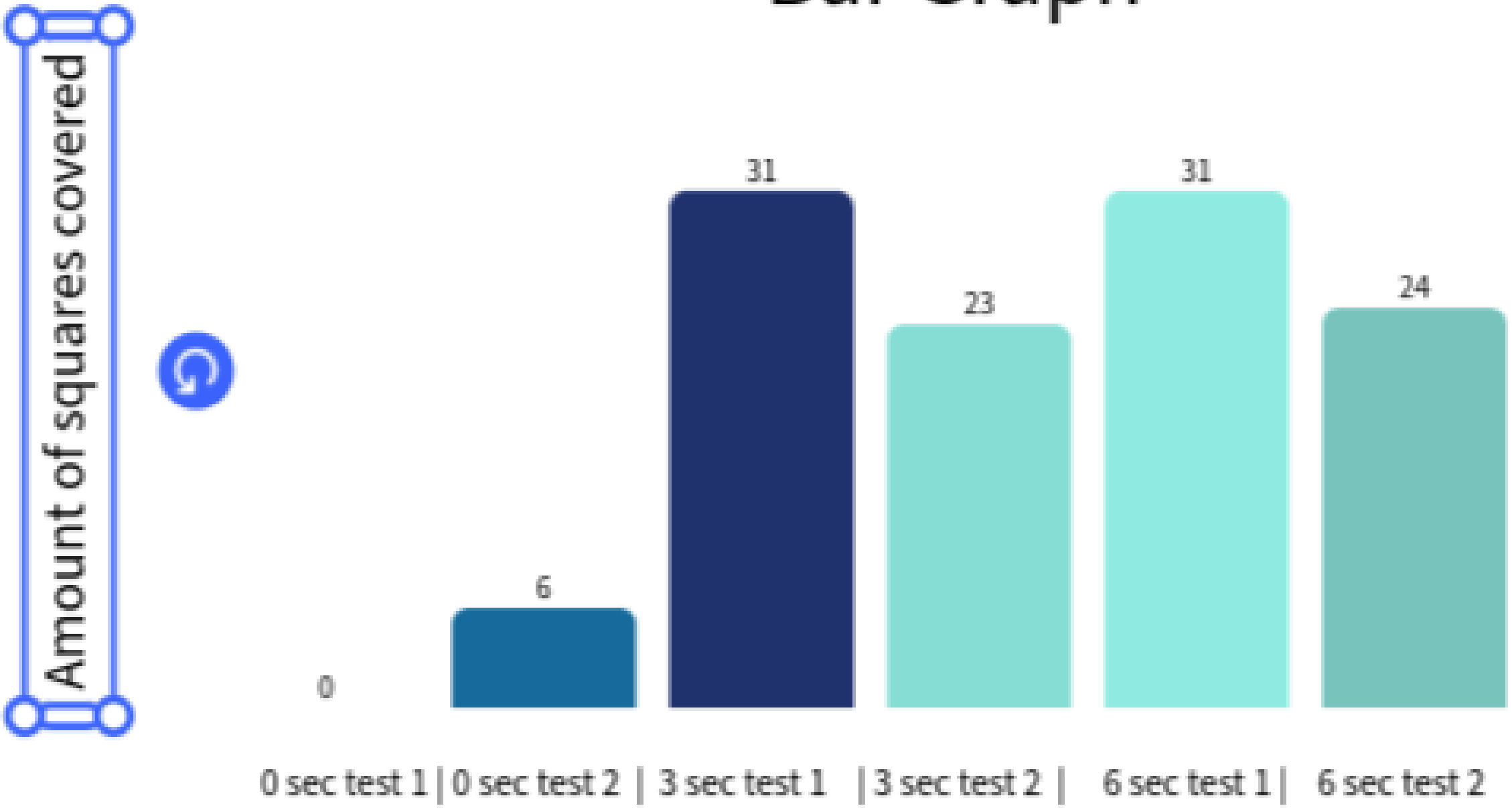
Procedures



1. get apple
2. Cut apple in half
3. drop the apple
4. time the apple
5. pick up the apple
6. get a cotton swab and swab the apple on the side that was dropped
7. get agar plate and rub swab (GENTLY) on it
8. close petri dish
9. tape petri dish shut
10. leave for 3 days
11. after 3 days, measure bacteria grown in dish

Amount of time	Test 1	Test 2	Average
0 Seconds	0	6	3
3 Seconds	31	23	27
6 Seconds	31	24	27.5

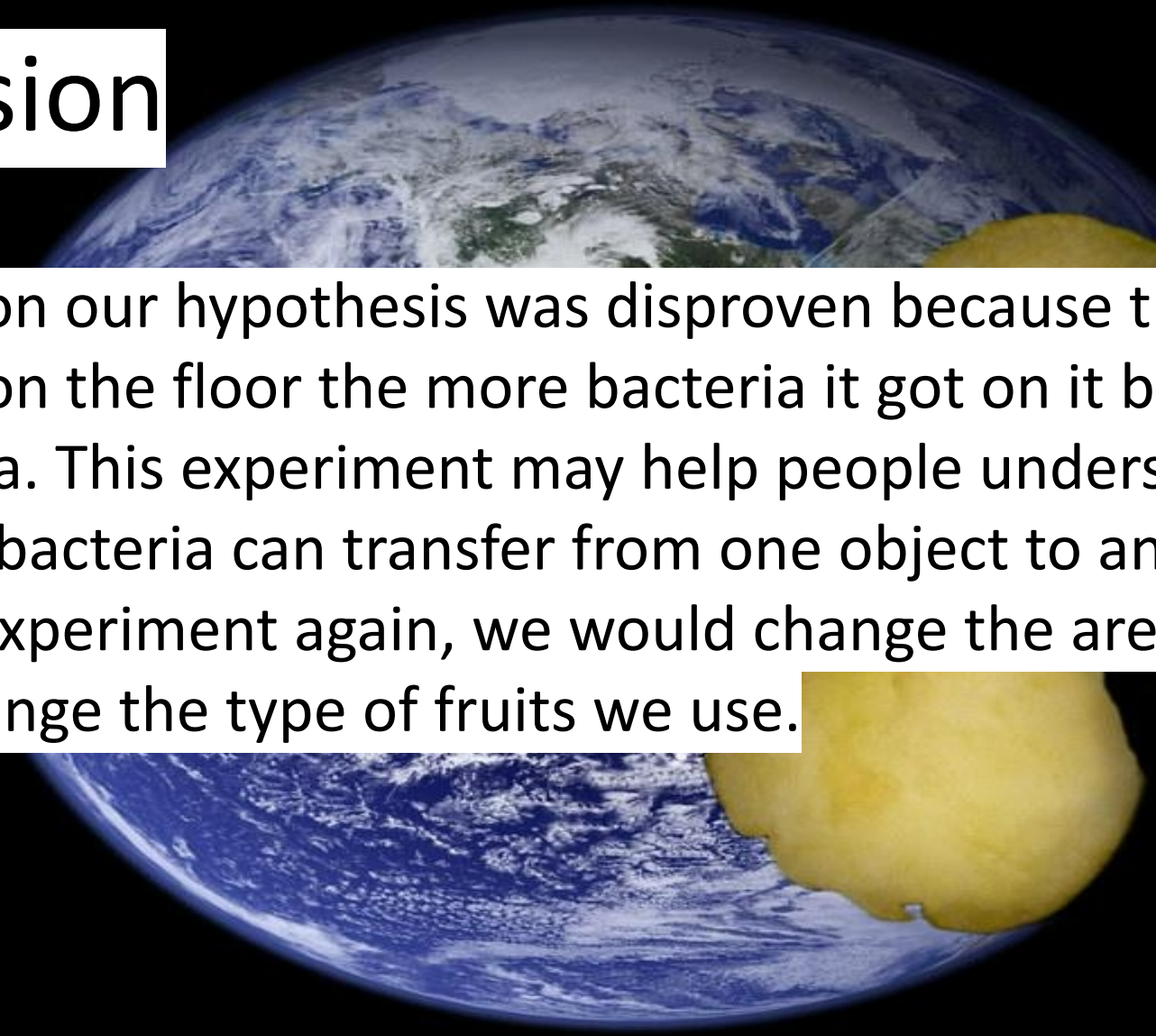
Bar Graph


Amount of squares covered
0
6
31
23
31
24
0 sec test 1
0 sec test 2
3 sec test 1
3 sec test 2
6 sec test 1
6 sec test 2

Results

The studies done showed that the more time the apple spends on the floor, the more bacteria contaminated the apple. This proves that the 5 second rule is a hoax and the person who made it up was lying.

Conclusion



In conclusion our hypothesis was disproven because the more time an apple was on the floor the more bacteria it got on it because the floor has bacteria. This experiment may help people understand how fast and how much bacteria can transfer from one object to another. If we were to do this experiment again, we would change the area on the floor, as well as change the type of fruits we use.

References

- https://www.thocc.org/about/news-press/news-detail?articleId=57890&publicid=395#:~:text=More%20time%20=%20more%20bacteria,Wu.
- https://pmc.ncbi.nlm.nih.gov/articles/PMC6667679/
- https://www.science.org.au/curious/people-medicine/how-germs-spread-surfaces