# Sustainable Lifestyles vs. Lifestyles of Excess

**Submitted by:** Andrew C. Kemp
**Subject:** English
**Grades:** 9-12
**Time required:** 90 minutes for each lesson
**Materials Required:** Photo Cards, pen and paper, internet access

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**Introduction:**

This is a multi-lesson module which teaches about Vietnam by looking at the concept of sustainability, and by comparing Vietnamese lifestyles with those of ours in The U.S. These lessons are suitable for the High School English classroom. Each has a reflective writing and a research writing component.

***This curriculum is divided into 6 lessons structured to:***

1. Engage students in reflection about their own lifestyles, and in comparison and contrast with a foreign culture.
2. Invite students to compare their own lifestyles and practices with those witnessed by me in Vietnam.
3. Engage students in research and writing which takes them deeper into the topic and its connections to sustainable living.

***Individual lessons are on the topics of:***

1. Water
2. Land Use
3. Transportation
4. Food Systems
5. Homes
6. Our Bodies

My project will also contain special sections which are specific to my school, Catherine Ferguson Academy, as an urban model for sustainability.

Where do you get a glass of water to drink when you are thirsty? Write one paragraph which details how you get your water. Discuss your source and trace the path that you imagine this water took to get to your source. Where did the water originate?

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**Introduction to the Concept of Sustainability**

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**Lesson Title:** Vietnam and Sustainability: Intro to Sustainability
**Author:** Andrew C. Kemp
**Subject:** English
**Grade Levels:** 9-12
**Time Allotment:** 50 minutes

**Objectives**

By the end of this lesson students will have an understanding of the concept of sustainability.

Students will be able to make judgements about whether certain activities are sustainable or unsustainable.

**Procedure:**

Write the word Sustain on the board and ask students to brainstorm synonyms and definitions for the word. Write these on the board.

Possible answers will be: to keep up, maintain, continue, prolong, preserve, keep going. All of these should be accepted, leading to a definition which may be something like:

The ability of a system to survive and function over time. During this period, the system satisfies the needs of its inhabitants without depleting the natural capital or resources, which would jeopardize the prospects for current and future generations. Environmental Science, Miller.

Simply stated this could be taken to mean, do not take more than you can put back or you are stealing from your children. To gain some understanding of how this works let us look at 3 scenarios.

1. Financial Scenario (this comes from Environmental Science, Miller.)

Imagine that you inherit $1 million.
Invest the capital at 10% interest per year. How much will you earn each year?
By multiplying 1,000,000 by .10 students will discover that they will earn $100,000 a year of sustainable income. By sustainable it is meant that they can spend this $100,000 each year without ever taking away from the capital that sustains this lifestyle.

Now for a more difficult equation:
suppose that you gain a taste for fancier things, like some new cars, and a nicer home, and perhaps some serious travel. This causes an increase in your spending to $200,000 a year. At this rate, taking $100,000 each year from your capital of 1 million, how long will you be able to live like this? Students may or may not be able to do the math on this one, but by the end of the seventh year the million in capital will be gone.

If the increase in spending only taps into $10,000 of the capital per year, meaning you now spend $110,000 each year, the capital will be gone in 18 years, leaving you with a bankrupt lifestyle.

Moral:

Do not kill the goose that lays the golden egg.
Finding the balance is sustainability.

2. Fuel Scenario

How long does it take for oil to form inside of the earth? Suffice it to say that it is much longer than human concepts of time, millions of years and hundreds of thousands of generations. Can we try to make some for our children?
How long will it take to use it all up?
At current consumption levels the U.S. oil reserves will be depleted around the year 2025. However, since consumption increases the depletion will be hastened.
Even the global supply of oil will be depleted in another 35 years at the current rate of consumption. This is just to show that a practice which most of our systems are based on is inherently unsustainable. We are using a finite material as if it will last forever. And, of course, oil is not something we can ever replace.

3. Forestry Scenario

How long does it take trees to grow?
When Europeans began logging the Great Lakes area 300 years ago they actually had a plan for sustainable harvesting. They knew that it took the trees they were cutting 300 years to grow. They predicted that by the time they cut the last of the trees it would be 300 years later and that more mature trees would be grown in their path. However, here we are 300 years later and the only 300 year old trees are in a tiny stand of white pines in a state park. What happened?

When the logging companies projected their annual harvest they projected at the rate at which they were then cutting. They were using hand saws. What they could not have predicted was the invention of the chainsaw that was coming. Of course everyone adopted the chainsaw and the cutting accelerated to a rate beyond their imagination. Pretty soon nearly 100% of the old growth forest was gone. This is something it would take 15 generations to bring back, that is if we cut nothing for those 300 years.

Let's not even consider how much older trees such as Redwoods play into these equations. These trees have taken 3000 years to grow. Who has the right to cut these? Who has the right to cut any tree he did not plant?

**Assessment:**

Are students able to make judgments about the level of sustainability of certain practices?
Are students able to give examples of activities in their world which are both sustainable and unsustainable?

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**Vietnam and Sustainability: Water**

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**Lesson Title:** Vietnam and Sustainability: Water
**Author:** Andrew C. Kemp
**Subject:** English
**Grade Levels:** 9-12
**Time Allotment:** 90 minutes for each lesson

**Instructional Objectives:**

By the end of this lesson students will be able to:

- Write about their local water source.
- Compare and contrast Vietnamese systems with those of their own community.
- Discover information about their own
- Water supply by using internet for research.

**Materials Required:**

Photo Cards, pen and paper, internet access, Vietnam DVD

**Background/Introduction:**

Where do you get a glass of water to drink when you are thirsty?
Write one paragraph which details how you get your water. Discuss your source and trace the path that you imagine this water took to get to your source. Where did the water originate?

**Procedure:**

We will discuss the writing that students did in the "do now" and try to piece together what our source of water is.
Ask the students to consider the following questions in the form of a group discussion. You may want to jot these student answers on board or overhead.

1. Why is it important to know where our water comes from?
2. Would you know where and how to get water in the event of an attack on or breakdown of our fresh water supply? (What did you do during the recent blackout?)
3. Have you ever thought about the fact that the path which your fresh water takes starts at your drain? What does this mean? Does thinking this way influence what you put down your drain?
4. What does it mean to be down stream, literally and metaphorically?
5. Have you ever grown a garden and had to water plants? What are some ways that a gardener can obtain water and reduce the need for water?

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**Group Stations**

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Break out into 3 groups of 3-5 students to work for 30 minutes on each of 3 stations. The order in which students visit each station is unimportant; the 3 stations each reinforce each other and each should build interest for the next.

**Group A:** Meanwhile in Vietnam (slides or photo cards) Students will match photographs of Vietnamese practices with the text cards which talk about each. On the reverse of each card is a self-check question which students will answer on paper.

1. Catchment systems - In both the highlands and in the Mekong Delta I witnessed water catchment in large ceramic jugs which rest on the ground underneath roofs, eves, and downspouts. Locals report that having a coconut leaf roof sweetens the water and is preferable to corrugated steel.

2. Multi-use source - Water source is home to ducks. This means that there will be feces from these animals in the water. This also means that neighbors need to work out plans about how their shared water source can be maintained. People who raise ducks are often disliked for their disregard for the water supply of those around them.

3. Multi-use source - The same rivers that are the source of cooking and drinking water are used for daily transportation by gasoline powered boats. Still many boats are powered by paddling, which leaves the water source as clean as it was found.

4. Multi-use source - Locals bath and play in the same water that is used for cooking, washing dishes, and sometimes drinking. This is convenient only if you are upstream. However, isn't someone always downstream from you, and aren't you always downstream from somebody?

5. Water for irrigation - In the highlands I witnessed many inventive irrigation systems fabricated from local materials. Using cut bamboo locals divert and channel river water in a system of gutters which supply fresh water to both the home and crops.

6. Waste and water - In the most sustainable of household systems human waste is put into a waste pond where it can be filtered through catfish, sparing the local water sources of raw sewage. These fish are also a source of income once they are sold for food.

7. Laundry in the river - In both the highlands and the Delta I witnessed locals washing laundry in rivers.

**U.S. Photos for Comparison;** I am currently collecting photos which can be used to foster a consciousness of our own water source and personal practices. These can also highlight comparisons between the two cultures and systems. These photos will include representations of:

a. Dumping of harmful chemicals into household sink drains.

b. Western toilets which funnel waste water back into our water supply.

c. Sprinklers sprinkling our fresh water supply onto home lawns.

d. Shower-heads pouring water onto individual bathers.

e. Washing machine which use fresh water and return gray water to source.

**Group B:** Student Research Assignment:

1. Research the water system in your community using internet sources. You are searching for the ultimate source of the water you drink, the stages of processing and filtration, and potential

cites of contamination in the cycle. You must report the findings of your research in an essay of 3 paragraphs, which deals with source, system, and solutions. Please conclude with suggestions for keeping our water clean.

2. Find out where our bottled water is coming from and how much water is bottled annually in this country.

**Group C:** Viewing DVD footage from Vietnam (ch. 2)

Students will watch chapter 2 of DVD, Water in Vietnam. This video demonstrates highland irrigation, highland laundry in river, floating market, boat travel, water catchment, waste ponds, and Mekong dish and laundry washing. After viewing this video students will do an informal piece of writing. Choose one of the following:

a. make a list of the images which stand out as exceptional to you.

b. write a short poem inspired by the images you have seen

c. write a short paragraph detailing one piece of the video.

**Assessment:**

Were students able to hypothesize about the source of their water?
Were students able to discover the source and system on which they rely for fresh water?
Were students able to articulate the findings of their research in a well-Articulated 3 paragraph essay?

**Curriculum Connections:**

- Biology - bacterial in water, waste systems
- Earth Science - erosion in highlands, water cycle in Mekong

**Additional Teacher Resources:**

**http://www.dwsd.org/index.htm**

**Appendices:**

Environmental Science, 8th edition, Miller, 2001.

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**Vietnam and Sustainability: Land Use**

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**Lesson Title:** Vietnam and Sustainability: Land Use
**Author:** Andrew C. Kemp
**Subject:** English
**Grade Levels:** 9-12
**Time Allotment:** 90 minutes for each lesson

**Materials Required:**

Photo Cards, pen and paper, internet access, Vietnam DVD

**Objectives:**

By the end of this lesson students will be able to:

- Analyze their own family's use of land.
- Compare and contrast land use typical to Vietnam and to the United States
- Discuss ways that we might be able to use our land more efficiently, wisely, and in ways that are more sustainable.

**Intro/Background:**

Ask students to write one paragraph which describes their yard at home. They should include details about how big it is, what they use it for, and what grows in it. Students who do not have a yard might discuss what they would do if they had a yard, or describe a yard familiar to them.

**Procedure:**

When students are ready initiate a discussion about their yards. Ask them to share what they wrote. You may want to ask questions like:

Are any of you using your yards to produce food or useful products?
What are some typical yard uses in communities outside of your own, for instance in the suburbs, the city, in the country.
What are some things that you could use your yard for?
Why would someone want to grow food in his or her backyard when almost anything is available in the grocery store?

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**Group Stations**

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Break out into 3 groups of 3-5 students to work for 30 minutes on each of 3 stations. The order in which students visit each station is unimportant; the 3 stations each reinforce each other and each should build interest for the next.

**Group A:** Photo Matching Game: Students will match the following texts with photos that demonstrate these practices. On the back of each pair is a self-check which leads the students to a question on that topic. Students will use these questions to guide them through several short answers. They are finished with this station when they have answered all questions in writing.

Solar Drying - Yards are a good place to make use of solar energy. I witnessed many people drying all types of things: fruits, rice and other grains, wood and dried coconut shells to be used as fuel, fish for preservation, and of course clothes on the line.

Growing Fruits - A typical Vietnamese yard has several varieties of fruit-bearing trees. These are often scattered throughout the yard and bear fruit at different times during the year.

Fish Trenches - Many people use existing ponds or hand-dig trenches in which to raise fish. These fish are easy to raise and are a valuable source of protein. They also represent a large supplement to family income. Many fish-raisers sell their mature fish in the market. Rice bran is a common food for these fish. This is a part of the rice which is not usually eaten by the Vietnamese, so it makes sense to get good use out of it in this way.

Pig Raising - Many Vietnamese raise pigs in their yards. There are several functions of pig raising. Of course, they eat the meat when the pigs are of suitable age. Also, they use the manure for two things. By allowing the waste to ferment in large plastic bags they can catch valuable methane gas which would otherwise escape into the atmosphere unused. This gas is channeled into the kitchen for a cooking gas that is cleaner and cheaper than wood. After the manure has released its gas it is used to feed the fish.

IPM Rice - Most people grow rice on their land, but some people have found a way to get even more out of the same space. Since rice grows in water it is possible to raise fish in the rice paddies. These fish not only provide food and income, but also benefit the rice by eating the eggs of certain harmful pests.

Terraced Gardens - Ethnic minorities, who have been pushed into the less fertile highlands have been extremely resourceful in the face of the rough lands limitations. On the mountain slopes where it is difficult for anything to grow people have terra-formed, reshaped the land into terraces or shelves. These terraces are level areas which can hold water and therefore support rice growing.

Organic Gardens - Many locals in the Mekong Delta who have typically small yards which were going unused have converted them into small-scale organic gardens. These gardens help to feed the family and supplement income on top of that. These gardens beautify the landscape of the neighborhood and demonstrate efficient use of precious land. Some even grow flowers.

**Group B:** This group will view and reflect on chapter 3 of the Vietnam DVD, Land Use in Vietnam. For this writing students will be asked to reflect in a broader way on the images they have just seen. Students will choose one of the following informal writing opportunities:

a. make a list of the images which stood out as exceptional to them

b. write a short poem inspired by the images they have seen

c. write a short paragraph detailing one piece of the video.

**Group C:** This group will use internet access to research one of three options on the topic of land use. A reading on growing food in urban areas will be available to get them started with other possible search topics. This is the page titled "Can We Grow More Food in Urban Areas?" (Miller, 2001. p. 401)

Research vacant and unused land in your city. Is it available? Can you find out how much vacant land there is in your city compared to two other U.S. cities? (It might be especially interesting to use Detroit for this)

Develop a plan for ways that your city (Detroit) can make better use of its wealth of vacant land.

Research land inheritance and acquisition in Vietnamese society.

Research lawns, percentages of land devoted to lawns, and the positive and negative impacts of lawn maintenance.

**Assessment:**

Were students able to discuss the use of land in their own yards, and to answer directed questions about land use?

Were students able to match photo cards with the appropriate texts?
Were students able to answer the self-check questions in writing?

Were students able to conduct successful research on the suggested topics?
Were students able to report their findings in the form of a short essay?

Were students able to reflect on the images they watched and listened to in a short piece of poetic or detailed writing.

**Curriculum Connections:**

Earth Science: What is productive land?
Chemistry: Fertilizers, what are natural soil nutrients and how do we amend soils with these.

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**Vietnam and Sustainability: Fuel and Transportation**

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**Lesson Title:** Vietnam and Sustainability: Fuel and Transportation
**Author:** Andrew C. Kemp
**Subject:** English
**Grade Levels:** 9-12
**Time Allotment:** 90 minutes for each lesson

**Materials Required:**

Photo Cards, pen and paper, internet access, Vietnam DVD

**Objectives:**

By the end of this lesson students will be able to:

- Reflect in writing on the efficiency of their familys or their personal form of transportation.
- Discuss the efficiency of and change in Vietnamese forms of transportation.
- Compare and contrast the potential sustainability of American vs. Vietnamese transportation systems.

**Intro/Background:**

How do you travel? Ask students to reflect on their own mode of transportation.

**Procedure:**

After establishing the vehicles used by each student we will share details about the size, passenger capacity, and fuel efficiency/inefficiency of each. This will lead us into comparisons of small cars, suvs, busses, motor bikes, and bicycles.

Ask students how they park their cars at home and when they are out.

Ask students to discuss the costs of maintaining their vehicles. List these various costs on the board.

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**Group Stations**

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Break out into 3 groups of 3-5 students to work for 30 minutes on each of 3 stations. The order in which students visit each station is unimportant; the 3 stations each reinforce each other and each should build interest for the next.

**Group A:** This group will play the photo card matching game. These students will be examining photos to which they will match the following captions. Each of these matches provides a self-check question on the reverse. Students will answer these in writing.

Motorbikes - Motorbikes are the number one form of transportation in Vietnam. Although they may seem less fuel efficient than the bicycles that they are replacing their efficiency is incredible compared to our number one mode, cars. Motorbikes get between 5 and 20 times the miles to the gallon that our cars do. It is common for whole families to share the ride, making it even more efficient. And it seems that just about anything can be carried on a motorbike.

Bicycles - Even though the trend seems to be moving toward motorized vehicles the bicycle still represents the ultimate in vehicle efficiency. Bikes need no fuel at all, and travel with ease on city streets and on narrow Hamlet paths.

Biogas Source - Pigs are a very common site in Vietnamese yards. These pigs are family pets that will provide both food and fuel. The pigs manure releases useful gas and also provides food for fish. The gas is used in the kitchen, and both the pigs and fish will provide needed protein for the family diet.

Biogas Capture - The pig manure is washed into large plastic collection bags on the ground. Here the manure sits and gives up its gas. The gas rises into a second bag which fills like a balloon and stores it for when it is needed.

Biogas Delivery - To take the valuable methane gas from the collection site to the kitchen all you need is a garden hose and a couple of valves. The gas flows easily to the stove under increasing pressure as the manure ferments.

Biogas Use - When many Vietnamese in the Mekong Delta want to cook they have access to free gas. Instead of burning wood or coal, which can be expensive and dirty these people simple turn on the gas stove like you or I would. However, they are not paying the gas company because their gas is generated in the yard, the first gift of the pigs which will later provide a second gift, food.

Rice Husks - The outer shell of the rice grain, called the husk, is a byproduct of processing the grain so that it is edible. This byproduct is not discarded but put to several uses. Its widest use is as a fuel. These rice husks are collected and delivered to the huge brick ovens in which bricks are fired.

Rice Husks Too - Rice husks are put to still a further use after they give up their energy to make hot flames. The ashes of the rice husks are a wonderful fertilizer and are spread in organic gardens to bring nutrients to growing food crops.

Fruit Shells - Everywhere I went in Vietnam I witnessed locals drying the shells of various fruits to use as fuel. Usually the materials to be dried are lain out on a tarp in the yard or right on the street. This represents not only giving a second use to things that would probably be thrown away here in the U.S., but exploitation of the solar energy that is readily available to all.

**Group B:** This group will view and reflect on Chapter 3 of the Vietnam DVD, Transportation and Fuel in Vietnam. For this writing students will be asked to reflect in a broader way on the images they have just seen. Students will choose one of the following informal writing opportunities:

a. make a list of the images which stood out as exceptional to them

b. write a short poem inspired by the images they have seen

c. write a short paragraph detailing one piece of the video.

**Group C:** This group will use the internet to do short research on one topic from among

a. Explore the gas mileage of different types of vehicles, including motorbikes, hybrid cars, buses, suvs, and trucks.

b. Explore bicycle travel. Attempt to find organizations or individuals who use bicycle as a primary means of transport.

c. Explore the history of travel in Vietnam, especially the recent shift from bicycle dominance to that of the motorbike.

**Assessment:**

Were students able to discuss the use of fuel and transportation modes in their own lives?

Were students able to match photo cards with the appropriate texts?
Were students able to answer the self-check questions in writing?

Were students able to conduct successful research on the suggested topics?
Were students able to report their findings in the form of a short essay?

Were students able to reflect on the images they watched and listened to in a short piece of poetic or detailed writing?

**Curriculum Connections:**

Science - energy efficiency and burning of fossil fuels.
History - Evolution of preeminence of motorized vehicles.
Earth Science - Mining and its effects on the environment