The Science of Corporate Social Responsibility
Calculating your Carbon Footprint

An SB1070 Project

NGSS DCI Connections

ESS2.D Weather & Climate: **Current models predict that, although future regional climate changes** will be complex and varied, average global temperatures will continue to rise. The outcomes predicted by global climate models strongly depend on the amounts of human-generated greenhouse gases added to the atmosphere each year and by the ways in which these gases are absorbed by the ocean and biosphere. (PE: HS-ESS3-6)

ESS3.A: Natural Resources
All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors. (PE: HS-ESS3-2)

ESS3.C: Human Impacts of Earth Systems
The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. (PE: HS-ESS3-3)

ETS1.B: Developing Possible Solutions
When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. PE's: *[secondary to HS-ESS3-2),(secondary HS-ESS3-4)*

Objectives

Students will set up a business trip, calculating the carbon footprint of each step of their journey.

Directions

You are planning a business trip and will take place at 10am 6 weeks from today. You will need to arrive the night before the meeting, and depending on your schedule you will stay

For this assignment you get to choose which trip you will take.

3 nights in Beijing with meetings at Lenovo, a tech company. You will drive 135 miles in your rental car.	4 nights in Mexico City with meetings at Pemex, the national petroleum company. You will drive 45 miles in your rental car.	2 nights in Rio de Janeiro with meetings at Vale, a mining company. You will drive 185 miles in your rental car.	3 nights in Munich with meetings at Siemens, an engineering company. You will drive 85 miles in your rental car.

Complete the following Carbon Footprint estimate in order to determine the tons of CO_2 you will create on this business trip and consider your options.

Questions	Answers
1. Which trip will you choose to take?	
2. What will be the date of your meeting, 6 weeks from today?	

Questions	Answers
3. What day will you need to arrive in the country and what day will you leave?	
4. Flight Planning Using the internet, select the flights you will take. *enter the costs in the data table below	Airline: Write out your itinerary, including any layovers.
5. Mileage Calculation – Determine the flight miles for each leg of your trip, taking into account the layovers	How many flight miles for each leg of your trip? Total Flight Miles
6. Choose your hotel – go to http://www.bookdifferent.com and search for hotel options. Be sure	Fill out the data table below with your hotel options. Be sure to include your arrival and departure days and it will show you the prices.

Air Travel

Round Trip Flight	Cost ($)	Miles Traveled	CO_2 produced per mile *From Background	Tons of Carbon Produced
Economy Class				
Business Class				
First Class				

Hotel

Emissions Category from bookdifferent.com	Hotel	Cost (Country Currency)	Cost (US $)	Kg of CO_2 produced per night	Total CO_2 produced (kg)
Low Emissions Choice (green footprint)					
Medium Emissions Choice (yellow footprint)					
High Emissions Choice (red or orange footprint)					

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Rental Car

Rental Car Category	Name a car in this range	Cost to rent	Miles Per Gallon (city)	Distance Driven *from above	Gallons Used	Pounds of Carbon Produced
Hybrid (35-60mpg)					x22.38lb/gal=	
Standard Sedan (25-35mpg)					x22.38lb/gal=	
Sports Car (15-25mpg)					x22.38lb/gal=	
SUV (12-25 mpg)					x22.38lb/gal=	

Total Carbon Footprint

From your data above, select the data from the categories with the lowest and highest carbon footprint.

Conversion factors: 1.0kg = 2.20lbs   1000lbs = 1 ton

Lowest Carbon Footprint Options

Category	Amount of CO_2	Convert to tons of CO_2
Air Travel		
Hotel		
Car		
Total Tons of CO_2 Produced		

What are the advantages and disadvantages to the itinerary with the lowest carbon footprint?

Highest Carbon Footprint Options

Category	Amount of CO_2	Convert to tons of CO_2
Air Travel		
Hotel		
Car		
Total Tons of CO_2 Produced		

What are the advantages and disadvantages to the itinerary with the highest carbon footprint?

College & Career Connections

Career Spotlight

Sales Engineer

Sell complex scientific and technological products. Must have extensive knowledge of the parts and functions of each product as well as the science behind the product

Median Annual Salary: $93,340

Education: Bachelor's Degree Recommended

College Connections

International Business

Associates degrees or certificates in International business are your first step towards your career. These make you eligible for entry level positions or can prepare you to transfer to a 4 year program.

Schools offering this program of study
Grossmont College
Palomar College
Southwestern College

Master of Engineering Degree

Practice oriented, interdisciplinary program designed to integrate engineering and business/management.
A Bachelor's Degree is required to enter a Master's program.

Schools offering this program of study
San Diego State University