Top-Down Design

# Problem Statement

We would like to know how many licks it takes to get to the center of a tootsie pop, using a measured mass, frictional force, and radius of sucker. We are assuming multiple factors, which are laid out in the “Brief Project Summary”.

# Input Variables

Initial frictional force between sucker and tongue

Secondary frictional force between sucker and tongue (after wet)

Mass of sucker

Density of sucker

Initial radius of sucker (assuming it’s a sphere)

# Measured Values

These values are not specifically in the code, however were needed in calculating some of the initial values, such as the frictional forces.

Mass of sucker

Radius of sucker

Angle of tongue compared to the force of gravity pulling straight down (detailed in “Brief Project Summary”)

# Functions

## Initial “Dry” Calculations

## Secondary “Wet” Calculations

## 

The only factor that will change is the frictional force. However that will change all subsequent values, so I labels the equations this way so that we know to create two separate calculations in the code.

# Final Answer

Our final answer will be determined by simply when Radius2 is equal to 0. In other words, when we hit the center of the Tootsie Pop.

# Flow Chart

Output times looped

Calculate radius equations

Input frictional force

Create loop for radius equations

Define functions

Input initial radius

# Pseudo Code

#Import basic libraries

#Define initial values, both measured and calculated

#Define functions for the radii

#Define function, and main equation, for the new radius

#Create sucker radius array, and append the new values

#Using Vidle create a static sucker that doesn’t change for reference

#Create sucker that will have its radius change based upon the calculations

#Create “lick counter” that counts each time the new radius equation is calculated

#End program