



Global Warming Explorer

Teacher's Packet — 8-Lesson Climate Course

A ready-to-teach unit: one objective, one summary and one printable worksheet per lesson, built for roughly one lesson a week over eight weeks (or compress it into fewer, longer sessions).

by Babatunde Ayoola Awoyemi · Techbase Consultant Services
globalwarmingexplorer · [babatundeawo.github.io/globalwarming](https://github.com/babatundeawo/globalwarming)
Generated August 2026

Pacing Guide

The same table as on the site's *For Teachers* page, one row per lesson.

1	The Greenhouse Effect What Is Global Warming?	15 min	Explain, in your own words, why greenhouse gases cause warming.
2	Causes of Global Warming Causes of Global Warming	15 min	List the top human causes of greenhouse gas emissions, in order of scale.
3	Effects: Worldwide and at Home Effects, Worldwide and at Home	18 min	Describe at least three effects of global warming, including one local to Nigeria.
4	Why Should We Care? Why Should We Care?	15 min	Explain the climate justice problem in your own words.
5	Your Carbon Footprint Your Carbon Footprint	15 min	Calculate and interpret your own rough carbon footprint.
6	Reduce, Reuse, Recycle Reduce, Reuse, Recycle	15 min	Apply the three Rs, in priority order, to real examples.
7	Clean Energy Clean Energy	15 min	Compare two renewable energy sources and explain why Nigeria suits solar.
8	Taking Action Action Hub	20 min	Commit to and track real personal or community climate actions.

Lesson 1 · The Greenhouse Effect

15 min

Objective: Explain, in your own words, why greenhouse gases cause warming.

Summary

Sunlight passes through the atmosphere easily and warms the ground. The warmed Earth radiates that energy back out as heat. Some heat escapes to space, but greenhouse gases like CO₂ absorb part of it and send it back down, like a blanket holding body heat in.

CO₂ has risen from about 280 ppm before the Industrial Revolution to roughly 427 ppm in 2025, about a 50% increase. More greenhouse gas means more trapped heat, all the time, everywhere.

Worksheet

1. Fill in the blanks

Greenhouse gases let _____ pass through easily, but trap some of the _____ that radiates back up from the ground.

2. Short answer

Why is the rise from 280 ppm to 427 ppm of CO₂ a big deal, even though it still sounds like a small number?

3. Try the experiment

Do the jar-and-thermometer activity from the *What Is Global Warming?* page. Record both readings:

Open air temperature: _____ Inside the jar: _____

Space for written answers:

Lesson 2 · Causes of Global Warming

15 min

Objective: List the top human causes of greenhouse gas emissions, in order of scale.

Summary

Most human-caused emissions come from burning fossil fuels for electricity, heat and transport.

Industry, agriculture & land use, and waste add the rest, roughly in that order of scale.

It isn't just how much we emit, but how fast: humans have added in a little over a century roughly what natural processes used to take millennia to balance.

Worksheet

1. Rank these from biggest to smallest source of global emissions

(Write 1 to 5 next to each: Waste, Transport, Electricity & heat, Agriculture & land use, Industry)

Electricity & heat _____ Transport _____ Industry _____ Agriculture & land use _____ Waste _____

2. Short answer

Pick one cause above. Describe one realistic way someone in your own community could help reduce it.

Space for written answers:

Lesson 3 · Effects: Worldwide and at Home

18 min

Objective: Describe at least three effects of global warming, including one local to Nigeria.

Summary

Worldwide: rising temperatures (2025 was the third-warmest year on record), melting ice, rising seas, and fiercer storms.

In Nigeria, 2025 brought both extremes: devastating floods (Mokwa, Niger State, among the worst in decades) affecting roughly 15 million people at risk across 30 of 36 states, and, at the same time, severe heat past 40°C in the north that disrupted planting season.

Worksheet

1. Match the effect to its description

Effect	Write the matching letter
Melting Arctic ice	_____
Mokwa flood (2025)	_____
Northern heat stress	_____

A) Temperatures past 40°C disrupted planting season B) Sea ice in 2025 was the second-lowest on record C) Among the worst flash floods the area has seen in decades

2. Short answer

Name one effect of global warming that you or your family have noticed personally, even a small one.

Space for written answers:

Lesson 4 · Why Should We Care?

15 min

Objective: Explain the climate justice problem in your own words.

Summary

Climate change reaches food, water, health, jobs and ecosystems all at once. Africa has historically contributed a small share of global emissions, yet faces some of the heaviest impacts, because so many livelihoods depend directly on stable rainfall, farmland and coastlines. That mismatch is what's often called *climate justice*.

Worksheet

1. Short answer

In your own words, what does "climate justice" mean?

2. Discussion (pairs or small group)

Is it fair that countries who emitted the least are often hit hardest? What, if anything, should change about that?

Space for written answers:

Lesson 5 · Your Carbon Footprint

15 min

Objective: Calculate and interpret your own rough carbon footprint.

Summary

A carbon footprint adds up the greenhouse gases linked to your transport, electricity and food choices into one rough yearly number, usually in tonnes of CO₂-equivalent. The rough global average is about 4.7 tonnes per person per year, transport, flights and generator use usually move the number the most.

Worksheet

1. Use the Carbon Footprint Calculator

My estimated footprint: _____ tonnes CO₂e/year

2. Identify

Which single input (transport, flights, electricity, generator, or diet) moved your number the most when you changed it?

3. Commit

Write one realistic change you could make this month, and re-run the calculator with it.

Space for written answers:

Lesson 6 · Reduce, Reuse, Recycle

15 min

Objective: Apply the three Rs, in priority order, to real examples.

Summary

The three Rs are a priority order, not interchangeable options: reducing what you use beats reusing it, which beats recycling it, which still beats throwing it away. Recycling works because reprocessing used material almost always takes far less energy than starting from raw ore, oil or trees.

Worksheet

1. Sort these into the right column: plastic bottle, school exercise book, banana peel, old phone, glass jar, plastic bag

Reduce Reuse Recycle

2. Short answer

Why does recycling aluminium use so much less energy than making it from raw ore?

Space for written answers:

Lesson 7 · Clean Energy

15 min

Objective: Compare two renewable energy sources and explain why Nigeria suits solar.

Summary

Solar and wind convert sunlight and moving air directly into electricity, with no fuel burned during operation. Renewables reached about 34% of the world's electricity in 2025, up from roughly 23% a decade earlier. Nigeria sits in a sunny belt and already relies heavily on diesel generators, making off-grid solar a particularly direct, practical opportunity.

Worksheet

1. Compare

Solar needs: _____ Wind needs: _____

One advantage solar has for Nigeria specifically: _____

2. Fill in the stat

In 2025, renewables supplied about _____% of the world's electricity.

Space for written answers:

Lesson 8 · Taking Action

20 min

Objective: Commit to and track real personal or community climate actions.

Summary

Understanding the problem is step one; doing something is step two. The Action Hub lists real, tickable actions across school, home, community, and future leadership, most of them free to start today.

Worksheet

1. Choose 3 actions from the Action Hub checklist

Action	When I'll start	How I'll know it worked
--------	-----------------	-------------------------

2. Reflection

After this course, what's the one idea you'll remember a year from now?

Space for written answers:
