

CLIMATE AND EARTH: A JOURNEY THROUGH NATURE

PART 1: WEATHER VS. CLIMATE — WHAT'S THE DIFFERENCE?

Weather = What's happening outside today (like rain, sun, wind).

Climate = The average weather in a place over a long time (30+ years).

Example:

- Today in Madrid: 25°C and sunny (Weather)
- Madrid's usual spring: Warm, little rain (Climate)

Activity: "Weather Reporter for a Day!"

- Choose a country and write a short weather report for today.
- Bonus: Try to guess the climate zone it belongs to!

Vocabulary Boost:

Forecast = A prediction about the weather

Temperature = How hot or cold something is

Precipitation = Rain, snow, sleet, or hail

PART 2: ELEMENTS OF CLIMATE — THE MAGIC MIX

Climate is made up of four major ingredients:

1. Temperature — Changes by day, season, altitude, and latitude.
2. Precipitation — Rain, snow, or hail. Some places get lots (rainforests), others almost none (deserts).
3. Wind — Moves clouds and heat across the Earth.
4. Air Pressure — High or low pressure affects storms and calm weather.

Did You Know? The highest temperature ever recorded was 56.7°C in Death Valley (USA)!

PART 3: WHY CLIMATE CHANGES FROM PLACE TO PLACE

Main Factors:

- Latitude: Close to the Equator = hotter
- Distance to Sea: Near the sea = mild temperatures, more rain
- Altitude: Higher up = colder
- Winds & Currents: Move warm/cold air and water

Game: "Climate Detective"

- Get a map and guess the climate of different cities (like Nairobi, Moscow, Sydney).

PART 4: THE FIVE BIG CLIMATE ZONES

Zone - Temperature - Example Countries - Vegetation

Tropical - Hot, rainy - Brazil, Indonesia - Rainforests

Dry - Very hot, dry - Egypt, Saudi Arabia - Deserts, Cacti

Temperate - 4 seasons - Spain, Italy - Forests, fields

Cold - Short summers - Canada, Russia - Pine forests, tundra

Polar - Freezing - Antarctica, Greenland - Ice, moss

Challenge: Which climate zone do you live in? Why?

PART 5: HOW NATURE SHAPES THE LAND

Water's Superpowers:

1. Rivers carve canyons (like the Grand Canyon).
2. Rain dissolves rocks and creates caves.
3. Waves smash into cliffs, forming beaches and sea arches.
4. Ice breaks rocks when it freezes inside them.

Story Time: The Colorado River took millions of years to carve the Grand Canyon.

PART 6: THE POWER OF WIND

Wind smooths and shapes rocks, moves sand, and creates dunes.

Real-life Example: The Namib Desert has dunes as tall as 300 meters!

Mini Project: Make a mini sand dune with flour and a straw — blow gently and watch the shape change.

PART 7: HUMANS CHANGE THE LANDSCAPE

Humans change landscapes by:

- Cutting forests
- Building cities and roads
- Farming and mining
- Causing wildfires

These cause erosion, pollution, and biodiversity loss.

Classroom Debate: Should we stop building in wild areas to protect nature?

PART 8: GLOBAL WARMING & CLIMATE CHANGE

What's happening?

- Earth is warming (+1.1°C since 1900)
- Glaciers are melting
- Weather is more extreme (floods, heatwaves)

Kilimanjaro's snow might vanish in less than 15 years!

Watch & Learn:

- NASA Climate Kids
- Twister (movie)
- The Perfect Storm (movie)

PART 9: QUIZZES, ACTIVITIES, AND GAMES

Kahoot Quiz Ideas:

- Guess the Climate Zone
- Water, Wind, or Human?
- Weather vs. Climate

Board Game: "Climate Explorer"

- Students collect survival gear for each climate zone

Map Activity:

- Color the 5 climate zones
- Add rivers, mountains, deserts

PART 10: USEFUL LINKS AND RESOURCES

- AEMET: <https://www.aemet.es>
- WMO: <https://www.wmo.int>
- NASA Earth Observatory: <https://earthobservatory.nasa.gov>
- Santillana Projects: <https://santillana.com>

CONCLUSION: WHY THIS MATTERS

Climate and geography shape our homes, food, clothes, and future.

Understanding them helps us:

- Predict storms
- Grow food
- Protect nature
- Take care of Earth 🌍