METHODOLOGIES:

Our methodology is in no way a perfect science, but we made educated approximations while still preserving a user friendly interface. We ultimately wanted the calculator to be easy, quick, and informative. The calculations capture a day in the life as well as a year in the life of a student at Santa Clara. We wanted to capture what makes your life as a student unique, like Wednesday night partying, textbook purchases, and a fourth meal at the Bronco after a long night of studying. We will go through each tab and explain the basics that went into each calculation. Not all of the questions factor into the calculations; but some questions are there for the sake of getting people to think about their lifestyles. We also base some of the calculations on the idea of a "weighted population." This assumes students living on campus will use more water, energy, and waste, while part time or commuter students consume less of those resources. Full time students have a weight of 1, commuter students a weight of .75, and part time students/faculty + staff have a weight of .5.

Consumption:

We wanted the consumption tab to reflect just how much of an impact our roles as consumers have on our carbon footprints. This of course had to include laptops, ipods, phones, clothing, etc. In order to calculate the carbon of electronics like laptops and phones we found the amount of kg CO2e used for a 4 year lifespan of the product. By asking how many years the user had owned the phone or laptop we were able to get a rough approximation of the carbon emissions. For textbooks, we found separate amounts of kg CO2e to make hard cover and soft cover books. We then multiplied by the amount of each kind of book the user buys per quarter. In order to factor in clothing we found the average kg CO2e it takes to create a kg of clothing. We then multiplied that by the average weight of a new article of clothing and how many articles of clothing the user purchases/month.

Question: Approximately how many soft cover books do you buy/quarter?
Input element: allow user to input

Question: Approximately how many hard cover books do you buy/quarter?
Input element: allow user to input

CONVERSION FOR TEXTBOOKS: want to calculate **(1)** (kg CO2)/school yr *and* **(2)** (kg CO2)/day used from textbooks. User inputs number of textbooks.

(1) $\frac{\text{\# soft cover}(5.00\text{ kg CO2}) + \text{\#hard cover}(10.2\text{ kg CO2})}{\text{books in a quarter}} \times \frac{\text{3 quarters}}{\text{school yr}} = \mathbf{\frac{kg\ CO2}{school\ yr}}$

(2) $\frac{\text{\# soft cover}(5.00\text{ kg CO2}) + \text{\#hard cover}(10.2\text{ kg CO2})}{\text{books in a quarter}} \times \frac{\text{1 quarter}}{\text{33 weeks}} \times \frac{\text{1 week}}{\text{7 days}} = \mathbf{\frac{kg\ CO2}{day}}$

Question: How often buy a new article of clothing in a given month?
Input element: allow user to input

CONVERSION FOR CLOTHING: want to calculate **(1)** (kg CO2)/school yr *and* **(2)** (kg CO2)/day used from clothing. User inputs number how often buy new article of clothing

(1) $\frac{\#\text{clothes}}{\text{month}}$ **x** $\frac{.2756\text{ kg}}{1\text{ article clothing}}$ **x** $\frac{6.5\text{ kg CO2}}{\text{kg of clothing}}$ **x** $\frac{1\text{ month}}{4\text{ weeks}}$ **x** $\frac{33\text{ weeks}}{\text{school yr}}$ **= kg CO2 / school yr**

(2) $\frac{\#\text{clothes}}{\text{month}}$ **x** $\frac{.2756\text{ kg}}{1\text{ article clothing}}$ **x** $\frac{6.5\text{ kg CO2}}{\text{kg of clothing}}$ **x** $\frac{1\text{ month}}{4\text{ weeks}}$ **x** $\frac{1\text{ week}}{7\text{days}}$ **= kg CO2 / day**

Question: How long have you had your current cell phone. Please approximate in years.
Input element: allow user to input

Question: Do you own a:
Radio Button: option for smart phone and option for mobile phone

CONVERSION FOR CELL PHONE: want to calculate **(1)** (kg CO2)/school yr *and* **(2)** (kg CO2)/day for both mobile phone and smart phone.

IF choose mobile phone:

(1) 60 kg CO2 + $\left(\frac{88\text{ kg CO2}}{\text{year}}\right.$ **x** $\left.\frac{\#\text{ of years owned phone}}{1}\right)$ **x** $\frac{1\text{ year}}{33\text{ weeks}}$ **= kg CO2 / school yr**

(1) 60 kg CO2 + $\left(\frac{88\text{ kg CO2}}{\text{year}}\right.$ **x** $\left.\frac{\#\text{ of years owned phone}}{1}\right)$ **x** $\frac{1\text{ year}}{33\text{ weeks}}$ **x** $\frac{1\text{ week}}{7\text{ days}}$ **= kg CO2 / day**

If choose smart phone:

(1) 27 kg CO2 + $\left(\frac{28\text{ kg CO2}}{4\text{ years}}\right.$ **x** $\left.\frac{\#\text{ of years owned phone}}{1}\right)$ **x** $\frac{1\text{ year}}{33\text{ weeks}}$ **= kg CO2 / school yr**

(1) 27 kg CO2 + $\left(\frac{28\text{ kg CO2}}{4\text{ years}}\right.$ **x** $\left.\frac{\#\text{ of years owned phone}}{1}\right)$ **x** $\frac{1\text{ year}}{33\text{ weeks}}$ **x** $\frac{1\text{ week}}{7\text{ days}}$ **= kg CO2 / day**

Question: How long have you had your current eReader. Please approximate in years.
Input element: allow user to input

Question: Do you own a:
Radio Button: option for iPad and option for Kindle

CONVERSION FOR eReader: want to calculate **(1)** (kg CO2)/school yr *and* **(2)** (kg CO2)/day for both iPad and kindle.

If choose iPad:

(1) 65 kg CO2 + (65 kg CO2)(# yrs owned iPad) **x** 1 year = **kg CO2**
4 year life span 33 weeks **school yr**

(2) 65 kg CO2 + (65 kg CO2)(# yrs owned iPad) **x** 1 year **x** 1week = **kg CO2**
4 year life span 33 weeks 7 days **day**

If choose Kindle:

(1) 84 kg CO2 + (84 kg CO2)(# yrs owned iPad) **x** 1 year = **kg CO2**
4 year life span 33 weeks **school yr**

(2) 84 kg CO2 + (84 kg CO2)(# yrs owned iPad) **x** 1 year **x** 1week = **kg CO2**
4 year life span 33 weeks 7 days **day**

Question: Do you own an ipod
Radio button: option for yes and option for no

Question: How long have you had your current ipod. Please approximate in years.
Input element: allow user to input

CONVERSION FOR ipod: want to calculate **(1)** (kg CO2)/school yr *and* **(2)** (kg CO2)/day for both ipod.

(1) 23 kg CO2 + (23 kg CO2)(# yrs owned ipod) **x** 1 year = **kg CO2**
4 year life span 33 weeks **school yr**

(2) 23 kg CO2 + (23 kg CO2)(# yrs owned ipod) **x** 1 year **x** 1week = **kg CO2**
4 year life span 33 weeks 7 days **day**

OUTPUT
Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day accumulated from all different areas of consumption

---

Transportation:
The transportation tab is similar to what you'd find on your average carbon footprint calculator. For ease of use we decided to categorize cars as small, average, SUV/truck, and hybrid. This way the user did not have to research their exact fuel efficiency. The user only had to approximate the number of miles driven in a given month. This same tactic was used for bus

travel and train travel. The conversion for air travel is a little more complex in that we use the amount of CO2e /passenger kilometer and also multiply by a factor of 1.09 to account for the uplift factor. The uplift factor is taking into consideration non direct flights, delays, and circling.

Question: Do you longboard, skateboard, or bike to class?
Radio buttons: option for yes and option for no

Question: Do you own a car?
Drop down menu with following options: small, average, SUV/truck, hybrid

Question: Approximately how many miles do you drive/month?
Input element: allow user to input
Help link that expands when rollover with mouse that gives the following info:
Automobile Distances
Santa Clara University to: Santa Cruz—————— 30.0 miles
Valley Fair Mall————2.1 miles
Downtown San Jose——3.6 miles
San Francisco—————46.1 miles
Tahoe———————228.4 miles

CONVERSION FOR CAR TRAVEL: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from driving car. User inputs *x.*

Small: **(1)** $\frac{x \text{ miles}}{\text{month}}$ **x** $\frac{0.32990 \text{ kg CO2e}}{\text{mile}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ **=** $\frac{\textbf{kg CO2e}}{\textbf{school yr}}$

(2) $\frac{x \text{ miles}}{\text{month}}$ x $\frac{0.32990 \text{ kg CO2e}}{\text{mile}}$ x $\frac{1 \text{ month}}{4 \text{ weeks}}$ x $\frac{1 \text{ week}}{7 \text{ days}}$ = $\frac{\textbf{kg CO2e}}{\textbf{day}}$

Average: **(1)** $\frac{x \text{ miles}}{\text{month}}$ **x** $\frac{0.40935 \text{ kg CO2e}}{\text{mile}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ **=** $\frac{\textbf{kg CO2e}}{\textbf{school yr}}$

(2) $\frac{x \text{ miles}}{\text{month}}$ x $\frac{0.40935 \text{ kg CO2e}}{\text{mile}}$ x $\frac{1 \text{ month}}{4 \text{ weeks}}$ x $\frac{1 \text{ week}}{7 \text{ days}}$ = $\frac{\textbf{kg CO2e}}{\textbf{day}}$

SUV/truck: **(1)** $\frac{x \text{ miles}}{\text{month}}$ **x** $\frac{0.56964 \text{ kg CO2e}}{\text{mile}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ **=** $\frac{\textbf{kg CO2e}}{\textbf{school yr}}$

(2) $\frac{x \text{ miles}}{\text{month}}$ x $\frac{0.56964 \text{ kg CO2e}}{\text{mile}}$ x $\frac{1 \text{ month}}{4 \text{ weeks}}$ x $\frac{1 \text{ week}}{7 \text{ days}}$ = $\frac{\textbf{kg CO2e}}{\textbf{day}}$

Hybrid: **(1)** $\frac{x \text{ miles}}{\text{month}}$ **x** $\frac{0.22767 \text{ kg CO2e}}{\text{mile}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ **=** $\frac{\textbf{kg CO2e}}{\textbf{school yr}}$

(2) $\frac{x \text{ miles}}{\text{month}}$ **x** $\frac{0.22767 \text{ kg CO2e}}{\text{mile}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{1 \text{ week}}{7 \text{ days}}$ = $\frac{\textbf{kg CO2e}}{\textbf{day}}$

Question: Do you use the bus?
Radio buttons: Option for yes and option for no

Question: Approximately how many miles/month do you travel on bus?
Input element: allow user to input

CONVERSION FOR BUS: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/school yr used from bus usage. User inputs *x pm* (passenger miles).

Bus:

(1) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** $\frac{0.18891 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ = **$\frac{\text{kg CO2e}}{\text{school yr}}$**

(2) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** $\frac{0.18891 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{1 \text{ week}}{7 \text{ days}}$ = **$\frac{\text{kg CO2e}}{\text{day}}$**

Question: Do you use caltrain or bart?
Radio buttons: option for yes and option for no

Question: Approximately how many miles/month do you travel on caltrain or bart?
Input element: allow user to input

CONVERSION FOR CALTRAIN or BART: want to calculate **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/day used from train. User inputs *x pm* (passenger miles).

Caltrain or BART

(1) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** $\frac{0.08761 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ = **$\frac{\text{kg CO2e}}{\text{school yr}}$**

(2) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** $\frac{0.08761 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{1 \text{ week}}{7 \text{ days}}$ = **$\frac{\text{kg CO2e}}{\text{day}}$**

Question: Have you travelled or plan to travel on airplane this year?
Radio buttons: option for yes and option for no

Question: How many mile have you travelled or plan to travel this year?
Input element: allow user to input
Help link that expands when rollover with mouse that gives the following info:
Avg Flight Mileage for Time Zones
San Jose Airport to:

New York – 2,936 miles
Seattle——838 miles
Denver——1,299 miles
Chicago——2,162 miles

CONVERSION FOR AIR TRAVEL: want to calculate **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/day used from air travel. User inputs *x pm* (passenger miles). 109% accounts for the uplift factor

Air Travel:

(1) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** 109% **x** $\frac{0.20515 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{33 \text{ weeks}}{1 \text{ school yr}}$ **=** $\frac{\textbf{kg CO2e}}{\textbf{school yr}}$

(2) $\frac{x \text{ pm}}{\text{month}}$ **x** $\frac{1 \text{ pkm}}{0.62137 \text{ pm}}$ **x** 109% **x** $\frac{0.20515 \text{ kg CO2e}}{\text{pkm}}$ **x** $\frac{1 \text{ month}}{4 \text{ weeks}}$ **x** $\frac{1 \text{ week}}{7 \text{ days}}$ = $\frac{\textbf{kg CO2e}}{\textbf{day}}$

OUTPUT:
Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day accumulated from all different types of transportation

---

Water
The water tab gets a little complicated. First, we calculate a baseline that will count towards each user's carbon footprint by virtue of the fact that they are a member of the Santa Clara community. This water usage includes the water used for irrigation, fountains around campus, bathrooms, etc. In order to avoid double counting we subtracted out the average amount of water a full time student uses multiplied by the number of students living on campus. We then divided that total by the number of undergrad, grad, faculty, and staff that use the campus on a day to day basis. Then we multiplied by the appropriate weight given the status of the user. We then proceeded to calculate water from shower usage, toilet flushes, laundry, and hydration. We researched the kg CO2e it takes to filter and transport a gallon of water. After that we just had to look up how many gallons are used in one flush, how many gallons are used per minute of showering, how many gallons used per load of load of laundry. Then it was just a matter of multiplying the user responses to get the total gallons of water used times the carbon it takes per gallon.

Question: Choose from the following:
Radio button: option for on campus student option for full time commuter student option for part time commuter student or faculty + staff

Question: On average how long are your showers?
Input element: allow user to input

Question: On average how many showers/week?

Input element: allow user to input

Question: On average how many loads of laundry/month
Input element: allow user to input

Question: Average toilet flushes/day
Input element: allow user to input

Question: Average cups of water you drink/day from tap or water fountain?
Input element: allow user to input

Question: Do you use a refillable water bottle?
Radio buttons: option for yes and option for no

Question: If you drink your water from nonrefillable plastic bottle, how many do you buy/week?
Input element: allow user to input

CONVERSION FOR WATER: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from water consumption.

Info behind the conversion

Residents living on campus: 2382 w/ weight of 1
Full time commuter students: 5603 w/ weight of .75
Part time commuter students and faculty + staff: 2539 w/ weight of .5

Total for year: 121332529.86 Gallons

.455 kg CO2 / water bottle/ day

$$\left(\frac{12\ \text{gal}}{\text{shower}} \times \frac{5\ \text{shower}}{\text{week}} \times \frac{33\ \text{weeks}}{\text{school yr}}\right) 2382 + \left(\frac{13.1\ \text{gal}}{\text{load}} \times \frac{4\ \text{load}}{\text{month}} \times \frac{\text{month}}{4\ \text{weeks}} \times \frac{33\ \text{weeks}}{\text{school yr}}\right) 2382$$

$$+ \left(\frac{1.6\ \text{gal}}{\text{flush}} \times \frac{5\ \text{flushes}}{\text{day}} \times \frac{7\ \text{days}}{\text{week}} \times \frac{33\ \text{weeks}}{\text{school yr}}\right) 2382 + \left(\frac{..5\ \text{gal}}{\text{day}} \times \frac{7\ \text{days}}{\text{week}} \times \frac{33\ \text{weeks}}{\text{school yr}}\right) 2382 = \frac{10423155.6\ \text{gal}}{\text{school yr}}$$

$$121{,}332{,}529.86\ \text{gal} - 10423155.6\ \text{gal} = \frac{110{,}909{,}374\ \text{gal}}{\text{school yr}}$$

Baseline for on campus resident:

$$\frac{110909374\ \text{gal}}{10524\ \text{residents}} = \frac{10\ 538.709\ \text{gal}}{\text{school yr}} \quad \frac{45.622}{\text{day}}$$

Baseline for full time commuter students:

(110909374).75 gal = 7904.031 gal 34.216 gal
10524 residents residents day

Baseline for part time commuter students and faculty + staff:

(110909374).5 gal = 5 269.354 gal 22.811gal
10524 residents residents day

IF USER IS ON CAMPUS RESIDENT:

Use user input for # shower/week, min/shower, # load/month, # flushes/day, #cups water drink/day, water bottles/day

(1) (10538.709 gal + (#shower x 1.5 gal x min x 33 weeks) + (13.1 gal x # load x month x
school yr week min shower school yr load month 4 weeks

33 weeks) + (1.6 gal x # flushes x 7 days x 33 weeks) + (# cups x 0.0625 gal x 7 days x 33 weeks))
school yr flush day week school yr day cup week school yr

x (3.785 x 10^{-6} ML x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 7days x 33 weeks) = **kg CO2e**
gal ML week bottle week school yr **school yr**

(2) (45.622 gal + (#shower x 1.5 gal x min x weeks) + (13.1 gal x # load x month
day week min shower 7 days load month 4 weeks

week) + (1.6 gal x # flushes) + (# cups x 0.0625 gal))
7 days flush day day cup

x (3.785 x 10^{-6} MI x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 1week) = **kg CO2e**
gal MI week bottle 7 days **day**

IF USER IS FULL TIME COMMUTER STUDENT:

(1) (7904.031 gal + (#shower x 1.5 gal x min x 33 weeks) + (13.1 gal x # load x month x
school yr week min shower school yr load month 4 weeks

33 weeks) + (1.6 gal x # flushes x 7 days x 33 weeks) + (# cups x 0.0625 gal x 7 days x 33 weeks))
school yr flush day week school yr day cup week school yr

x (3.785 x 10^{-6} MI x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 7days x 33 weeks) = **kg CO2e**
gal MI week bottle week school yr **school yr**

(2) (34.216 gal + (#shower x 1.5 gal x min x weeks) + (13.1 gal x # load x month x

day week min shower 7 days load month 4 weeks

week) + (1.6 gal x # flushes) + (# cups x 0.0625 gal))
7 days flush day day cup

x (3.785 x 10^{-6} MI x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 1week) = **kg CO2e**
gal MI week bottle 7 days **day**

IF USER IS PART TIME COMMUTER STUDENT OR FACULTY + STAFF:

(1) (5269.354 gal + (#shower x 1.5 gal x min x 33 weeks) + (13.1 gal x # load x month x
school yr week min shower school yr load month 4 weeks

33 weeks) + (1.6 gal x # flushes x 7 days x 33 weeks) + (# cups x 0.0625 gal x 7 days x 33 weeks))
school yr flush day week school yr day cup week school yr

x (3.785 x 10^{-6} MI x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 7days x 33 weeks) = **kg CO2e**
gal MI week bottle week school yr **school yr**

(2) (22.811 gal + (#shower x 1.5 gal x min x weeks) + (13.1 gal x # load x month x
day week min shower 7 days load month 4 weeks

week) + (1.6 gal x # flushes) + (# cups x 0.0625 gal))
7 days flush day day cup

x (3.785 x 10^{-6} MI x 352 kg CO2e) + (# bottles x .445 kg CO2e) x 1week) = **kg CO2e**
gal MI week bottle 7 days **day**

WATER BOTTLES

bottles x .445 kg CO2e) x 7days x 33 weeks = **kg CO2e**
week bottle week school yr **school yr**

bottles x .445 kg CO2e x 1week = **kg CO2e**
week bottle 7 days **day**

OUTPUT:
Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day accumulated from water usage depending on what type of student and what numbers are inputted.

Waste
The waste tab really reflects our creativity since it was especially perplexing to figure out a methodology. We had the tons of landfill and recycling the school uses in a given year. We then

divided that by the campus population and multiplied by weighted population factor. On average, about 17% of the school's waste is recycling(not bad!). From that approximation we decided that a student that recycles 7% of their waste are under-recycling and should have an additional amount added to their carbon footprint. On the other hand, a student that recycles above average at around 27% should have an additional amount subtracted from their footprint. The same was done for trash accumulation. If the user collected more trash than average they would have a larger footprint than someone who accumulated less trash. We then multiplied those approximations by the amount of carbon it takes to process the trash in a landfill or process recycled materials in a factory.

Question: Choose from the following:
Radio button: option for on campus student option for full time commuter student option for part time commuter student or faculty + staff

Question: From the following scale decide how much of your waste is recycled (the average person recycles around 17% of their waste)
Radio button: option for below average, option for average , option for above average

Question: From the following scale choose around how much trash you accumulate/day (a bag of sugar weighs 4 lbs. avg person accumulates 4lbs trash/day)
Radio button: option for less than 4 lbs, option for about 4 lbs, option for greater than 4 lbs

CONVERSION FOR WASTE: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from waste consumption.

239.76 tons + 1212.15 tons = 1451.91 tons waste/yr

239.76 tons = 17% waste is recycling – for your average Santa Clara student
1451.91 tons

27% waste recycling if recycle above average, subtract off 10% if trash if < 4lbs trash/day

7% waste recycling if recycle below average, add on 10% if > 4lbs trash/day

IF RECYCLE BELOW AVERAGE AND AN ON CAMPUS STUDENT

(1) ((1451.91).07 tons / 10524) x (year / 52 weeks) x (33 weeks / school yr) x (2.79 MT CO2e / ton) x (1000 kg / MT) + ((1451.91).93 tons / 10524) x (year / 52 weeks) x (33 weeks / school yr) x (1.34 MT CO2e / ton) x (1000 kg / MT) = **kg CO2e / school yr**

(2) ((1451.91).07 tons / 10524) x (year / 52 weeks) x (1 week / 7 days) x (2.79 MT CO2e / ton) x (1000 kg / MT) + ((1451.91).93 tons / 10524) x

year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
52 weeks 7 days ton MT **day**

IF RECYCLE AVERAGE AND ON CAMPUS STUDENT

(1)((1451.91).17 tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) + ((1451.91).83 tons x
10524 52 weeks school yr ton MT 10524

year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
52 weeks school yr ton MT **school yr**

(2) ((1451.91).17 tons x year x 1 week x 2.79 MT CO2e x 1000 kg) + ((1451.91).83 tons x
10524 52 weeks 7 days ton MT 10524

year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
52 weeks 7 days ton MT **day**

IF RECYCLE ABOVE AVERAGE AND ON CAMPUS STUDENT

(1) ((1451.91).27 tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) + ((1451.91).73 tons
10524 52 weeks school yr ton MT 10524

x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
52 weeks school yr ton MT **school yr**

(2) ((1451.91).27 tons x year x 1 week x 2.79 MT CO2e x 1000 kg) + ((1451.91).73 tons x
10524 52 weeks 7 days ton MT 10524

year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
52 weeks 7 days ton MT **day**

IF RECYCLE BELOW AVERAGE AND FULL TIME COMMUTER STUDENT

(1) ((1451.91)(.07)(.75) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks school yr ton MT

((1451.91)(.93)(.75) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.07)(.75) tons x year x 1 week x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks 7 days ton MT

((1451.91)(.93)(.75) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF RECYCLE AVERAGE AND FULL TIME COMMUTER STUDENT

(1) ((1451.91)(.17)(.75) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks school yr ton MT

((1451.91)(.83)(.75) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.17)(.75) tons x year x 1 week x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks 7 days ton MT

((1451.91)(.83)(.75) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF RECYCLE ABOVE AVERAGE AND FULL TIME COMMUTER STUDENT

(1) ((1451.91)(.27)(.75) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks school yr ton MT

((1451.91)(.73)(.75) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.27)(.75) tons x year x 1 week x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks 7 days ton MT

((1451.91)(.73)(.75) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF RECYCLE BELOW AVERAGE AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

(1) ((1451.91)(.07)(.5) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg +
10524 52 weeks school yr ton MT

((1451.91)(.93)(.5) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**

10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.07)(.5) tons x year x 1 week x 2.79 MT CO2e x 1000 kg +
10524 52 weeks 7 days ton MT

((1451.91)(.93)(.5) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF RECYCLE AVERAGE AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

(1) ((1451.91)(.17)(.5) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks school yr ton MT

((1451.91)(.83)(.5) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.17)(.5) tons x year x 1 week x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks 7 days ton MT

((1451.91)(.83)(.5) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF RECYCLE ABOVE AVERAGE AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

(1) ((1451.91)(.27)(.5) tons x year x 33 weeks x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks school yr ton MT

((1451.91)(.73)(.5) tons x year x 33 weeks x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks school yr ton MT **school yr**

(2) ((1451.91)(.27)(.5) tons x year x 1 week x 2.79 MT CO2e x 1000 kg) +
10524 52 weeks 7 days ton MT

((1451.91)(.73)(.5) tons x year x 1 week x 1.34 MT CO2e x 1000 kg) = **kg CO2e**
10524 52 weeks 7 days ton MT **day**

IF < 4lbs TRASH AND AN ON CAMPUS STUDENT

$$\frac{(1451.91)(.10)\text{ tons}}{10524} \times \frac{\text{year}}{52\text{ weeks}} \times \frac{33\text{ weeks}}{\text{school yr}} \times \frac{1.34\text{ MT CO2e}}{\text{ton}} \times \frac{1000\text{ kg}}{\text{MT}} = 11.73$$

$$\frac{(1451.91)(.10)\text{ tons}}{10524} \times \frac{\text{year}}{52\text{ weeks}} \times \frac{1\text{ week}}{7\text{ days}} \times \frac{1.34\text{ MT CO2e}}{\text{ton}} \times \frac{1000\text{ kg})}{\text{MT}} = .051$$

(1) subtract off: 11.73 **kg CO2e** / **school yr** from total

(2) subtract off: .051 **kg CO2e** / **day** from total

IF 4lb TRASH AND ON CAMPUS STUDENT

Don't add on or subtract away anything

IF > 4lbs TRASH AND ON CAMPUS STUDENT

(1) add on: 11.73 **kg CO2e** / **school yr** from total

(2) add on: .051 **kg CO2e** / **day** from total

IF <4 lbs TRASH AND FULL TIME COMMUTER STUDENT

(1) subtract off: 8.80 **kg CO2e** / **school yr** from total

(2) subtract off: .038 **kg CO2e** / **day** from total

IF 4 lbs TRASH AND FULL TIME COMMUTER STUDENT

Don't add on or subtract away anything

IF > 4lbs TRASH AND FULL TIME COMMUTER STUDENT

(1) add on: 8.80 **kg CO2e** / **school yr** from total

(2) add on: .038 **kg CO2e** / **day** from total

IF < 4lbs TRASH AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

(1) subtract off: 5.87 **kg CO2e** from total
school yr

(2) subtract off: .025 **kg CO2e** from total
day

IF 4lbs TRASH AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

Don't add on or subtract away anything

IF > 4lbs TRASH AND PART TIME COMMUTER STUDENT OR FACULTY + STAFF

(1) add on: 5.87 **kg CO2e** from total
school yr

(2) add on: .025 **kg CO2e** from total
day

OUTPUT:
Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day accumulated depending on which radio button chosen and what type of student. Add up both recycling and landfill emissions

---

Partying
We were all of sober mind in the creation of the party tab. The party tab was one of the more fun methodologies to play around with. We were really thinking outside the box with this one. We researched how much carbon it takes to make a kg of the plastic for red cups and how much carbon it takes to produce one beer. We then ask the user how many of these cups they use on a given party night, how many beers they drink on a given party night, and how many nights a week they tend to party. Given that information we were able to calculation party emissions with the user's responses.

Question: How many nights a week do you go out?
Input element: allow user to input

Question: How many red cups do you use on an average/party night?
Input element: allow user to input

Question: How many beers do you drink on average per party night?
Input element: allow user to input

Question: How many nights do you pregame?
Input element: allow user to input

Question: Do you play drinking games?
Radio buttons: option for yes and option for no

Question: Do you use reusable cups?
Radio buttons: option for yes and option for no

CONVERSION FOR PARTYING: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from partying. User inputs *x* nights they party/week. Calculate average CO2 emissions for one party and adjust to yr and day averages.

A six pack of beer is 3.1888 kg co2, which means one beer is .5315 kg co2

$$(1)\ \frac{x \text{ nights}}{\text{week}} \times \frac{(\#\text{ red cups})(0.085 \text{ kg CO2e}) + (\#\text{beers})(.5314 \text{ kg CO2e})}{\text{night}} \times \frac{33 \text{ weeks}}{1 \text{ school yr}} = \mathbf{\frac{kg\ CO2e}{school\ yr}}$$

$$(1)\ \frac{x \text{ nights}}{\text{week}} \times \frac{(\#\text{ red cups})(0.085 \text{ kg CO2e}) + (\#\text{beers})(.5315 \text{ kg CO2e})}{\text{night}} \times \frac{1 \text{ week}}{7 \text{ days}} \times = \mathbf{\frac{kg\ CO2e}{day}}$$

night 7 days **day**

Food
The food tab also took some creativity on our part. Luckily, the food service, Bon Appetit, had created their own carbon calculator with the food they serve on a day to day basis. We then created different meals based on whether the user is a vegetarian, vegan, meat eater, or x-treme meat eater. After averaging carbon per meals in a day we had to consider the size of the meal plan. We used the difference in points between plans to subtract a percentage of carbon from users with a smaller meal plan. The Bon Appetit calculator outputted their carbon in points and with one point equal to 1 g CO2e, we were easily able to make our conversion. We also considered coffee since caffeine is a staple for busy students. This was accomplished with the Bon Appetit calculator as well. We then just had to multiply the user's input of coffees consumed per week.

Question: If you drink coffee please select from the following options:
Drop down: option for black coffee and option for plus cream or sugar and option for latte

Question: About how many times a week do you get coffee?
Input Element: allow user to input value

CONVERSION FOR FOOD: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from coffee.

If choose black coffee

(1) 284 points / coffee **x** #coffees / week x 1 g CO2e / point **x** 1 kg CO2e / 1000 g CO2e **x** 33 week / school yr = **kg CO2e / school yr**

(2) 284 points / day x #coffees / week x 1 g CO2e / point x 1 kg CO2e / 1000 g CO2e x week / 7 days = **kg CO2e / day**

If choose plus cream or sugar

(1) 300 points / coffee **x** #coffees / week x 1 g CO2e / point **x** 1 kg CO2e / 1000 g CO2e **x** 33 week / school yr = **kg CO2e / school yr**

(2) 300 points / day x #coffees / week x 1 g CO2e / point x 1 kg CO2e / 1000 g CO2e x week / 7 days = **kg CO2e / day**

If choose latte

(1) 380 points / coffee **x** #coffees / week x 1 g CO2e / point **x** 1 kg CO2e / 1000 g CO2e **x** 33 week / school yr = **kg CO2e / school yr**

(2) 380 points / day x #coffees / week x 1 g CO2e / point x 1 kg CO2e / 1000 g CO2e x week / 7 days = **kg CO2e / day**

Question: Please select which meal plan you are currently on.
Radio button: option for Preferred, option for Basic, and option for Junior Senior

Question: Please select which diet best applies to you.
Radio button: option for vegan, option for vegetarian, option for meat eater, option for CARNIVORE.

Help link next to each radio button that expands when rollover with mouse that gives the following info:
Vegan: Diet that excludes ALL animal products.
Vegetarian: Diet that excludes all MEAT products
Omnivore: Diet that includes meat with at least 2 meals/day.
X-treme Meat Eater: Diet that includes meat with every meal.

CONVERSION FOR FOOD: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from food. Based on meal plan and diet.

If choose Preferred Meal Plan:

Vegan Diet

(1) 2029 points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 week = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) 2029 points x 1 g CO2e x 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

Vegetarian

(1) 3427 points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) 3427 points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

Omnivore

(1) 6904 points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) 6904 points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

X-treme Meat Eater

(1) 7964 points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) 7964 points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

If choose Basic Meal Plan

-based on percentage difference in points

Vegan Diet

(1) **[**2029 - .15(2029)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) **[**2029 - .15(2029)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**

day point 1000 g CO2e **day**

Vegetarian

(1) [3427 - .15(3427)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [3427 - .15(3427)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

Omnivore

(1) [6904 - .15(6904)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days x 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [6904 - .15(6904)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

X-treme Meat Eater

(1) [7964 - .15(7964)]points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [7964 - .15(7964)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

If choose Basic Meal Plan

-based on percentage difference in points

Vegan Diet

(1) [2029 - .42(2029)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [2029 - .42(2029)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

Vegetarian

(1) [3427 - .42(3427)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**

day point 1000 g CO2e 1 week school yr **school yr**

(2) [3427 - .42(3427)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

Omnivore

(1) [6904 - .42(6904)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [6904 - .42(6904)] points **x** 1 gCO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

X-treme Meat Eater

(1) [7964 - .42(7964)] points **x** 1 g CO2e **x** 1 kg CO2e **x** 7 days **x** 33 weeks = **kg CO2e**
day point 1000 g CO2e 1 week school yr **school yr**

(2) [7964 - .42(7964)] points **x** 1 g CO2e **x** 1 kg CO2e = **kg CO2e**
day point 1000 g CO2e **day**

OUTPUT: Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day depending on plan and diet chosen

---

Energy

There is so much that went into the energy tab, that it's hard to know where to begin. Like the water and waste tab, we created an energy baseline that all campus users bear since they are members of the community. This was accomplished by first taking the total campus-wide usage of energy and subtracting out the energy from the dormitories. We then of course multiplied by the appropriate weighted population factor. We also did this for gas usage. If the user lived on campus we only counted the air conditioning and communal lighting energy costs from the dormitory in which they live. The energy audit covered the rest of their energy usage from the dormitories. The energy audit accounts for the different appliances the user has plugged in and for how long they are plugged in. Then it is just a matter of converting the kwh to carbon with a conversion factor from Silicon Valley Power. In order to calculate the energy used for off campus users we got averages from electric and gas bills.

Question: Choose from the following:
Radio button: option for on campus student option for full time commuter student option for part time commuter student or faculty + staff

Question:

From the following list of appliances, electronics, lighting, etc, input how many of each item is in your dorm room and for how many hours a day the item is in use.

If you own an item not listed below please be sure to fill in extra fields: what is the item and watts. You can find the wattage on the bottom of most appliances. Be sure to divide by 1000 if the wattage is given in kilowatts.

ITEM	# of ITEMS	Watts	USAGE: hrs/day
Refrigerator	User input	160	User input
microwave	User input	1000	User input
Clock radio	User input	10	User input
Coffee maker	User input	1200	User input
Ipod dock	User input	100	User input
Stereo sound system	User input	150	User input
Computer desktop	User input	225	User input
Computer monitor 15”	User input	35	User input
Computer, laptop	User input	60	User input
Printer	User input	100	User input
TV	User input	115	User input
DVD/CD player	User input	30	User input
Air conditioner	User input	1,100	User input
Portable fan	User input	115	User input
Space heater	User input	1000	User input
Halogen floor lamp	User input	300	User input
Incandescent light bulb	User input	75	User input
Compact fluorescent light bulb	User input	20	User input
Vacuum cleaner	User input	1440	User input
Other (**ALLOW USER INPUT**)	User input	User input	User input

Question: if you’re an on campus resident choose from the following dorms:
Drop down: Swig, Sobrato, Sanfilippo, Walsh/McLaughlin, Graham, Dunne, Casa, Campisi, St. Clare, Nobili, Bellarmine

ELECTRICITY FROM COMMUNAL LIGHTING

Swig: population 408

$$\frac{(16037.67).10 \text{ kwh}}{\text{week}} \times \frac{33 \text{ weeks}}{\text{school yr}} = \frac{52\,924.128 \text{ kWh}}{\text{school yr}}$$

Sobrato: population 282

$$\frac{(22289.59).26 \text{ kwh}}{\text{week}} \times \frac{33 \text{ weeks}}{\text{school yr}} = \frac{191\,244.786 \text{ kWh}}{\text{school yr}}$$

Sanfilippo: population 201

(4871.47).10 kwh x 33 weeks = 16 075.779 kWh
week school yr school yr

Walsh/McLaughlin: population 239

(8520.72).10 kwh x 33 weeks = 28 118.35 kwh
week school yr school yr

Graham: popultion 245

(8256.18).10 kwh x 33 weeks = 27 245.225 kwh
week school yr school yr

Dunne: population 287

(12063.22).10 kwh x 33 weeks = 39 808.622 kwh
week school yr school yr

Casa: population 319

(21153.32).26 kwh x 33 weeks = 181 495.369 kwh
week school yr school yr

Campisi: population 195

(10783.56).26 kwh x 33 weeks x = 92 522.82 kwh
week school yr school yr

St. Clare: population 35

(2786.199).10 kwh x 33 weeks = 9 194.43 kwh
week school yr school yr

Nobili: population 67

(5572.396).10 kwh x 33 weeks = 18 388.82 kwh
week school yr school yr

Bellarmine: population 81

(3446.634).10 kwh / week x 33 weeks / school yr = 11 373.858 kwh / school yr

ELECTRICITY FROM APARTMENT COMMUNAL LIGHTING

918.9 kWh / month x 1 / 52 x month / 4 weeks x 33 weeks / school yr = 145.79 kWh / school yr **APT KWH**

CALCULATION FOR ENERGY AUDIT OF DORM ROOM: want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from appliances in room. User inputs # of items, and usage of each appliance.

Do this calculation for every appliance, inputting appropriate watts from table above

(1) # of items **x** watts **x** .001 kW / watt **x** hrs used / day **x** 0.354224 kg CO2e / kWh **x** 7 days / week **x** 33 weeks / school yr = **kg CO2e / school yr**

(2) # of items **x** watts **x** .001 kW / watt **x** hrs used / day **x** 0.354224 kg CO2e / kWh = **kg CO2e / day**

CONVERSION FOR ENERGY BASELINE:
Want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from being member of university. Dependent upon whether living on campus, full time commuter student, and part time commuter student or faculty + staff

29,542,315 kWh – 668392.187 kWh / school yr = 28873922.81 kWh / school yr

IF USER IS ON CAMPUS RESIDENT:

Get dorm kWh from the above calculations that specifically calculate the communal electricity/dorm. Dorm populations accompany dorm kWh above.

(1) (28873922.81 kWh / 10524 + dorm kWh / population) **x** 0.354224 kg CO2e / kWh = **kg CO2e / school yr**

(2) (28873922.81 kWh / 10524 + dorm kWh / population) **x** 0.354224 kg CO2e / kWh **x** **1** / 33 weeks **x** 1 week / 7 day = **kg CO2e / day**

IF USER IS FULL TIME COMMUTER STUDENT:

Get apt kwh from the above calculations that calculate the communal electricity/apt

(1) ((28873922.81).75 kWh / 10524 + apt kWh) **x** 0.354224 kg CO2e / kWh = **kg CO2e / school yr**

(2) ((28873922.81).75 kWh / 10524 + apt kWh) **x** 0.354224 kg CO2e / kWh **x** 1 / 33 weeks **x** 1 week / 7 day = **kg CO2e / day**

IF USER IS PART TIME COMMUTER STUDENT OR FACULTY + STAFF:

(1)((28873922.81).5 kWh / 10524 + apt kWh) **x** 0.354224 kg CO2e / kWh = **kg CO2e / school yr**

(2) ((28873922.81).5 kWh / 10524 + apt kWh) **x** 0.354224 kg CO2e / kWh **x** 1 / 33 weeks **x** 1 week / 7 day = **kg CO2e / day**

CONVERSION FOR GAS BASELINE:
Want to calculate **(1)** (kg CO2e)/school yr *and* **(2)** (kg CO2e)/day used from gas. Dependent upon whether living on campus, full time commuter student, and part time commuter student or faculty + staff

APT THERMS

31.83 therms / month x 1 / 9 x 1 month / 4 weeks x 33 weeks / school yr = 29.178 therms / school yr

FOR ON CAMPUS STUDENTS

(1) 1,008,941 therms / 10524 x 1 year / 52 weeks x 33 weeks / school year x 11.7 lbs CO2e / therm x 1 kilogram / 2.204 lbs = **kg CO2e / school yr**

(2) 1,008,941 therms / 10524 x 1 year / 52 weeks x week / 7 days x 11.7 lbs CO2e / therm x 1 kilogram / 2.204 lbs = **kg CO2e / day**

FOR FULL TIME COMMUTER STUDENTS

Apt therms value is given above
(1)((939439).75 therms / 10524 + apt therm) x 1 year / 52 weeks x 33 weeks / school year x 11.7 lbs CO2e / therm x 1 kilogram / 2.204 lbs =

kg CO2e / school yr

(2) ((939439).75 therms + apt therm) x 1 year x week x 11.7 lbs CO2e x 1 kilogram =
10524 52 weeks 7 days therm 2.204 lbs

kg CO2e
day

FOR PART TIME COMMUTER STUDENTS OR FACULTY + STAFF

(1) ((939439).5 therms + apt therm) x 1 year x 33 weeks x 11.7 lbs CO2e x 1 kilogram =
10524 52 weeks school year therm 2.204 lbs

kg CO2e
school yr

(2) (939439).5 therms + apt therm) x 1 year x week x 11.7 lbs CO2e x 1 kilogram =
10524 52 weeks 7 days therm 2.204 lbs

kg CO2e
day

OUTPUT
Output the **(1)** (kg CO2e)/school year *and* **(2)** (kg CO2e)/ day accumulated from all different types of appliances and also add on the energy baseline and add on the gas baseline