

LESSON TWELVE

For Educators

**SUSTAINABLE
DEVELOPMENT
GOAL #15, LIFE
ON LAND**

15 LIFE
ON LAND



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



**IMAGE BY
ADOBE STOCK**

Lesson 12: Sustainable Development Goal #15: Life on Land

Student Handout

Module Driving Question: Lessons 10, 11, and 12

(Note: Choose one or both of the following module driving questions depending on your goals)

- How can individuals and communities develop sustainable practices and technologies to effectively protect the biodiversity of our planet?
- Why is it important for local and global communities to work together to address our world's resource needs?

Lesson Driving Questions

- How can global efforts be intensified to combat deforestation and promote sustainable forest management, especially given agricultural expansion and recent setbacks in certified forest areas?
- What strategies can address the stagnation in protecting key biodiversity areas, particularly in regions with less than 30% coverage like Central, Southern and Western Asia, Northern Africa, and Oceania?
- How can the global community mitigate increasing species extinction risks due to climate change, habitat conversion, and invasive diseases, and what role do access, benefit-sharing instruments and anti-illegal wildlife trade measures play?

Learning Targets – I Can:

- Identify and explain how protecting and restoring our ecosystems will lead to a more sustainable future for our diverse planet.
- Identify, analyze, and discuss major environmental challenges facing our world such as desertification, land degradation, droughts, floods, etc.
- Develop a strategy to address the sustainability of "life on land" in collaboration with my peers.
- Identify and assess the role of local and international organizations in mitigating threats to our ecosystem through conservation and other actions.

Purpose

In this lesson, you will explore UN SDG #15: Life on Land, focusing on developing sustainable practices to protect biodiversity. You will learn about the importance of local and global collaboration in addressing resource needs and the impacts of forest loss, land degradation, and species extinction on the economy, society, and politics globally. The lesson will highlight strategies to intensify global efforts against deforestation and promote sustainable forest management despite challenges like agricultural expansion and setbacks in certified forest areas. In small groups, you'll strategize ways to protect key biodiversity areas, especially where coverage is below 30%, in regions such as Central and Western Asia, Northern Africa, and Oceania. You'll also research methods to mitigate species extinction risks due to climate change, habitat loss, and invasive diseases, while evaluating tools like access and benefit-sharing measures and policies against illegal wildlife trade. By the end, you will be able to articulate how ecosystem protection supports a sustainable future, analyze challenges like desertification and land degradation, collaborate on sustainable living strategies with peers, and assess how organizations can effectively lead conservation efforts.

Lesson Vocabulary

Reforestation, ecosystem, wetlands, drylands, afforestation, floods, droughts, conservation, biodiversity loss, desertification, food security, sustainability, natural resources, equity, forest management, terrestrial ecosystems, peatland forest, agricultural expansion, biotechnology, biochains, silvopastoral production systems, reverse progress, land degradation, regenerative farming, carbon credits, Great Green Wall of Africa.

Lesson Steps

- 1. Warm-Up Activity:** Watch the following [video](#) introducing **SDG #15: Life on Land**. Reflect on the highlighted targets (**15.2, 15.3, & 15.5**) centering key causes of deforestation, land degradation, and biodiversity loss. As a class discuss the social, economic, and political impacts of these targets and why it is important for individuals to begin adopting sustainable practices to help restore the world's diverse environments.
- 2. Exploring SDG #15: Life on Land Targets in Depth:** Having already examined **targets 15.2, 15.3, & 15.5** as a class, it's now time to **delve deeper** into the remaining targets. **Visit** the [SDG #15: Life on Land page](#) on the UN Website **and select two additional targets** not previously discussed to review. **Conduct** an in-depth exploration of these targets and **prepare to share** your findings in small groups (3-4). **Use** the provided graphic organizer to structure and collect your insights.
- 3. Student-Driven Assessment Design:** Now that you've explored **SDG #15 and its targets**, use the **provided worksheet** to organize your thoughts. **Reflect** on which target resonates with you the most and why. *What are your main takeaways regarding "Life on Land?"* **Consider one actionable step** you and your class can take to contribute to land restoration efforts. **After reflecting, develop** two questions based on information you want to explore further. Be prepared to share your questions and reasoning with the class. Be sure to **pay attention to your classmates' questions**, as these will shape the **final exam** for this lesson.
- 4. People and Planet – Understanding Agribusiness & Deforestation:** Economic prosperity is a major driver of deforestation, as corporations expand agricultural activities to strengthen their positions in the global market. Moreover, in lower-income countries, individuals and communities often rely on deforestation for their livelihoods. **Watch the following clips:** [Climate Change: Can Money Stop Deforestation?](#) (2023) and ["The Destruction of the Amazon, Explained"](#) (2019). These videos provide an in-depth look at how agribusiness affects economic growth and stability, public health, and political initiatives and policies. Check out this article centering ["Agriculture & Deforestation"](#) for additional information.

In small groups (3-4), identify one commodity highlighted in the video(s) and **discuss** how its demand has driven deforestation. **Compare and contrast** the economic benefits of agricultural expansion for this commodity with its environmental impact. **Consider the role of government** in both deforestation and forest restoration. *Do you believe that economic prosperity will always take precedence over environmental restoration and protection?* **Be prepared to share your group's perspective with the class.**

5. **Whole Class Discussion – Biodiversity and Human Health:** Examining the **interconnectedness of planetary and human health** is crucial to understanding the vital role forests play in sustaining life on Earth. Check out the following videos, "[How Losing Biodiversity Could Be Killing Us](#)" (2023) and "[How to Stop the Next Pandemic? Stop Deforestation | Neil Vora | TED](#)" (2023). These videos provide insights into how anthropological (*man-made*) causes of biodiversity loss—such as **deforestation, wildlife trafficking, and climate change**—can lead to the spread of infectious diseases and the extinction of entire species. As a class, **discuss** ways the global community can mitigate species extinction risks from climate change, habitat conversion, and invasive diseases in the future. For additional information on the importance of biodiversity in sustaining human health, check out the following article on "[Peat Swamp Forests](#)."

6. **Utilizing Biotechnology to Restore Terrestrial Ecosystems:** **Complete** the provided **KWL Chart**. First, fill in **what you already know about biotechnology** and its role in combating climate change. Next, note what you **would like to learn about biotechnology** and current projects aimed at restoring global ecosystems. **Watch** the videos "[Agricultural Biotechnology: Tool for Adapting to and Mitigating Climate Change](#)" (2022) and "[How the UN is Holding Back the Sahara Desert](#)" (2024) to gain an in-depth understanding of new biotechnologies and regenerative farming techniques in regions affected by floods, droughts, and desertification. After watching the videos, fill in **what you have learned**, thinking out the benefits and challenges surrounding biotechnology and regenerative practices.

Select a partner to share your reflection with. **Discuss your thoughts and listen to your partner's insights**, exploring how your perspectives might align or differ.

7. **Create A Social Media Campaign:** **Choose an organization**, either local or global, actively engaged in restoring the world's forests and terrestrial ecosystems through initiatives like reforestation, combating wildlife trafficking, advancing biotechnology, or promoting regenerative farming. **Research** their current initiatives related to "Life on Land." **Design a social media campaign** targeting your classmates, considering the unique dynamics of social media compared to traditional platforms. **Craft creative ways** to showcase the organization, their impactful work, and **inspire your peers to take action**. You have the freedom to **select the platform** and decide **whether or not to post your campaign**. Be ready to present your campaign to the class.

8. **It's time for your end-of-lesson exam!** Your teacher has crafted a comprehensive exam based on the questions **you developed** during the assessment design activity, focusing on the topics you were most interested in regarding life on land. After completing all the activities throughout this lesson, you should feel well-prepared to tackle the exam, which reflects your collective curiosity and learning. **Good luck!**

9. **Apply** what you have learned about the **UN SDG #15** by completing one of the summative assessments identified by your teacher. For example, explore further by investigating local organizations in Washington State/Pacific Northwest that are addressing deforestation, wildlife trafficking, and biodiversity loss. See the organizations listed in lesson resources.

Teacher Preparation Notes

Pacing and Strategy: The following outline provides a guide for teaching this lesson including approximate times (*may vary*), teaching strategies, suggested information for teacher created slides, and options for additional enrichment activities/summative assessments can be found at the end of the modules. This curriculum model was designed with teaching and learning strategies that could be adapted for in-person or virtual learning.

Lesson Timing: 3.5 hours (*approximate*)

Standards

Content	Standard
WA Social Studies	<p>SSS1.6-8.1: Analyze positions and evidence supporting an issue or an event.</p> <p>SSS3.6-8.1: Engage in discussion, analyzing multiple viewpoints on public issues.</p> <p>G2.9-10.1: Analyze human interaction with the environment across the world in the past or present.</p> <p>G2.9-10: Explain that humans cope with and adapt to environmental conditions.</p>
Next Generation Science Standards	<p>HS-PS4-4: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.</p> <p>HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity</p> <p>HS-ESS3-1: Cause and Effect: Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.</p>
C3 Framework	<p>D2.Geo.4.9-12: Analyze relationships and interactions within and between human and physical systems to explain reciprocal influences that occur among them.</p> <p>D2.Geo.9.9-12: Evaluate the influence of long-term climate variability on human migration and settlement patterns, resource use, and land uses at local-to-global scales.</p> <p>D2.Geo.10.9-12. Evaluate how changes in the environmental and cultural characteristics of a place or region influence spatial patterns of trade and land use.</p> <p>D2.Eco.15.9-12. Explain how current globalization trends and policies affect economic growth, labor markets, rights of citizens, the environment, and resource and income distribution in different nations.</p>

Lesson Resources

For Students	For Educators	Materials
<ul style="list-style-type: none"> • KWL Chart • Graphic Organizer 	<ul style="list-style-type: none"> • Lesson Twelve Slide Outline • KWL Chart 	<ul style="list-style-type: none"> • KWL Chart • Graphic Organizer • Research Notes Worksheet

<ul style="list-style-type: none"> • Research Notes Worksheet • UN Links to infographics and videos (<i>see lesson details</i>) 	<ul style="list-style-type: none"> • Graphic Organizer • UN Links to infographics and videos (<i>see lesson details</i>) 	<ul style="list-style-type: none"> • Summative Assessment Options
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Lesson Overview

In this lesson, students will gain a comprehensive understanding of SDG #15: Life on Land, including its key targets and their significance. They will learn the importance of adopting sustainable practices to protect and restore biodiversity. By examining how economic activities, particularly agribusiness, drive deforestation and its broader social, economic, and political impacts, students will deepen their knowledge of environmental challenges. Additionally, they will explore the link between biodiversity loss and human health, including the spread of infectious diseases, to understand the interconnectedness of planetary and human health. Students will discover how biotechnology and regenerative farming techniques can combat climate change and restore ecosystems. Through critical thinking and reflection, they will identify which targets resonate with them the most, propose actionable steps for land restoration, and develop a personal connection to the material. Collaboration and communication skills will be enhanced as students work in small groups to explore topics, share insights, and develop a social media campaign to raise awareness and inspire action. They will engage in student-driven assessment by creating exam questions based on their interests, fostering a deeper connection to the material and self-assessment. Finally, students will research and understand the efforts of local and global organizations in restoring forests and ecosystems, linking classroom learning to real-world actions. These takeaways will equip students with the knowledge, critical thinking skills, and collaborative mindset needed to contribute to environmental sustainability and restoration efforts.

Teacher Preparation

For Step 1: Prepare students by **introducing the concept of SDG #15: Life on Land**. Show the [video](#) highlighting targets **15.2, 15.3, and 15.5**, emphasizing deforestation, land degradation, and biodiversity loss. **Facilitate** a class discussion on the **social, economic, and political** impacts of these targets, encouraging students to reflect on the importance of adopting sustainable practices to restore diverse environments. **Ensure** students understand the relevance of these targets to their daily lives and global health.

For Step 2: **Guide students** to visit the [SDG #15 page](#) on the UN website and **select two additional targets** not previously discussed. **Provide a graphic organizer** for them to structure and collect insights. **Instruct students** to conduct in-depth research on these targets and prepare to share their findings in small groups. Encourage **thorough exploration and critical thinking** about the selected targets.

For Step 3: **Distribute** the provided worksheet and ask students to **reflect on the SDG #15 targets**. Have them **identify** which target resonates the most and why and **summarize their main takeaways**. **Encourage** them to think of **one actionable step** for land restoration that they and their classmates can undertake. **Instruct** students to **develop two questions** they want to explore further and be prepared to share their questions and reasoning with the class. **Highlight that these questions will help shape the final exam**.

For Step 4: Show the videos "[Climate Change: Can Money Stop Deforestation?](#)" and "[The Destruction of the Amazon, Explained](#)." Provide an article on "[Agriculture & Deforestation](#)" for additional context. In small groups, have students **identify one commodity** highlighted in the video(s) and **discuss** how its demand has driven deforestation. **Facilitate a discussion** comparing the economic benefits of agricultural expansion with its environmental impact. **Encourage** students to consider the government's role in both deforestation and restoration, and **debate** whether economic prosperity will always outweigh environmental protection. Have groups share their perspectives with the class.

For Step 5: Screen the videos "[How Losing Biodiversity Could Be Killing Us](#)" and "[How to Stop the Next Pandemic? Stop Deforestation | Neil Vora | TED](#)." **Facilitate a class discussion** on the interconnectedness of planetary and human health, focusing on how biodiversity loss can lead to infectious diseases and species extinction. **Encourage students** to brainstorm ways the global community can mitigate species extinction risks from climate change, habitat conversion, and invasive diseases. **Provide an article** on "[Peat Swamp Forests](#)" for further reading.

For Step 6: Hand out the KWL Chart and **instruct students** to fill in what they **already know** about biotechnology and its role in combating climate change. Have them note what they **want to learn** about biotechnology and current ecosystem restoration projects. **Show the videos** "[Agricultural Biotechnology: Tool for Adapting to and Mitigating Climate Change](#)" and "[How the UN is Holding Back the Sahara Desert](#)." After viewing, **ask students to complete** the "learned" section of the KWL Chart. **Pair students to discuss** their reflections and insights, encouraging them to **compare their perspectives**.

For Step 7: **Instruct students** to research an organization **actively involved in forest and ecosystem restoration**, such as reforestation, wildlife trafficking prevention, biotechnology advancement, or regenerative farming. **Guide them to design** a social media campaign highlighting the organization's initiatives related to "Life on Land." **Emphasize creativity** and **audience engagement** and remind students to include a **call to action**. Allow them to **choose the platform** and decide whether to **post their campaign**. Prepare students to **present their campaigns to the class**.

For Step 8: **Inform students** that the final exam is **based on the questions they developed during the assessment design activity**. **Emphasize** that the exam reflects their **collective interests and learning**. Ensure they **feel prepared** by reviewing key topics and answering any remaining questions. Encourage students to approach the exam with confidence.

For Step 9: If you are going to assign one of the summative activities, **review the options** and see what options you would like to make available to students.

Lesson Plan in Detail

Step One: Introduction to SDGs, SDG #15: Life on Land: 30 minutes

Purpose: Students will gain an initial understanding of SDG #15: Life on Land and its key targets (15.2, 15.3, and 15.5). They will begin to recognize the social, economic, and political impacts of deforestation, land degradation, and biodiversity loss, and understand the importance of adopting sustainable practices.

Slide 1: UN SDG overview slide of the 17 goals. Overview slide of SDG #15. Embedded video, <https://www.youtube.com/watch?v=N5YR2GMhYcl>. Target overview slide for 15.2, 15.3, and 15.5. Prompt for class discussion.

Step Two: Exploring SDG #15: Life on Land Targets in Depth: 20 minutes

Purpose: Students will conduct in-depth research on additional targets of SDG #15, enhancing their understanding of various aspects of life on land. They will develop skills in information gathering, critical thinking, and collaborative discussion by sharing their findings in small groups.

Slide 2: Target overview slide for the remaining SDG #15: Life on Land targets not previously discussed. Instructions for using the provided graphic organizer.

Step Three: Student-Driven Assessment Designed: 20 minutes

Purpose: Students will reflect on their learning and identify the SDG #15 target that resonates most with them. They will articulate their main takeaways and propose actionable steps for land restoration. Additionally, they will formulate questions that will inform the final exam, fostering a sense of ownership in their assessment process.

Slide 3: Instructions for utilizing the provided worksheet. Overview of SDG #15: Life on Land targets. Reflection prompts encouraging students to identify which target resonates with them and why. Take action slide. Instructions and purpose for developing two questions.

Step Four: People and Planet – Understanding Agribusiness & Deforestation: 40 minutes

Purpose: Students will understand the complex relationship between economic prosperity and deforestation, particularly through agribusiness. They will compare and contrast the economic and environmental impacts of agricultural expansion, consider the government's role, and engage in critical discussions on prioritizing economic versus environmental goals.

Slide 4: Embedded video(s), <https://www.youtube.com/watch?v=cOfWyCkcSvg&t=112s>, <https://www.youtube.com/watch?v=SAZAKPUQMwo>. Embedded article, [https://www.greenpeace.org/usa/forests/issues/agribusiness/#:~:text=Some%2080%25%20of%20global%20deforestation,greenhouse%20gas%20\(GHG\)%20emissions](https://www.greenpeace.org/usa/forests/issues/agribusiness/#:~:text=Some%2080%25%20of%20global%20deforestation,greenhouse%20gas%20(GHG)%20emissions).

Instructions for small group activity. Reflection prompts centering the comparison of the economic benefits of agricultural expansion with its environmental impact, the government's role in both deforestation and restoration, and economic prosperity versus environmental protection.

Step Five: Whole Class Discussion – Biodiversity and Human Health: 40 minutes

Purpose: Students will comprehend the interconnectedness of biodiversity and human health, recognizing how biodiversity loss can lead to disease spread and species extinction. They will discuss strategies for mitigating species extinction risks and explore the global community's role in addressing these challenges.

Slide 5: Embedded video(s), <https://www.youtube.com/watch?v=-6o8lrAFiOM>, <https://www.youtube.com/watch?v=VFRzeYck8MI>. Embedded article, <https://news.mongabay.com/2014/07/what-is-peat-swamp-and-why-should-i-care/>.

Reflection prompt for discussing the connection between planetary and human health and how the global community can mitigate species extinction risks.

Step Six: Utilizing Biotechnology to Restore Terrestrial Ecosystems: 20 minutes

Purpose: Students will enhance their knowledge of biotechnology and its role in combating climate change and restoring ecosystems. They will reflect on what they have learned and share insights with peers, developing a nuanced understanding of the benefits and challenges associated with biotechnology and regenerative practices.

Slide 6: Instructions for utilizing the provided KWL Chart. Embedded video(s), https://www.youtube.com/watch?v=wVunbQ_TKpo, <https://www.youtube.com/watch?v=WCllogYNwLo>. Instructions for activity in pairs.

Step Seven: Create A Social Media Campaign: 45 minutes

Purpose: Students will develop skills in research, creativity, and digital communication by designing a social media campaign. They will learn to effectively highlight an organization's initiatives related to "Life on Land" and engage their audience with a compelling call to action.

Slide 7: Instructions and requirements for developing a social media campaign. Overview of the qualities of a good social media campaign. Slide highlighting the various social media platforms. Examples of organizations doing work centering SDG #15. Guide to online tools, such as Canva, that can be helpful in creating posts.

Step Eight: End-of-Lesson Exam: 40 minutes

Purpose: Students will demonstrate their understanding of the lesson's topics through a comprehensive exam based on their own questions. This exam will reflect their collective interests and learning, allowing them to showcase their knowledge and critical thinking skills.

Slide 8: Overview of materials students will need for the exam. Reminder that this exam was inspired/developed by students.

Step Nine: Summative Assessments: Time Will Vary

Purpose: There are different summative assessment options that allow students to demonstrate their learning in an innovative way. Students can choose from one of the project-based assessments identified in the appendix of this document. These projects allow students to further reflect on their understanding of SDG #15: Life on Land and teachers can share this work with other students.

Slide 9: Give an overview of the summative assessment opportunities (*project-based learning*).

Explore Further: Connecting the Local and the Global

The UN Sustainable Development Goals provide a great teaching opportunity to connect the “local” to the “global.” In this context, students can explore local organizations that are working on restoring life on land in Washington State/the Pacific Northwest. In addition, educators can teach about the important role of NGOs or non-profit organizations in addressing local and global issues.

To start, here are some local organizations that work to help restore the world’s terrestrial ecosystems:

- [Washington Forest Protection Association](#)
- [Olympia Coalition for Ecosystems Preservation](#)
- [Forterra](#)
- [Adopt A Stream Foundation](#)
- [Washington State Tree Equity Collaborative](#)
- [Washington Wild](#)

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