CHM 107LL Computer Day

BRING YOUR OWN laptop computer if possible today.

Today we will watch a video, then use computers to calculate various items in relation to our course.

I. Calculate your Carbon Footprint

A **carbon footprint** is a measure of the impact our activities have on the environment, and in particular climate change. It relates to the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating and transportation etc.

The carbon footprint is a measurement of all greenhouse gases we individually produce and has units of tonnes (or kg) of carbon dioxide equivalent. Here is an example:

Calculate your footprint here - https://www.conservation.org/carbon-footprint-calculator#/
Answer all the questions. Select MYSELF for your calculations.

II. Calculate Your Water Footprint

People use lots of water for drinking, cooking and washing, but even more for producing things such as food, paper, cotton clothes, etc. The water footprint is an indicator of water use that looks at both direct and indirect water use of a consumer or producer. The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business.

Calculate your footprint here - https://waterfootprint.org/en/resources/interactive-tools/personal-water-footprint-calculator/personal-calculator-extended/

To calculate kilograms (kg) you must divide by 2.2. Like if you eat 6 pounds of meat that would be 6 / 2.2 = 2.7 kg meat.

CHM 107LL Computer Day Report Name:

Your Carbon Footprint:

Total = _____ tons of CO_2

It takes _____ trees to offset your annual footprint.

The average in the USA is 20.4 metric tons of CO_2

Scroll down: How many trees is your house? _____

How many trees is your car? _____ How many trees is your plane flying? _____

Your Water Footprint:

Your total water footprint is _____ cubic meter per year.

The USA average is 2500.

Components of your footprint:

Food = _____ cubic meter

Domestic = _____ cubic meter

Industrial = _____ cubic meter

Food broken down: cereal_____, meat_____, vegetable____, fruit____, dairy____, stimulant____, fat____, sugar____, egg____, others____

Follow up Questions.

1. Is your carbon footprint above average? YES NO
2. Is your water footprint above average? YES NO
3. What do you do that creates the most CO_2? _____
4. What do you eat that uses the most water? _____

Bill Nye: Climate Change

1. _____ cores are used to determine the temperatures and air composition for the past hundreds of thousands of years.

2. These cores come from Antarctica and _____.

3. This gas has been increasing dramatically since the Industrial Revolution began: _____.

4. Driving cars, burning fossil fuels, and cutting down _____ are ways humans produce CO_2.

5. The US has 5% of the population but emits _____% of the pollution.

6. The _____ Protocol has been signed by Russia, Japan, the European Union but not the United States.

7. _____ expansion will raise sea levels as the ocean waters get warmer.

8. Name two greenhouse gases: _____ and _____

9. Name one alternative energy source. _____

Bill Nye: Transportation

1. The biggest source of pollution in America is now _____.
2. Burning gasoline produces _____ and this is a problem, they pollute our world.
3. One solution to gas burning cars could be _____ vehicles, they have lots of torque, but the only problem is that they don't go real far on one charge.
4. Cars with gas and electric engines are called _____ cars.
5. Fuel cell engines produce this as their exhaust: _____.
6. Fuel cell vehicles convert _____ into electrical energy by a chemical process.
7. If we converted diesel buses to fuel cell buses we would save _____ % of the energy we would have used.
8. Gas is octane, while natural gas is _____.
9. When we burn octane, we produce _____ dioxide along with other dioxides like sulfur and nitrogen oxides, as well as soot.
10. The key to fuel cell vehicles is finding a source of _____. Fuel cell engines are two to three times more efficient than gas engines.
11. A dream would be to have all our power from _____ sources like wind, solar, hydrogen, so that we don't have to import any fuel and so that we don't have to worry about greenhouse gases.
12. This video looks at the traffic in this wonderful city: _____. This city is a text book example of urban sprawl.
13. There is no benefit to having more than this many lanes of traffic: _____. Any wider and you see reduction in traffic due to entering and exiting the highways.
14. Simulating traffic by computer programs is so complicated one speaker in this video says it is more complicated than rocket _____.
15. We must change the way we travel around, or we'll be in gridlock traffic all the time. Name two things you can do personally to help the traffic problem.

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