Question: How many licks Per minute (the rate) does it take to get to the center of a tootsie POP?

Introduction: In this experiment we are looking to test and, see how many licks does it take to get to the center of a tootsie POP. In order to complete this, we will need about three People. The data collected would be (time, amount of licks Per minute) to see how many licks the it really take to get to the center of a tootsie POP. We will use a chart to record the amount of licks every minute, using that method it will show at the end of the experiment how many licks in total to get to the center. If your licking the tootsie POP at a faster Pace then you might get to the center faster. If your licks at the tootsie POP are at a slower Pace it will take longer and, more licks to get to the center.

Variables:

- Independent variable: Methods of licking
- Dependent variable: size of tootsie POP
- Constants:
  1. Person
  2. licking

Hypothesis: If you lick the tootsie POP 90 times then you will

Equations:

N/A

Materials:

- A tootsie POP
- Tongue
- Timing (timer)

Procedure:

1. Buy a tootsie POP
2. Take wrapper off the tootsie POP
3. Get the tootsie likers (Person)
4. Get a stopwatch (timer)
   ↳ how long are ya setting timers to?
5. Begin licking tootsie POP.
6. Repeat step 1 & 2

Observations:

- tootsie POP = color red after taking the wrapper off.
- (me, william, rasheem)
- Time: 1:00 minute (result) 40 licks
- After a minute the tootsie POP doesn't lower.
- set up stop watch (time: 1:00 minute)
- Begin licking the tootsie POP

Data and, calculations

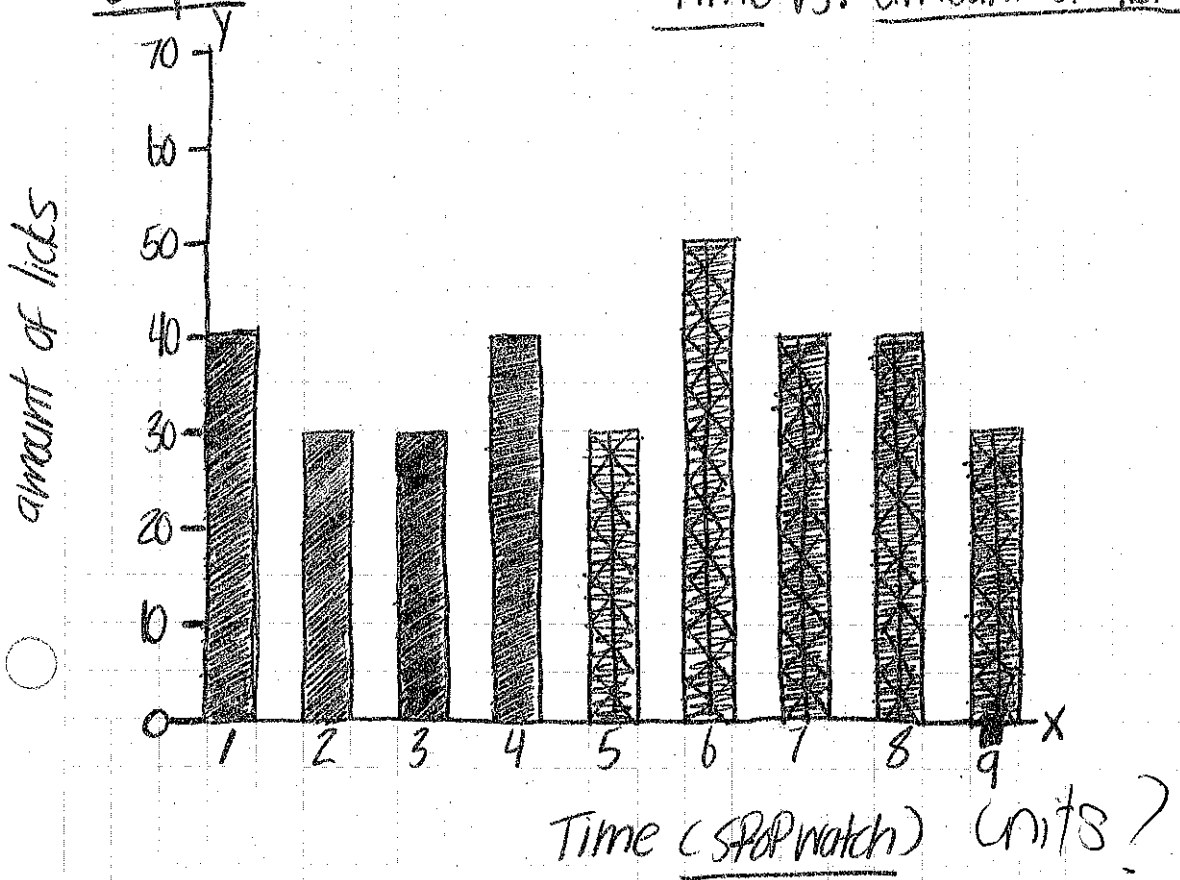
Data:

Licks to center of tootsie POP

minutes	amount of licks
1	40
2	30
3	30
4	40
5	30
6	50
7	40
8	40
9	30
10	

Graph:

Time Vs. amount of licks



Class Analysis: classroom results

How many licks per minute does it take to get to the center of a tootsie POP?

	min. 1	min. 2	min. 3	min. 4	mins	min 6	
Group# 1 al-marie	30	55	10	14	34	42	
Group# Erik.S	40	30	30	40	30	50	
Group# shinequia	45	80	84	55	81	90	
Group# Naquah	45	96	105	75	90	5	

Answers:

① Most of the class' results showed that depending on the consistency that the Pesan was licking the lolly Pop (tootsie-Pop was not constant and, because of that nobody really knows how many licks it took to get to the center of a tootsie Pop.

② My result are not about the same as the rest of the class. I believe that this shows that the hypothesis is incorrect.

③ All of the classroom results showed that the hypothesis failed to show how many licks it took to get to the center of the tootsie Pop. The constant amount of licks to the tootsie Pop every minute for ten (10) minutes wasn't constant.

Conclusion:

- My hypothesis was incorrect
- 2 Pieces of evidence that Proved by hypothesis to be incorrect:

① The mean rate of the amount of licks Per-minute to the tootsie Pop weren't constant (the same) in any minute.

② Tal-marie had 10 (ten licks in one minute) and, Nyaluth had 105 (one hundred and five licks in one

- Sources of error:

① The consistency of the licks Per-minute was not constant.

② [redacted] The timing

- Things to improve:

①. No-Homo - The method in which you lick the tootsie Pop.

② The consistency.

- Two Questions:

① Is it the size of the lolly POP (tootsie POP) effect the time it takes to ge to the center.

② [redacted] would the area temperature effect the speed in which it take to get to the center of a tootsie Pop.

Erick Sanchez Period: __

SCIENCE NOTEBOOK RUBRIC

	Excellent 4pts	Satisfactory 3pts	Developing 2pts	Poor 1pt
[illegible]	☑ The notebook divided into the respective subsections ☑ Relevant information such as student name, date and signature present on first page ☑ well written, organized and neat. ☑ contains all required elements: title, hypothesis, materials, etc.	Missing or have not clearly identified one of the following: ☐ The notebook divided into the respective subsections. ☐ Relevant information such as student name, date and signature present on first page ☐ well written, organized and neat. ☐ contains all required elements: title, hypothesis, materials, etc.	Two key elements missing or not clearly identified: ☐ The notebook divided into the respective subsections. ☐ Relevant information such as student name, date and signature present on first page ☐ well written, organized and neat. ☐ contains all required elements: title, hypothesis, materials, etc.	More than two key elements missing/not clearly identified. ☐ The notebook divided into the respective subsections. ☐ Relevant information such as student name, date and signature present on first page ☐ well written, organized and neat. ☐ contains all required elements: title, hypothesis, materials, etc.
[illegible]	Procedures are: ☑ Written in command ☑ Written in a list ☑ Does not use I, we, you ☒ Specific ☑ Refer to glassware and instruments used ☑ Includes any measurements	Procedures are missing one of the following:: ☐ Written in command ☐ Written in a list ☐ Does not use I, we, you ☐ Specific ☐ Refer to glassware and instruments used ☐ Includes any measurements	Procedures are missing two of the following:: ☐ Written in command ☑ Written in a list ☐ Does not I, we, you ☐ Specific ☐ Refer to glassware and instruments used ☐ Includes any measurements	Procedures are: Copied from the handout OR MISSING more than two: ☐ Written in command ☐ Written in a list ☐ Does not use I, we, you ☐ Specific ☐ Refer to glassware and instruments used ☐ Includes measurements
[illegible]	☑ Observations are plentiful and specific for each experiment ☑ Charts and graphs are recorded where necessary. ☑ Data is properly recorded in a coherent table Proper calculations are carried out. Proper units are used.	Missing one of the following: ☐ Observations are plentiful and specific for each experiment ☐ Charts and graphs are recorded where necessary. ☐ Data is properly recorded in a coherent table Proper calculations are carried out. Proper units are used	Missing two of the following: ☐ Observations are plentiful and specific for each experiment ☐ Charts and graphs are recorded where necessary. ☐ Data is properly recorded in a coherent table Proper calculations are carried out. Proper units are used	No data table present. Observations are vague and unclear. Calculations unclear or incorrect.

Period: ____

	☑ Class data and calculations are thorough and correct. ☑ All questions are answered thoroughly	☐ Most class data and calculations are thorough and correct. ☐ Most questions are answered thoroughly	☐ Some class data and calculations are thorough and correct. ☐ Some questions are answered thoroughly	☐ Most data and calculations are missing or incorrect. ☐ Most questions are missing.
	☑ Restates hypothesis ☐ States hypothesis is incorrect/correct ☑ Data is analyzed thoroughly and correctly. It's used to support valid conclusions ☑ 2 Sources of error in experiment explained ☐ 2 ways to improve the experiment is explained ☑ Asks a new question ☐ Makes a connection to how experiment could be used in real life.	One key element of conclusion is missing or not fully expanded upon (i.e. evidence, sources of error, etc.): ☐ Restates hypothesis ☑ States hypothesis is incorrect/correct ☐ Data is analyzed thoroughly and correctly. It's used to support valid conclusions ☐ 2 Sources of error in experiment explained ☐ 2 ways to improve the experiment is explained ☑ Asks a new question ☐ Makes a connection to how experiment could be used in real life	Two key elements of conclusion are missing: ☐ Restates hypothesis ☐ States hypothesis is incorrect/correct ☐ Data is analyzed thoroughly and correctly. It's used to support valid conclusions ☐ 2 Sources of error in experiment explained ☐ 2 ways to improve the experiment is explained ☐ Asks a new question ☐ Makes a connection to how experiment could be used in real life	☐ Paraphrases manual with little data analysis ☐ Conclusions may be wrong or data misinterpreted. ☐ More than two key elements missing from conclusion.
8+15+12+8+12=55				**Total Score (60 pts):**

92%