**Fermi Problems: Some Examples**

**QUESTION 1:**

The Ontario government decides that winter is too depressing and that what is really needed is to turn all of Lake Ontario into one giant mug of hot chocolate.

a) Find the number of packets of hot chocolate powder required to make this much hot chocolate.

b) Find the number of large marshmallows required to float on top of the hot chocolate.

DATA:

* Lake Ontario is 245 km by 85 km wide, and holds 1610 cubic kilometres of water
* One packet of hot chocolate makes 175mL
* 1 mL = 1 cubic centimetre
* A large marshmallow is about 3cm by 2cm in area

**QUESTION 2:**

How many pencils would be required to **draw** a single line around the equator of the Earth? [assume this would be possible due to a single strip of paper circling the globe]

DATA: the radius of the Earth is 6380km. Please note that the question is not asking about laying pencils end to end but rather using them to draw a line.

**QUESTION 3:**

You accidentally fall into a meat grinder and are turned into a long string of hot dogs. How long a string of hot dogs would you make?

DATA: 1 regular hot dog has a mass of about 40g, and is 15cm long

**QUESTION 4:**

Calculate the total amount of food you have eaten in your entire

lifetime, in kilograms.

Other examples:

Q: Calculate the total **mass** of students currently \*in the building\* at the present time at [\*your school\*].

Q: How many jelly beans does it take to fill a 1 L beaker? (especially nice if the reward for the best guess is the jelly beans)

Q: Estimate the number of cellphones in use by Ontario students at the current time.