

### GEOGRAPHIC PATTERNS OF THE COFFEE INDUSTRY - ACTIVITY

Countries that should be included on the maps (data in parentheses)

-Students can set up their map key however they want as long as the categories are clear and labeled

#### 1. Coffee Production Map

Brazil (55000)  
Vietnam (25500)  
Colombia (14500)  
Indonesia (10000)  
Ethiopia (6600)  
Honduras (5934)  
India (5333)  
Peru (3800)  
Uganda (3800)  
Guatemala (3500)

#### 2. Coffee Consumption Map

United States (23417)  
Brazil (20085)  
Germany (9378)  
Japan (7435)  
France (5707)  
Italy (5634)  
Indonesia (4167)  
Ethiopia (3650)  
Russia (3648)  
Spain (3501)

#### 3. Country Income Map

Brazil (15400)  
Colombia (12800)  
Vietnam (5620)  
Indonesia (10500)  
Ethiopia (1520)  
Honduras (4270)  
India (5900)  
Peru (11900)  
Uganda (1680)  
Guatemala (7280)  
United States (53400)  
Germany (44100)  
Japan (36200)  
France (37600)  
Italy (33300)  
Russia (23000)  
Spain (33000)

4. Identify the coffee belt in your maps, why is coffee production restricted to this area?  
*The region between the Tropics of Cancer and Capricorn is generally considered the "Coffee Belt". Coffee plants are restricted because of the relatively specific growing conditions they require of the environment. Coffee grows well here because of the consistently warm temperatures and high levels of precipitation in the region.*
5. Arabica and Robusta beans are generally not grown in the same regions. From the data reported at this website (<https://www.gislounge.com/geography-of-coffee/>), what countries more Robusta beans? Arabica beans? Are there any countries that produce both?  
*Arabica beans are generally grown in the western countries on the map, while Robusta beans are generally grown in eastern countries. Robusta production is beginning to spread, and more countries are beginning to switch to a mixture of both (Brazil and many of the western countries in Africa could be mentioned as examples).*



6. What patterns do you see in the production and consumption maps you created (e.g. geographic location, economic status)?

*There is generally very little overlap in the countries that produce coffee and the ones that consume it (exceptions= Brazil, Indonesia, Ethiopia). Countries outside the belt (North of the Tropic of Capricorn) consume coffee in large quantities (US, European countries, Russia, Japan). These countries are generally more developed, richer countries than the ones that produce the coffee.*

7. What are some of the key social and economic differences between the countries that consume and produce coffee? Look through the drop-down menu on GAPMinder and find 2 other important social or economic indices that generally differ across these groups?

*The major differences between these two groups revolve around economic development, health, education, and living standards. Some of the indices/statistics that students could list include: income, % in extreme poverty, # of people in poverty, inequality index, life expectancy, child mortality, babies per woman, literacy rate, human development index. These are just a few, and there are many other that could be included.*

8. What are the social and environmental implications of this disconnect?

*People that don't have to live with the consequences of the daily decisions have no motivation to change what they do. People will continue to make decisions that degrade an environment they don't have to live and take advantage of people they don't interact with. When there is no reminder of the connection between your decisions and their consequences, the disconnect between the two groups will continue to grow.*



**SOCIO-ENVIRONMENTAL CONCEPT MAP RUBRIC**

Criteria	Student Score			
	4	3	2	1
Environmental Components	Concept map includes at least 5 different map components related to environmental consequences of coffee production. The components in the diagram reflect a breadth of ecosystem impacts including local, regional and global consequences. The sizes of the circles reflect an understanding as to the importance of each component to the sustainable operation of the ecosystem.			Concept map includes only 1-2 different map components related to environmental consequences of coffee production. The components in the diagram are simple and obvious, reflecting ecosystem impacts on one area and/or scale of our environment. There is no relationship between the sizes of the circles and the importance of each component to the sustainable operation of the ecosystem (All circles are the same size).
Social Components	Concept map includes at least 5 different map components related to social consequences of coffee production. The components in the diagram reflect a breadth of impacts on society including consequences at the local scale of both producers and consumers along with regional- or global-level social impacts. The sizes of the circles reflect an understanding as to the importance of each component to the sustainable operation of the social system.			Concept map includes only 1-2 different map components related to social consequences of coffee production. The components in the diagram are simple and obvious, reflecting impacts on society focused narrowly on one scale of social impacts. There is no relationship between the sizes of the circles and the importance of each component to the sustainable operation of the social system (All circles are the same size).
Interactions Between Components	The connections between the components both within and between the environmental and social sections are complete and reflect a comprehensive understanding of the strength and types of relationships between the components on the concept map.			The map has few or no connections between the components both within and between the environmental and social sections. The interactions in the diagram reflect only a basic understanding of the strength and types of relationships between the components on the concept map.

- Looking at your concept map, highlight two different feedback loops that show an interaction between social and environmental issues related to coffee production. Describe each of these feedback loops using a 5-sentence narrative for each. *There are a number of different feedback loops that could be highlighted depending on what components the students include in their concept map. For each of the feedback loops that are highlighted and described, ensure that these are feasible and likely to occur in this socio-environmental system. The narrative on this will be key to showing how much the student understands the links between the components and how this interaction that crosses the environmental/social boundary actually works.*



**LOCALLY AVAILABLE COFFEE VARIETIES**

1. There are a variety of approaches to growing coffee. Some of them are sustainable approaches, others are not. To get a sense of what options are available to you and what are the most common varieties at most marketplaces, go to your local grocery store and find the coffee aisle, collect the following data on ground or whole bean coffee (not Kcups or instant). Many of these varieties will include a logo or seal that advertises this certification, although some brands are not obvious.

*Example Data from Dillons Grocery Store, McPherson, KS*

Coffee Variety	# Options	% Shelf Space	Average \$ / Lb
Conventional	122	90	8.00
Organic	8	7	13.63
Rainforest Certified	3	3	9.01
Fair Trade	6	5	12.69
Farmer Co-op	0	0	

*Depending on your location or the type of store the students visit, the patterns in their data may look different. However, generally, conventional coffee will (1) have more varieties/brands, (2) tend to take up more shelf space, and (3) be cheaper than any of the other more sustainable approaches to coffee production. Notice that the % shelf space does not add to 100%, because some options are both organic and fair trade.*

2. If you were a customer, based on the selection available, what variety would you be most likely to purchase? Why?  
*Students may choose to answer based on economic decisions, whereby they will be more likely to choose the conventional brands. Students could also highlight the sheer number of different options (and even flavors) available with conventional coffee. Students could also answer based on ethical grounds, whereby students may suggest consumers will overlook price based on the ethical implications of buying conventional coffee.*
3. Does the grocery store or coffee brand do anything to advertise the other more sustainable coffee varieties?  
*Again, this will vary based on location and store, but generally it is difficult to locate these options in the coffee aisle unless you are looking for them specifically and know what logos to search for on the packages. If any alternative is marketed/advertised most often it is Organic Coffee, this may even have its own section in some stores.*
4. Research one of the varieties that uses sustainable coffee production. How is this approach different? Does it address an environmental issue, social issue, or both? Share your findings with your Killer Coffee Cooperative Group tomorrow. This will help you make your decisions and recommendations to the three different companies. (Hint: It may help to assign different sustainable approaches to make sure all of them are researched)



Organic- This certification from the USDA does not mean that no chemicals were used in the production of the coffee. There may have been chemicals applied to the crop from an “approved list” however, the amount and type of chemical applied do not exceed a level that is considered harmful to the environment. The crops from this farming approach generally have less residues from toxic pesticides and herbicides applied to conventional farms.

Rainforest Certified- Farms that are “Rainforest Certified” must follow strict environmental and labor standards. Environmental standards focus on alteration of natural habitats. Farmers are required to maintain 40% forest canopy cover consisting of two distinct forest strata (layers). Each hectare of cropland must have on average 12 native species of trees. Farmers aren’t allowed to alter the flow of water. Farmers may apply fertilizers and pesticides, however, to do this, they must build buffer zones between crop areas and land used by humans. Labor standards require farmers to meet minimum wage standards, maximum workweek hours, and no child labor.

Fair Trade- one of the certifications of fair trade coffee is Fair Trade USA. This organization certifies coffee as fair trade if farmers meet certain basic labor laws, including minimum wage standards, maximum workweek hours, and no child labor. Generally large estates and plantations are not acceptable, however this is now in flux. Farms are also required to meet sustainable agricultural practices. Fair trade coffee is generally organic, but does allow some application of chemicals not on the USDA acceptable list. Farmers must also manage waste disposal, erosion, and create buffer zones to prevent runoff. Acceptance as a Fair Trade brand ultimately comes down to the price that is guaranteed as paid to the farmer for the coffee beans. Currently, this price begins at \$1.40/lb, but can be higher if organic, or “premium fair trade”.

Farmer Co-operative- There are many different cooperatives around the planet (example Oromia Coffee Cooperative <http://www.oromiacoffeeunion.org/>). This kind of group allows greater access for smaller farmers to access the fair-trade market. By joining a larger group of farmers, they now have larger bargaining power in the coffee market when working with coffee brands, traders and consumers. This helps protect the farmer and ultimately gain them more money.



**KILLER COFFEE COOPERATIVE RUBRIC**

Criteria	Student Score			
	4	3	2	1
Appropriate Match of Recommendation and Company (50% of points)	The brands recommended to each company matched the companies' missions as outlined by the letter. There was an appropriate number of brands and volume of coffee, and this recommendation fell around their hoped price range.			The brands recommended appear to have no match to the companies' goals and requests outlined in the letter. There were either too few or way too many brands recommended based on the companies' requests, the volume of coffee was either insufficient, too much, or was not included in the recommendation letter. The pricing was not suitable for the companies' intended market.
Explanation and Rationale (30 % of points)	In the letter, students include a descriptive rationale that appropriately matches the brand(s) recommended to the companies' goals/mission.			In the letter, students simply list the recommended brands with minimal or no explanation that matches the brand to the company in any meaningful way.
Professionalism of Letter (20% of points)	The letter was in proper format. It included appropriate sections and addressed the company's owner. The letter was professionally written, and included proper grammar.			There was no format that resembled a letter that was a professional communication. The letter was not addressed to anyone and didn't include who the letter was from. The letter used poor grammar and the writing style did not reflect professional communication.

**Brand-Company Matches (Based on my opinion)**

Match	Beloved Beans	SaveMart	Cup o' Joe
<b>Excellent (should be on list)</b>	E	A	B
	F	D	H
		I	I
<b>Moderate (needs explanation)</b>	B	C	C
	H	E	G
	J	G	J
<b>Poor (should not be on list)</b>	A	B	A
	C	F	D
	D	H	E
	G	J	F
	I		



### SYNTHESIS ACTIVITY

1. The three companies that you served as a part of Killer Coffee Cooperative had very different missions and goals associated with success. For each company, illustrate the components of socio-environmental concept map (that you designed earlier) that would change in the system based on the type of coffee that company would be offering by highlighting the connection between the components of this socio-environmental system. Explain the outcomes of these impacts to the system in each case using 2-3 sentences.

*Like above, there are many different aspects of the concept maps that could be highlighted and be correct.*

*-In general, correct recommendations to SaveMart will increase both environmental and social issues throughout the system. The selection of brands will do nothing to increase sustainability of either.*

*-In general, correct recommendations to Cup O' Joe will tend to lessen impacts on the environment due to their organic coffee push, this may feed over into the social side depending on the feedback loops that students have included and highlight.*

*- In general, correct recommendations to Beloved Beans will decrease the coffee industries' impact on both environmental and social issues.*

2. Which of these companies (if any) in your mind offer achieve or make progress towards a truly sustainable (economic, environmental, and social) coffee future? Explain your answer.

*Beloved Beans will make the most progress towards sustainable coffee because of their mission that focuses on protecting both people and the environment. While any brand that makes progress on one issue of sustainability is a step in the right direction, ultimately it will fall short by not focusing on the complete picture.*

3. Looking at the size and differences in these companies and what they ordered, do you think society as a whole is likely to make progress? Compare these made-up companies in the exercise to realistic companies that make up our market today?

*Since much of the coffee industry is made of SaveMarts (volume wise), this limits our ability to make serious progress on coffee sustainability. Specialty shops offer great sustainable options, but the volume is limited enough that it won't end up changing the coffee industry by pressuring the market. The WalMarts and major grocery chains place the brands of coffee on their shelves that move the most product and can be purchased at the lowest of margins. When price is the predominant driver of consumer decisions, stores will continue to respond in this way and make those brands available that are good on the pocketbook, but horrible for the environment and people that grow the coffee. The geographic and social disconnect between producers and consumers will foster this trend.*



4. If dollars spent are equivalent to “votes of approval”, how can consumers bring about change in a multi-national, multi-billion dollar industry?

*Voting with your money can change systems more quickly than you think.*

*Major industries are more fragile and responsive than we give them credit for. If consumers stop purchasing items for one reason or another, then stores will stop carrying it pretty quickly. This will shut down suppliers that don't adapt and continue to make the product that the consumers don't want. By purchasing goods you don't agree with, you are keeping that supply chain filled with bad habits that are bad for the environment and people. A great example of this is milk that contained growth hormones. Studies suggested the negative consequences of consuming milk with growth hormones. This led to a marked decline in people buying this kind of milk, and WalMart discontinued stocking its shelves with any milk that contained it. Major milk brands then had to change where they got their milk in order to be stocked in WalMart, which trickled down to how dairy farmers operated their business.*

5. One of the interesting alternative approaches in the coffee market today comes from THRIVE coffee (<http://thrivefarmers.com/>). How does this farmer-direct model differ from the scenario we went through in this activity? Do you feel this approach is more or less sustainable than our current model? Why?

*THRIVE cuts out the complex supply chain in the coffee industry that ends up lower the prices paid to farmers. By providing farmers more direct access to the market where consumers can access their goods, farmers get a greater percentage of the price paid at the checkout stand. Having greater ownership in the process empowers farmers, creating a more sustainable social system. This unique approach to coffee also gives direct access for consumers to unique coffee styles while at the same time connecting the consumer to the grower, breaking down the disconnect that plagues the coffee industry. Because of this, models like THRIVE are a much more sustainable approach to coffee production.*

