Description: MC900052882[1]**Learning-Focused Strategies Extending/ Refining Lesson Plan: EATS**

**6th Grade: Pardee Unit 6- Geog of Latin America Date:**

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| |  |  | | --- | --- | | **Title:** | Circle of Knowledge | | **Type:** | Lesson Plan | | **Subject:** | Social Studies | | **Grade Range:** | 6 | | **Description:** | Latin American Environmental Issues | | **Duration:** | 50+ Minutes | | **Author(s):** | Katie Pardee | | | | | | | | | | | | | | | | |
| Instructional Lesson Content | | | At the end of this unit the student will understand that **-Every place has unique geographic features that influence how cultures develop. -Language and religion are examples of cultural diversity. -Humans have an impact on the natural environment.** Students will also explore how interaction of different ethnic groups, languages, and education levels contribute, to Latin American culture and development today. Students will identify political and physical features of the region, and determine how location impacts the development of Latin American countries. In this unit, students will examine the environmental and economic concerns in modern Latin America and the Caribbean. The theme of human environmental interaction will guide students’ understanding as they study individual behaviors affect Latin America and the Caribbean today. | | | | | | | | | | | | |
| **E** | **Standard (s)** | | **SS6G2** The student will discuss environmental issues in Latin America.  Explain the major environmental concerns of Latin America regarding the issues of air pollution in Mexico City, Mexico, the destruction of the rain forest in Brazil, and oil related pollution in Venezuela. | | | | | | | | | | | | |
|  | **TAG Standard** | | **Advanced Communication Skills**  8. The student participates in small group discussions to argue persuasively or reinforce others’ good points.  **Higher Order Critical Thinking Skills**  5. The student predicts probable consequences of decisions.  7. The student examines an issue from more than one point of view. | | | | | | | | | | | | |
| **Summary/ Overview** | | The focus of this lesson is for students to learn about the effects of deforestation on the ecosystem of the rainforest, while at the same time receiving information on how certain types of rainforest logging/deforestation provide many non-Amazonian South Americans with jobs, income, and a general way of life. Students must review both sides of the argument and debate in small groups on the possibility of coming to a compromise. | | | | | | | | | | | | |
| **Enduring Understanding** | | The student will understand that humans, their society, and the environment affect each other. | | | | | | | | | | | | |
| **Essential Question** | | Does development and trade have a positive or negative impact on Brazil’s Amazon Rainforest?  Is Brazil better off cutting down trees in the Amazon rainforest? | | | | | | | | | | | | |
| **Concepts to Maintain** | | HUMAN-ENVIRONMENT INTERACTION: The student will understand that humans, their society, and the environment affect each other. | | | | | | | | | | | | |
| **Evidence of Learning** | | What students should know:   * When you change one part of the forest ecosystem by removing all the trees, all the other parts of the ecosystem will change too. * The Amazon faces the possibility of multiple species’ extinctions in the near future. * The Amazon rainforest ecosystem supports native people, whose economies and cultural traditions are still based on hunting, fishing and trapping * Trees reduce soil erosion, increase carbon removal from the atmosphere, and increase water storage. * Logging and Cattle Ranching in Latin America provide a primary means of life for many Latin American peoples.   What students should be able to do:   * Examine the issue from multiple points of view * Explain the main points of both sides of the argument on Amazon deforestation. * Participate in a meaningful small group discussion on the issue in which they could argue specific points. * Explain the connection between environmental and health issues * Analyze the role of trees and forests in the ecosystem and their economic connection | | | | | | | | | | | | |
| **Suggested Vocabulary** | | * Deforestation * Logging * Erosion * Population density * Poverty * ecosystem | | | | | | | | | | | | |
| **PROCEDURES** | | | | | | | | | | | | | | | |
| **A** | **PHASE 1: Hook/**  **Activating Strategy** | KWL  Wordsplash | | Draw Pic/Diagram  Brainstorm | | | Draw Pic/Diagram  Anticipation Guide | | | | Activating Acrostic  Dear Teacher | | Sponge  Other: | | |
| **Details of Activator:**  Call for volunteers to answer the following questions:  “List three things from nature that you cannot live without?; How would your life change if you had to live without those three things?; Do we effect our environments when we use those things?  Once the class has discussed the implication of doing without their three favorite things have them then answer in pair discussion; “What kinds of situations would justify the cutting down of a forest?”  Provide students time to jot down their thoughts and share thoughts with a partner.  Select a few students to respond. | | | | | | | | | | | | | |
| **T** | **Teaching STRATEGIES**: | Peer Tutoring  Simulations  Hands On | | | Lecture  Independent Activities  Cooperative Learning | | | Visuals  Graphic Organizers  Pairings  Centers | | | | Whole group instruction  Projects  Technology Integration | Guided Reading  Response Cards | | Gallery Walk  Quick Write  Other: |
| **Details of Strategies:**  Students will work cooperatively in groups to answer brainstorming questions. Then students will use graphic organizers to organize their notes for both pro and con for logging in the rainforest. | | | | | | | | | | | | | |
| **Differentiation**  **STRATEGIES**: | Anchor Activities  Choices of Review  Flexible grouping/ seating | | | | Simulations  Games  Centers | | | Centers  Lit Circles  Cubing | Menus/ Choice Boards  Multiple levels of questions | | | | Think-Pair- Share  Interest Groups  Multiple Intelligence | Jigsaw  Varied Modes of Products  OTHER: |
| **How is the lesson differentiated to meet the needs of all students?**  Students will be paired based on their learning styles founded at the start of the year. The groups should be no more than three. There will be a range of ability levels in each group. Multiple levels of questions will be asked throughout the lesson. | | | | | | | | | | | | | |
| **Rigor & Relevance** | **A  B  C  D** | | | | | | | | | | | | | |
| **Level of DOK** | **1  2  3  4** | | | | | | | | | | | | | |
| **PHASES 2 - 4:**  **Examine the Content/ Analogies/ Compressed Conflict/ Synthesis Activity** | **Phase 1:  Sparking the Discussion (Hook)**        Call for volunteers to answer the following questions:  “What kinds of things do we use nature for?  Do we effect our environments when we use those things?  How would life be different without them?”  Pose the question: “What kinds of situations would justify the cutting down of a forest?”  Provide students time to jot down their thoughts and share thoughts with a partner.  Select a few students to respond.    **Phase 2:  Acquiring Content Needed to Participate in Discussion**          Pose the essential question:  “How have Latin American and Caribbean actions changed the natural environment?”  Activate prior knowledge by having students create sentences using at least three words from the Word Splash.        Students will review the article “*Rainforest Deforestation: Forests burn, soils dwindle and people suffer”* on the consequences of deforestation in the Amazon and the article *“Why are Rainforest important? ”*on the benefits of Amazon logging. Students will use the graphic organizer to take notes. Students will use context clues to define words they do not know; highlight important details; Take notes in margins next to each paragraph; Summarize the consequences and benefits in the graphic organizer provided using their highlighted information and notes from the margins.  **Phase 3:  Kindling the Discussion**         Students will use their article notes, summary, and the Questioning Cube to answer and have small group discussions.        In whole group, students will participate in a discussion driven by the following questions: What is your point of view on this issue and why?  Has your point of view changed due to any of your peer’s arguments?  Do you think it is possible to come to a compromise on the issue?   What could some potential solutions to the debate be? Did your point of view change as a result of the readings and/or small group discussions? What role should other countries play in this issue?  **Phase 4:  Synthesis Activity**  Students will examine and analyze the “Weighing the Issue: Deforestation of the Amazon Rainforest ” handout.  Students will develop a predication about the future of logging in the next 10 years in the Amazon rainforest and support that prediction with information from the articles or the debate itself. They will submit this to Edmodo. Select a few volunteers to share their predictions. | | | | | | | | | | | | | |
| **S** | **Summarizing STRATIGIES (Students are doing the summarizing)** | **Answer EQ  Journal Entry  ABC Summary  One Minute Essay  Index Card Summary  Debriefing   Hand Signals  TOTD  Oral Questioning  Other:**  **Details of the Summarizer (What are students doing?):**  3-2-1 Exit Ticket:   **3** major problems related to the deforestation of the rainforest 2 possible solutions to the problem that you heard today  **1** issue that you believe will probably remain unresolved and why | | | | | | | | | | | | | |
| **Resources** | | **Resource(s): http://wwf.panda.org/what\_we\_do/where\_we\_work/amazon/problems/ http://www.rainforestconcern.org/rainforest\_facts/why\_are\_they\_being\_destroyed/**  **Anchor Text(s):**  **Technology: BYOT/ Edmodo**  **Handouts:**  Handout 1: Wordsplash Handout 2: Rainforest Deforestation (Consequences) Handout 3: Why are Rainforest important? (Benefits) Handout 4: Graphic Organizer for notes Handout 5: Questioning Cube Handout 6: Exit Ticket | | | | | | | | | | | | | |

**Handout #1- Word Splash**

**Deforestation**

**poverty**

**Extinction**

**logging**

**Amazon**

**ecosystem**

**farming**

**erosion**

**High population**

**Handout #2- Rainforest Deforestation (Consequences)**

Burning forest for farmland in Southeastern Peru

*© Andre Bartschi / WWF - Canon*

Forests burn, soils dwindle and people suffer  
**Market forces, population pressure and infrastructure advances are continuing to pry open the** [**Amazon rainforest**](http://wwf.panda.org/what_we_do/where_we_work/amazon/problems/22301#amazon_rainforest)**.  As the pressures afflicting the region grow in intensity, it is becoming increasingly clear that the price to be paid is not only loss of biodiversity and habitat – but also of a decreasing life quality for people.**

Among the threats behind environmental destruction and degradation in the Amazon are the lack of policy frameworks to support sustainable development and natural resource protection, political instability, the inability of some institutional and governmental entities to establish and enforce legislation for nature conservation, and poverty and inequality.

**The price of development at all costs**

Today, regional government programmes and initiatives are pushing for constant development, often encouraging blind clearance of forests for cattle ranching, oil drilling or [soybean production](http://wwf.panda.org/about_our_earth/about_forests/deforestation/forest_conversion_agriculture/). Such efforts seek to secure much-needed foreign exchange and generally develop economies.

As the countries of the Amazon become increasingly integrated into the global economy and there is increased demand for ever-limited natural resources, efforts to protect the region continue to be threatened by unsustainable economic demands.

**Trade, the fuel of deforestation**

Development activities in the Amazon are responding in part to the insatiable international demand for raw goods. For example, Brazil’s beef exports are closely linked to financial markets and the strength of the Real, the Brazilian currency.

When the real devaluated, the price of beef in real approximately doubled, creating a huge incentive for ranchers to expand their pasture area.

At the same time, the price of Brazilian beef in dollars fell, which made Brazil’s exports more competitive on international markets.[1](http://wwf.panda.org/what_we_do/where_we_work/amazon/problems/fckblank.html#1) Conversely, when the real strengthens, exporters struggle to keep their slice of the market.

**Trade requires infrastructure**

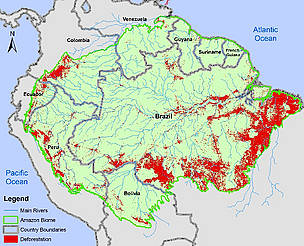
Responding to international demands in agricultural products requires infrastructure such as dams and roads. BR-163 and BR-319, two of the main roads to be laid down through the Brazilian Amazon rainforest, are examples of this situation.

But global demand is not limited to cattle and soy. To satisfy its industrial needs, China is involved in mining projects in the eastern Amazon, ranging from aluminium and steel to nickel and copper.2

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1Kaimowitz *et al*. 2004. [**Hamburger Connection Fuels Amazon Destruction: Cattle ranching and deforestation in Brazil's Amazon**](http://www.cifor.cgiar.org/publications/pdf_files/media/Amazon.pdf). Centre for International Forestry Research (CIFOR). 10 pp.

2International Herald Tribune. Sunday, November 20, 2005. [**China's global push for resources makes waves in Amazon basin**](http://www.iht.com/articles/2005/11/20/news/brazil.php)**.**

Deforestation   
  
Rates of deforestation vary from one Amazon country to another, mostly because the factors that drive this process also vary across the region. In Brazil for instance, most clearing is carried out in large and middle-sized ranches for cattle pasture, whereas the role of small farmers clearing for agriculture is relatively more prevalent in other countries3  
  
Deforestation is particularly marked in areas adjacent to urban centres, roads and rivers. But even remote areas that are considered void of human activity are showing signs of human pressures, especially where mahogany and gold are found.4

Some deforestation, when carried out in private properties, can be legal. According to the Brazilian Forestry Code (a federal law), 20% of rainforest in each property can be cleared under a license provided by environmental agencies.

VANISHING FORESTS

17 % of the Amazon forest has been lost in the last 50 years.

Extensive cattle ranching accounts for 80% of current deforestation, while agriculture is largely responsible for the rest.

The vast majority of the deforestation can be found in the eastern and southeastern part of the Amazon (Brazil) in the so-called Arc of Deforestation, and the Northwestern brim of the Basin’s headwaters, primarily in Colombia and Ecuador.

**What are the impacts of deforestation?**

It is impossible to draw a comprehensive list of everything we stand to lose from deforestation. But here are some of the main aspects:

**Loss of biodiversity:** Species lose their habitat, or can no longer subsist in the small fragments of forests that are left. Populations dwindle, and eventually some can become extinct. Because of the high degree of endemism, or presence of species that are only found within a specific geographical range, even localized deforestation can result in loss of species.

**Habitat degradation:** New highways that provide access to settlers and loggers into the heart of the Amazon Basin are causing widespread fragmentation of rainforests. These fragmented landscapes are affected in species structure, composition and microclimate, and are more vulnerable to droughts and fires - alterations that negatively affect a wide variety of animal species.5

**Modified global climate:** The forests’ ability to absorb the pollutant carbon dioxide (CO2) is reduced. At the same time, there is an increased presence of CO2 released from the burning trees.

**Loss of water cycling:** Deforestation reduces the critical water cycling services provided by trees. In Brazil, some of the water vapour that emanates from forests will be transported by wind to its Central-South region, where most of the country's agriculture is located. Brazil's annual harvest has a gross value of about US$65 billion, and the dependence of even a small fraction of this on rainfall from Amazonian water vapour corresponds to a substantial value for the country. When rainfall reduction is added to the natural variability that characterizes rainfall in the region, the resulting droughts may lead to major environmental impacts. Fires already occur in areas disturbed by logging.6

**Social impacts:** With reduced forests, people are less able to benefit from the natural resources these ecosystems provide. This can lead to increased poverty and in cases, people may need to move in order to find forests which can sustain them.

**The outlook for Amazon deforestation**

The demand for land that is currently causing tropical forests to be burned is expected to remain high, sustaining the continued release of carbon from burning trees into the atmosphere.

If droughts, temperatures and El Niño events increase in frequency and severity - as seems to have been the case over the past 200 years - then the amount of carbon emissions from the tropics could rise rapidly in the future, creating a dangerous feedback loop via the impacts of deforestation.7

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3 Goudie (Ed.) 2001. Encyclopedia of Global Change. Environmental Change and Human Society

4 Barreto et al. 2005. Human Pressure in the Brazilian Amazon. IMAZON.

5 Laurance et al. 2000. Forest loss and fragmentation in the Amazon: implications for wildlife conservation. Oryx, 34 (1), pp. 39-45

6 Goudie (Ed.) 2001. Encyclopedia of Global Change. Environmental Change and Human Society

7 Lewis, S.L. 2005. Tropical Forests and Atmospheric Carbon Dioxide: Current Knowledge & Potential Future Scenarios. Avoiding Dangerous Climate Change Symposium, Exeter, 1-3 February 2005.

**Handout #3- Why are Rainforest important? (Benefits)**

WHY ARE RAINFORESTS IMPORTANT?

**THEY PROVIDE A HABITAT FOR PLANTS AND ANIMALS**

Tropical rainforests took between 60 and 100 million years to evolve and are believed to be the oldest and most complex land-based ecosystem on earth, containing over 30 million species of plants and animals. That's half of the Earth's wildlife and at least two-thirds of its plant species!

Because most tropical rainforest grows in warm and steamy environments, it contains a huge variety of plants. One hectare of lowland rainforest may contain 1000 trees with up to 300 species. Compare this to the UK's forests which are likely to have only 5-10 species per hectare: that's 30 to 60 times more species in a hectare of rainforest! These plants in turn provide food and shelter for many rare animals that depend on the rainforest for their survival. There are many more thousands of rainforest plants and animals species still waiting to be discovered.

**THEY REGULATE OUR CLIMATE**

Rainforests store water like a huge sponge. In fact, it is believed that the Amazonian forests alone store over half of the Earth's rainwater! Rainforest trees draw water from the forest floor and release it back in to the atmosphere in the form of swirling mists and clouds.



Without rainforests continually recycling huge quantities of water, feeding the rivers, lakes and irrigation systems, droughts would become more common, potentially leading to widespread famine and disease.

Did you know that we also depend on trees to cleanse our atmosphere? They absorb the carbon dioxide that we exhale, and provide the oxygen we need to breathe. When rainforest trees are burnt they release carbon dioxide, which pollutes the atmosphere and contributes to global warming. Deforestation is in fact considered the second major driver of climate change (more than the entire global transport sector), responsible for 18-25% of global annual carbon dioxide emissions.

**THEY HELP TO PREVENT SOIL EROSION**

Surprisingly, soil in the rainforest is very poor in nutrients. This is because the nutrients are stored in the vast numbers of trees and plants rather than in the soil. Tree roots bind the soil together, while the canopy protects the soil from heavy rains. When a tree dies and its trunk falls to the forest floor, it decays and the nutrients it contains are recycled. However, if trees are removed from the forest, the nutrients are removed with it, along with the protection provided by the tree roots and the forest canopy. The unprotected soil is then simply washed away in heavy rains, causing blockages and floods in lowland rivers, while leaving upland rivers dry.

**THEY PROVIDE A HOME FOR INDIGENOUS PEOPLE**

Many indigenous people have been living in harmony with the rainforest for thousands of years, depending on it for their food, shelter and medicines. When oil and logging companies come to remove vast areas of forest, they bring diseases which the indigenous people have no resistance to, threatening their survival. Often they are also forced to move away from their homes to unfamiliar places, sometimes even being killed in the process.

**RAINFOREST PHARMACY**

It may surprise you to know that more than 25% of our modern medicines originate from tropical forest plants. Even so, we have only learned how to use 1% of these amazing plants, so imagine the possibilities if we could experiment with the other 99%!

For example, the rosy periwinkle, found in Madagascar, is used to cure leukemia, while the anti-malarial drug quinine is taken from the bark of the Andean cinchona tree. The rauvolfa shrub found in Asian and African forests is used to cure high blood pressure and mental illness. Rainforests and the native populations who discovered these medicines could hold the cure to many more diseases if we would only nurture the forests and allow their people to show us.

**OTHER IMPORTANT FOREST PRODUCTS**



Many foods we consume today such as nuts, bananas, coffee and spices, and industrial products such as rubber, resins  
 and fibres, were originally found in tropical rainforests.  
WHY ARE THEY BEING DESTROYED?

In the past 50 years much of the rainforest in Africa and Asia has been destroyed. Large areas of rainforest are being cut down, often in order to remove just a few logs, and rainforest is being destroyed at double the rate of all previous estimates. Unfortunately this means that there is a very high rate of extinction, as the wildlife depending on the forest dies with it.

**CATTLE RANCHING**

Many rainforests in Central and South America have been burnt down to make way for cattle farming, which supplies cheap beef to North America, China and Russia. It is estimated that for each pound of beef produced, 200 square feet of rainforest is destroyed. In the past 20 years Costa Rica has lost the majority of its forests to beef cattle ranching. This is known as slash and burn farming and is believed to account for 50% of rainforest destruction. However, the land cannot be used for long: the soil is of poor quality and, without the forest, quickly becomes very dry. The grass often dies after only a few years and the land becomes a crusty desert. The cattle farmers then have to move on and destroy more rainforest to create new cattle pastures.

Indigenous Indians also use "slash and burn" farming techniques, but on a small scale. For centuries they have used a sustainable system where, when they finish using one small patch of land, they move away to a different area and allow the forest to regenerate. Since the area cleared is small, the soil does not dry out and therefore the forest clearance is localized and temporary rather than extensive and permanent.

**LOGGING**



This is believed to be the second largest cause of deforestation. Timber companies cut down huge trees such as mahogany and teak and sell them to other countries to make furniture. Smaller trees are often used for the production of charcoal. Vast areas of rainforest are cut in one go (clear felling) and the most valuable trees are selected for timber, leaving the others for wood chipping. The roads that are created in order to cut and remove the timber often lead to further damage: see the effect of forest roads under "Oil Companies".

**AGRICULTURE**

Much of the fruit, cereals and pulses we buy from tropical countries have been grown in areas where tropical rainforests once thrived. The forests are cut down to make way for vast plantations where products such as bananas, palm oil, pineapple, sugar cane, tea and coffee are grown. As with cattle ranching, the soil will not sustain crops for long, and after a few years the farmers have to cut down more rainforest for new plantations.

**MINING**

The developed nations relentlessly demand minerals and metals such as diamonds, oil, aluminium, copper and gold, which are often found in the ground below rainforests. The rainforests therefore have to be removed in order to extract them. Poisonous chemicals are sometimes used to separate the waste from the minerals, for example mercury, which is used to separate gold from the soil and debris with which it is mixed. These chemicals often find their way into rivers, polluting water supplies which local people depend on, killing fish and other animals that feed on them.

**OIL COMPANIES**

Rainforests are seriously affected by oil companies searching for new oil deposits. This is incredibly damaging as often large roads are built through untouched forests in order to build pipelines and extract the oil. This encourages settlers to move into hitherto pristine forests and start slash-and-burn farming or cutting more timber for sale or the production of charcoal.

Once established, the oil pipelines which transport the oil often rupture, spouting gallons of oil into the surrounding forest, killing wildlife and contaminating the water supplies of local villages.

**DAMS**

The World Bank and large companies invest money in developing countries to build dams for the generation of electricity. This can involve flooding vast areas of rainforest. Dams built in rainforest areas often have a short life because the submerged forest gradually rots, making the reservoir water acidic, which eventually corrodes the dam turbines. The dams can also become blocked with soil washed down from deforested highlands in heavy rains. This can cause great problems, such as flooding.

**Handout #4- Graphic Organizer for notes**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_**

**Weighing the Issue: Deforestation of the Amazon Rainforest**

**Benefits**

**Consequences**

**Handout #5- Rainforest Questioning Cube**

**Rainforest Questioning Cube**

|  |  |  |
| --- | --- | --- |
|  | What is the importance of diversity in the rainforest? |  |
| What effect does deforestation of the rainforest have on plant and animal life? | You live in a small village in a low-lying valley below the Amazon. Why might you be worried about soil erosion? | In what way does deforestation of the rainforest affect rising global temperatures? |
|  | If you had the power to make decisions about what to do with the rainforest, in what ways would you change things? |  |
|  | How would you feel if you were an Amazonian hunter/gatherer whose habitat has been cleared? |  |

|  |  |  |
| --- | --- | --- |
|  | What are some of the benefits that result from rainforest deforestation? |  |
| As a citizen of South America, how do you feel about the building of roads into the heart of the Amazon? Why? | Explain why the following statement is true.  *Overcrowding of densely populated cities is one reason why rainforest deforestation seems necessary* | What kinds of research are being performed on plant life in the Amazon and how could that research affect human life? |
|  | What would happen to the general population if the Amazonian governments simply decided to ban rainforest cutting? |  |
|  | You are a citizen of one of the more poor South American countries, why would you support slashing and burning of the rainforest? |  |

**Handout # 6 Exit Ticket**

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As you respond to the prompts below, use all words in the Word Splash at least once.

**3** major problems related to the deforestation of the rainforest



2 possible solutions to the problem that you heard today



**1** issue that you believe will probably remain unresolved and why.