



Climate Change in Latin America

LESSON INFORMATION



Subject Area: World Geography



Grade Level: Grade 9



Time Frame/Duration: one 90-minute period

OVERVIEW OF LESSON

In this lesson, students will use various resources to explore deforestation in Latin America. Students will investigate possible impacts and solutions through a short video which describes 4 jobs in Latin America. Finally, students will investigate possible careers and how they might impact and be impacted by climate change.

LEARNING OUTCOMES

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

1. Compare how humans use culture and technology to modify their environment.
2. Explain how human modifications to the environment are affecting the climate.
3. Explain how geography can be used to solve problems created by climate change.
4. Explore how specific careers are impacted by and can be used to impact climate change.

ESSENTIAL / GUIDING QUESTIONS

What are the questions being asked and potentially answered for this lesson?

1. How have humans modified the environment of Latin America?
2. How have those changes impacted the climate of Latin America?
3. How has climate change impacted the people who live in Latin America?
4. How might these issues impact various careers?
5. How can we use geography to understand or even limit these changes?

CONNECTION TO CURRICULUM / UNIT

This lesson is designed to be part of a World Regional Geography course in a unit on Latin America. Students should have previous instruction on the factors which affect climate and a brief introduction to the physical features of Latin America.

BASIC TERMS AND VOCABULARY

*climate change * deforestation * Latin America*

POWERFUL GEOGRAPHY FOCUS

Careers and Jobs: Greenhouse Gas Reduction Specialist | Green Careers | Land Stewardship Coordinator | Farmer | Forest and Conservation Technician | Climate Change Analyst | Ecologist | Environmental Consultant | Environmental Geographer | Environmental Policy Officer | Environmental Restoration Planner | Environmental Science and Protection Technician

KEYWORDS

1-day lesson, climate change, deforestation, high school, inquiry model, Latin America, nature path, physical geography, powerful geography

Career Categories: Sciences, Environmental Matters, Farming and Agriculture, Technology

GEOGRAPHIC SKILLS

- Asking Geographic Questions
- Acquiring Geographic Information
- Organizing Geographic Information
- Analyzing Geographic Information
- Answering Geographic Questions

ADDITIONAL INFORMATION

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STANDARDS (STATE AND/OR NATIONAL)

World Geography Studies (Texas Essential Knowledge and Skills Standards)

- *(4). Geography. The student understands the patterns and characteristics of major landforms, climates, and ecosystems of Earth and the interrelated processes that produce them. The student is expected to:*
 - (A) explain how elevation, latitude, wind systems, ocean currents, position on a continent, and mountain barriers influence temperature, precipitation, and distribution of climate regions.
- *(8) Geography. The student understands how people, places, and environments are connected and interdependent. The student is expected to:*
 - (A) compare ways that humans depend on, adapt to, and modify the physical environment, including the influences of culture and technology.
- *(19) Science, technology, and society. The student understands the impact of technology and human modifications on the physical environment. The student is expected to:*
 - (C) analyze the environmental, economic, and social impacts of advances in technology on agriculture and natural resources.
- *(22) Social studies skills. The student communicates in written, oral, and visual forms. The student is expected to:*
 - (A) create appropriate graphics such as maps, diagrams, tables, and graphs to communicate geographic features, distributions, and relationships;
 - (B) generate summaries, generalizations, and thesis statements supported by evidence;
 - (C) use social studies terminology correctly.

RESOURCE / MATERIALS NEEDED

For Students:

- Computers with internet access
- Climate Change and Deforestation Google Form
- [What are the Biggest Drivers of Tropical Deforestation](#)
World Wildlife Fund. (n.d.). *What are the biggest drivers of tropical deforestation?* WWF. Retrieved October 20, 2022, from <https://www.worldwildlife.org/magazine/issues/summer-2018/articles/what-are-the-biggest-drivers-of-tropical-deforestation>

For Teachers:

- Teacher created resource including maps and other graphics with guided analysis questions.

- [COP26: World leaders promise to end deforestation by 2030](#)
 Gillett, G. R. & F. (2021, November 2). *COP26: World leaders promise to end deforestation by 2030*. BBC News. Retrieved October 19, 2022, from <https://www.bbc.com/news/science-environment-59088498>

PEDAGOGICAL STRATEGIES

This lesson uses the Geographic Inquiry Model to help students Ask and Answer Geographic Questions. It also makes use of a brief role-playing activity where students will take on the role of one career in Latin America and explain and defend that person's ideas about deforestation and climate change.

PRE-REQUISITE KNOWLEDGE

Make sure that all lesson resources have been uploaded and set up in the course LMS. It helps to have asked your students about their future career aspirations prior to starting this lesson, but it is not required.

LESSON DEVELOPMENT

STARTING THE LESSON

Warm Up Activity: 15 minutes

1. Warm Up: Begin the class by displaying the vertical climate zones graphic. Have students answer questions interpreting the graphic.
2. Making prior connections: Introduce the physical geography of Latin America and review the factors which are responsible for climate. Make sure to point out that the Andes Mountains would block warm moist air coming from the Atlantic across the rainforests from reaching the west coast. Also point out the cold current running up along the west coast. The air above with be cool and dry.
3. Have students compare the climate map with a vegetation map and ask them to describe how climate zones are related to vegetation zones. Students should comment that the Tropical Wet and Tropical Wet and Dry climates cover the Tropical Rainforest Vegetation region. Point out the desert along the west coast and explain how the mountains and cool water current help create this desert.
4. Asking Geographic Questions: How have human modifications of Latin America's climate caused changes in the climate and how have those changes impacted the people who live there? Introduce the question and explain to the students that they will be exploring this question using the Geographic Inquiry model.

THE LESSON

60 minutes

5. Acquiring Geographic Information and Organizing Geographic: Students will read the WWF article and answer questions on their Google Form.

6. Analyzing Geographic Information: Explain to students how deforestation is related to climate change and how that will impact the lives of people living in Latin America. Show the BBC video from the COP26: World leaders promise to end deforestation by 2030 article. Have students in groups of 4. One member from each group will take notes over one job shown in the video. After the video, students will role play that position. They will take turns speaking for 1 minute each discussing how that career would be impacted by deforestation and climate change and which solution they feel will be most successful.

7. Powerful Geography: Have students explore the Student Resources section of the Powerful Geography website. They will select 2 or 3 careers in which they are interested. They will write a brief description of each and explain how they think that career may be impacted by climate change in the future. They will complete this information in Section 3 of their Google Form.

ENDING THE LESSON AND CLOSING PRODUCT

(Exit Ticket): 15 minutes

8. Answering Geographic Questions: Spend a few minutes debriefing the students about the activity. Ask them to discuss how different activities in Latin America would be impacted by climate change – like agriculture, forestry, and others. Explain how climate change may force many people to be climate refugees. Ask several students to discuss the solutions they explored and which ones they feel might be most successful.

9. For their exit ticket, have students explain how they think climate change will impact their future career choices and how geography can help find solutions.

DIFFERENTIATION STRATEGIES

Students are grouped in mixed ability groupings. The reading can be read to students using various online reading programs. Students who need extra time can complete their Google Form later – at home, during tutoring, or whenever extra time can be offered.

EVALUATION AND ASSESSMENT

The Google Form is primarily intended to be a formative assessment. The final question and the exit ticket can be graded as a summative assessment.

How have human modifications of Latin America’s climate caused changes in the climate and how have those changes impacted the people who live there?	
5 - Exemplary	Answer thoroughly explains human modifications of Latin America’s environment through farming, logging, ranching, and other activities. Answer explains the role these activities has played in deforestation and the role deforestation has played in climate change. Finally, answer provides a detailed answer on how people in the area are being impacted, including specific details from the video and class assignments. Answer is well crafted, goes beyond content presented in class and includes appropriate course vocabulary.
4 - Advanced	Answer explains human modifications of Latin America’s environment through farming, logging, and ranching (answer discusses all 3). Answer describes the role these activities have played in deforestation and the role that has played in climate change. Finally, the answer provides a solid answer on how people in the area are being impacted. Answer is clear and well-written and includes some appropriate course vocabulary.

3.5 - Proficient	Answer describes human modifications of Latin America's environment through activities such as farming, logging, and ranching (may include one or two). Answer attempts to describe the role these activities have played in deforestation and the role it plays in climate change. Answer attempts to describe how some people are being impacted. Answer is clear and understandable.
2 - Developing	Answer attempts to describe human modifications of Latin America's environment. Answer attempts to describe deforestation, but may not connections between human modifications, deforestation and climate change. Answer is generally clear, but may contain significant errors in grammar or spelling.
1 - Novice	Answer largely fails to address most of the content of the question. It may list human modifications of the environment, but it may fail to make connections between them, deforestation and climate change. Answer is difficult to understand.

Exit Ticket: What are some ways climate change may impact your future? Explain how you might use your knowledge of geography and/or your future career interests to stop climate change. What other jobs might be really important in helping us understand and stop climate change?

5 - Exemplary	Answer thoroughly explains how climate change might impact 2 or 3 possible career options. Answer thoroughly explains how geographic concepts such as geospatial analysis, understanding regional and local practices, cultural values, and interrelationships between humans and their environment, as well as geographic tools such as GIS and mapping can help understand and analyze processes such as climate change. Answer thoroughly explains the role career choices may play in helping find solutions. Other jobs that might be important such as environmental science, media, social programs, NGO's, humanitarian groups are described in detail.
4 - Advanced	Answer explains how climate change might impact 2 or 3 possible career options. Answer explains how a few geographic tools and concepts such as GIS, mapping, and analysis can help understand and analyze processes such as climate change. Answer explains the role career choices may play in finding solutions. Other jobs which might be important are described.
3.5 - Proficient	Answer describes how climate change might impact 1 or 2 possible career options. Answer describes geographic tools and concepts and attempts to describe how they might help understand climate change. Answer describes some career choices and attempts to explain their role in finding solutions. Other jobs which might be important are listed.
2 - Developing	Answer describes 1 career option, but may not make a connection between it and climate change will affect it. Answer lists some tools and concepts, but may not explain how they could help study climate change. Answer does not make connections between careers and solving climate change.
1 - Novice	Answer does not make connections between any careers and how they might be impacted or how they might impact climate change. Answer does not attempt to explain how geography could help find solutions.

EXTENSION AND ENRICHMENT

→ Have students explore various organizations who work to offer solutions for deforestation. Include organizations such as the Rainforest Alliance, Rainforest Action Network, Amazon Conservation Association and others. Also have students look at corporations who are Certified B Corporations, promote carbon offsets and other programs. Students can compare the effectiveness of these programs and determine if there are some that are more effective than others.

→ Alternatively, students can be asked to read the article on how world leaders hope to end deforestation by 2030. They can critique the solutions presented in the article and perhaps generate alternative ideas.