



CLIMATE CHANGE 1-PAGE SUMMARY

PARTNER

National Oceanic and Atmospheric
Administration (NOAA)



ISSUE SUMMARY & PROMPT

Scientists have been documenting clear signs of a warming planet: the highest amounts of greenhouse gases in our atmosphere, the highest global surface and sea surface temperatures on record, extremes rain and snow amounts, and rising sea levels. Every city is experiencing unique impacts of climate change. How will your city be affected by climate change?

THEME GOAL

Make a game that teaches citizens how to prepare for our climate future.

QUICK AND EASY ACTIVITY (10-15 minutes)

- Watch a short video: *Climate 101 with Bill Nye* (<https://youtu.be/3v-w8Cyfoq8>)
- Invite class to create a list of ways which we can measure climate change (many are suggested in Bill Nye video). Write a list on a whiteboard/chalkboard for all to view.

FULL SAMPLE LESSON (40-60 minutes)

OBJECTIVES:

- Learn about the EPA and what they do. Why are they considered a “reliable source”?
- Explore greenhouse gases and where emissions come from

MATERIALS:

- EPA’s Facility Level Information on GreenHouse Gases Tool: <http://ghgdata.epa.gov/ghgp/main.do>

ACTIVITIES:

- (10-15 mins) Discussion Brainstorm: Explain that today’s theme is about the impact of greenhouse gases on the climate and invite students to suggest ways their lives will be affected by the earth getting warmer. Compile a list on a whiteboard or shared screen the entire class can view.
- (10 mins) Demo FLIGHT Tool: Explain what the EPA does and explore the EPA’s Facility Level Information on GreenHouse gases [Tool http://ghgdata.epa.gov/ghgp/main.do](http://ghgdata.epa.gov/ghgp/main.do)
- (15 mins) Explore FLIGHT Tool: In pairs, have students explore the FLIGHT Tool and determine the top emissions in their home state and two surrounding states.
- (15 mins) Document: In pairs, have students document each state's top emission for 2015 and write their responses in columns on the whiteboard in this format: *State: Emission: # Metric tons.*
- (15 mins) Discuss Results: As a class, review and discuss results and ask students to think about how these relate to their every-day lives.

- (15 mins) **Explore Ideas:** As a class, discuss how emissions and greenhouse gasses can be addressed in a game. Brainstorm and use the discussion questions below to help students consider game concepts.

DISCUSSION QUESTIONS:

1. Is climate change something that we can reduce or mitigate? How?
2. What are some recent extreme weather events that have happened in your city (or around the world)? How could these have been connected to climate change?
3. Why do you think that some people do not believe in climate change?
4. What are the worst types of emissions that cause climate change? Why?

ADDITIONAL RESOURCES:

NASA: Global Climate Change - An expansive collection of useful resources including links, articles, games and more that offer in-depth looks into the tangible effects climate change has already had on our planet, as well as what's to come if it is not controlled. <http://climate.nasa.gov/resources/education/>

Data.gov - Compiled sets of data that contextualizes climate change by offering quantitative examples of its effect, as well as additional information about preparing for extreme weather events. <https://www.data.gov/climate/>

National Climate Assessment - An in-depth report of the effects climate change had had and will have on different regions. Includes strategies for the future. <http://nca2014.globalchange.gov/>