Law of Conservation of Popcorn

Purpose: To experimentally show the conservation of mass.

Materials:

Erlenmeyer flask
10 kernels of popcorn
Rubber stopper
Electronic balance
Hot plate

Pre-Lab Questions:

a. Is popping popcorn a chemical or physical change. Why?

b. State the Law of Conservation of Mass.

Procedure:

1. Using the electronic balance, measure the mass of your 10 corn kernels on a paper towel. Record this in your data table.

2. Place the popcorn into the Erlenmeyer flask & cork tightly. Measure the mass of the whole set-up. Record this in your data table under mass of whole set-up.

3. Place the flask on the hot plate for 1-3 minutes. Don't heat for more than 3 minutes even if some corn isn't popped. Using the tongs, set the flask on a folded paper towel & cool to room temperature…3-5 minutes. DON'T UNCORK!!!!

e. How many kernels popped? (*A pop is if you can see <u>any</u> break in the skin*) Record this in your data table.

f. Examine the flask. What do you notice beside the heat & the popped corn?

4. Measure the mass of the entire cooled set-up BEFORE UNCORKING!!!

g. What is the mass of the entire cooled set-up?

h. Compare/contrast the mass after popping to the mass before popping.

5. Uncork the flask & measure the mass of the popped popcorn by itself.

i. Record the mass of the popped corn by itself.

j. Compare/contrast the mass of unpopped kernels by themselves (from question C) to the mass of popped corn (from question i).

k. What was the difference in grams? Were those grams lost or destroyed?

l. Where did that mass go?

m. If your cork popped off your flask while you were heating it, how would that change the data from the experiment?

n. Explain how the Law of Conservation of Mass is still true even if the cork pops off.

6. Clean up your area. Leftover corn gets thrown in the trash. Everything else is cleaned & put back in your bucket.

Do NOT eat the popcorn! It has been in glassware that at one point probably contained harmful chemicals. No matter how clean you think your glassware is—there is still some hazardous residue remaining behind.

Data Table :

Mass of Pre-popped Corn (g)	
Mass of Pre-popped Whole set-up	
Number of kernels that popped	
Mass of Post-popped Cooled Whole set-up	
Mass of the popped popcorn	