

Name \_\_\_\_\_

Date\_\_

# Tootsie Pop Lab

## INTRODUCTION

There has been one question that has been challenging the minds of scientists and five year olds for decades. It is a question that not even the wise old owl can answer. This is the question we will attempt to answer using strict laboratory and data analysis skills.



Since the invention of the **Tootsie Pop**, many men (and women and owls) have asked the question, "How many licks does it take to get to the center of a **Tootsie Pop**?" Previous research seems to suggest that one can reach the center with three licks and a bite (ref: Mr. Owl\*) but this does not sufficiently answer the question. Ongoing research is being conducted, and preliminary results have been obtained, towards solving the problem.

According to the official **Tootsie Roll** website, **Tootsie Roll** Industries has received over 50,000 letters from people claiming to have solved the problem since the **Tootsie Pop** commercial first aired in 1970. The typical range of responses is between 100 and 5,800 with an average of 600-800. There is no official number, as everyone's saliva and licking method is different.

**Tootsie Roll** Industries notes that they are aware of 3 separate and completely unrelated studies, which attempted to finally put to rest the ever-eternal question of "How many licks does it take to get to the **Tootsie Roll** center of a **Tootsie Pop**?"

1. **A handful of engineering students at Purdue University appear to have conducted the most research. They devised a "licking machine," with which they recorded an average of 364 licks to get to that Tootsie Roll center we all know and love. Their research also included having 20 human volunteers carry out the experiment as well. The results from the volunteers concluded that it took an average of 252 licks to reach the center.**
2. **One doctorate student at the University of Michigan created his own licking machine and came up with an average of 411 licks to reach the center of the Tootsie Pop.**
3. **Students at Swathmore High School conducted their own human-based experiment, resulting in an average of 144 licks.**

If one were to take the average of the above averages, the result is an astonishing 292.75 licks. This number seems unusually low, but when one takes into consideration how each independent study may have defined a "lick," it becomes apparent that the world may indeed never know.

The **Tootsie Pop**, also known as the **Lucas Graham Tootsie Roll Pop**, is a hard-candy lollipop with a Tootsie Roll filling at its center. The **Tootsie Pop** was invented in 1931 by the Sweets Company of America, which changed its name in 1966 to **Tootsie Roll** Industries, Inc.

In 1996, **Tootsie Roll** Industries celebrated its 100th anniversary. As of 2003, sixty million **Tootsie Rolls** and twenty million **Tootsie Pops** were produced every day.

\* <http://myhomeoflove.tripod.com/shortstories/mrowl.html> \*  
<http://www.youtube.com/watch?v=AHKbbv7k88Q&mode=related&search>

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**Problem:** How many licks does it take to get to the tootsie roll center of a tootsie pop?

**Hypothesis:** If \_\_\_\_\_,

then \_\_\_\_\_

because: \_\_\_\_\_.

**Procedure:** (step-by-step set of directions that someone else could follow)

**Data** (create a table):

**Analysis:**

**Conclusion:** (Was your hypothesis nullified or validated? Explain)