

CONTENT I SHOULD KNOW

CAUSES:

- **Greenhouse (heat-trapping) gasses:**
 - GHGs include: CO₂ (Carbon Dioxide), CH₄ (Methane), N₂O (Nitrous Oxide), O₃ (Ozone), Water Vapor
 - GHG Concentrations are measured in parts per million = ppm
- **Greenhouse Gas Effect (GHG) - *Earth takes in light, and releases heat with some radiating back creating a warming effect.***
 - Natural GHG effect = good and the reason why Earth is habitable
 - **CONCERN** = Greenhouse gas build-up in Earth's atmosphere as a result of human activities.
- GHGs let in visible light and trap/absorb outgoing heat (infrared) energy
 - How? Light wavelengths are different
 - Most incoming energy = shortwave solar radiation/mostly visible light
 - Most outgoing energy = long wave infrared radiation(IR)/heat
- **The Carbon Cycle**
 - Cycle disrupted → too much CO₂ (and other GHG's) in the atmosphere as a byproduct of fossil fuel combustion. (burning oil, coal and gas to power global society)
 - Major emission sources: Generation of electricity, transportation, agriculture, industry, commercial/residential (< - target these to reduce GHG emissions!)
 - Exponential uptick in atmospheric GHG emissions since Industrial Revolution

Tremendous data and global scientific consensus = More than +97% of global climate scientists agree that it's happening, that it's serious, that it's us, and that we can fix it.

THE BIG PICTURE: Warmer air → more evaporation → more precipitation.

Wet seasons get wetter, dry seasons get drier. **Increased potential for extremes in both directions.**

IMPACTS ON OCEANS & SEA LEVEL RISE

- Oceans absorb ~90% of excess atmospheric heat
- Warming oceans = thermal expansion of water
 - Water molecules expand when heated, so warming oceans = sea level rise.
- Global ice melt, accelerated sea level rise and feedback loops;
 - Land ice= directly contributes to sea level rise
 - Sea ice = indirectly contributes by way of melting and exposing more ocean to heat
- Tidal flooding & king tides amplified
- Saltwater intrusion: fresh water aquifers compromised; desalination pumps costly
- Oceans absorb ~ 25% atmospheric CO₂ annually
- Ocean acidification: water + CO₂ = carbonic acid, disastrous for ocean life and coral growth

IMPACTS ON HUMANITY

- Health: exposure to heat, extreme weather, air pollution and pollution inequity, food and water insecurities
- Damage/loss of biodiversity= ecosystem health + human health are inextricably linked
- Increased frequency of extreme heat/weather events i.e.: intensified hurricanes and wildfires, droughts
- Gentrification, Population displacement and climate refugees
- Economic vulnerabilities
- National security threats

THE BIG PICTURE: Climate Change is a **THREAT MULTIPLIER** that intensifies social inequities.

Because of unjust policies and practices, people who experience oppression because of race, income, gender identity, sexual orientation, disability, age, etc. are *less likely to have access to resources to adapt to our changing climate*. This is why the climate crisis is a justice issue too.

The people who are least responsible for the climate crisis are disproportionately burdened by its negative consequences.

SOLUTIONS:

- Local/regional/national/global planning:
 - Intergovernmental Panel on Climate Change:
 - Global Warming: [IPCC Special Report on 1.5 Degrees of Warming](#)
 - Climate and Land Use: [Special Report on Climate Change and Land](#)
 - Biodiversity: [United Nations Report on Biodiversity](#)
 - National Security: [Dept of Defense Congressional Report on Impacts of Climate Change](#)
 - National Climate Assessments
- Mitigation strategies – **ADDRESS CAUSES OF THE CLIMATE CRISIS**
 - Price on carbon; promote renewable energy
 - [Drawdown Table of Solutions](#)
- Adaptation strategies – **ADDRESS EFFECTS OF THE CLIMATE CRISIS**
 - Living shorelines, elevating infrastructure, etc.
 - [Yale Program on Climate: Why Adaptation Matters](#)
- Renewable energies: wind, solar, geothermal, etc.
 - National Geographic: [Renewable Energy, Explained](#)
 - Shifting the Power
- Electricity, Industry, Transportation, Food, Agriculture, Land Use, Buildings, Carbon Sinks, Education : [Drawdown Solutions](#)
- My superpowers: Voice, Vote & [Wallet](#)
- Support, build with and lend space to BIPOC led organizations.
- Frontline communities must be an integral part of all solutions.

Climate & Credibility

- Verify whether the science is real, the data accurate, and the source legitimate, you research the information sources just as much as the information itself, considering:

- o Is the article from a legitimate news organization?
- o Who is writing and what is the agenda of the organization?
- o Is the source a scientist, public relations office, or business?
- o Are there separate studies that have produced similar results?
- **[Reading Science News & Spotting Misinformation](#)**
- **Fact check : www.SkepticalScience.com**

Climate Action Organizations

Local (FL):

- [The CLEO Institute](#)
- [Miami Climate Alliance](#)
- [Florida Rising](#)
- [Zero Waste Culture](#)
- [Dream Defenders](#)
- [Engage Miami](#)
- [Florida Immigrant Coalition](#)
- [Grove Carbon](#)
- [Food Rescue](#)

National (US)/ Global:

- Climate and the Financial Sector – www.BankTrack.org
- Climate and Cities: www.c40.org
- Climate and Communication : www.Climatecommunication.yale.edu
- Climate and Building Design: www.usgbc.org/
- Debunking News Stories: <https://www.snopes.com/>
- Clean Energy Future for All : www.350.org

Climate Terms to be familiar with:

1. Fossil fuels
2. Greenhouse gas effect
3. Greenhouse gas
 - a. Carbon Dioxide
 - b. Methane
 - c. Nitrous Oxides
 - d. Fluorinated gasses
4. Climate change
5. Climate Crisis
6. Albedo Effect
7. Difference between sea & land ice melting
8. Sea level rise
9. Salt water intrusion
10. Extreme weather
11. Frontline communities
12. Food deserts
13. Food swamps

14. BIPOC
15. Environmental Racism:
16. Environmental Justice
17. Paris Climate Agreement
18. Sustainable Development Goals:
19. Net Zero
20. Drawdown
21. Mitigation
22. Adaptation

CLIMATE ACTION ROADMAP

