

Rain Drops Keep Falling in Hamilton

Name: _____ **KEY** _____ Class: _____ Date: _____

This exercise is about finding out how much rain falls in Hamilton, Ontario and then calculating the mass of that water per year. It might surprise you.

First step is to make a guess as to the mass of water that falls on Hamilton in one year. Try to make a reasonable guess or hypothesis. This is supposed to be a science class after all. Use kilograms as your unit of mass.

1. Your Estimate: _____ **ANSWERS WILL VARY** _____ kg

The next step will be to find out how much water actually falls in Hamilton in a year. Search 'Annual Precipitation in Hamilton, Ontario' to get the answer.

2. Annual Precipitation in Hamilton, ON: _____ **979** _____ mm/year
3. Convert that into metres ($\div 1000$) - _____ **0.979** _____ m/year

Next, try to find the area of Hamilton. Search 'Area of Hamilton, Ontario'

4. Area of Hamilton, Ontario: _____ **1118** _____ km²
5. Convert this into m² ($\times 1,000,000$): _____ **1,118,000,000** _____ m²

To get the volume of water that this represents per year, you have to multiply the area by the amount of precipitation.

6. Volume of water is (Area $\times$ h) _____ **1,118,000,000** _____ m² $\times$ _____ **0.979** _____ m/year
that is _____ **1,094,522,000** _____ m³/year.

Each m³ of water has a mass of 1000 kg. What is the mass of water that falls from the sky in Hamilton, Ontario per year? ($\times 1000\text{kg/m}^3$) _____ **1,094,522,000,000** _____ kg/year (**Over a trillion kilograms of water per year!!**)

Does this surprise you?

Where does all this water go?