

DRAWDOWN

ACT UP!

DRAWDOWN SOLUTION #1

Refrigerant Management

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'Drawdown' carbon to reverse global warming

'Act Up' through interactive games and skits to activate top solutions

Learn the science behind the solutions and how to activate these in your daily life

The creation of this curriculum has been funded in part through Inside the Greenhouse project at CU Boulder



Activity: Food, Refrigerator, Refrigerant

Created by: Beth Osnes

Climate solution addressed by activity (from Drawdown): Refrigerants

Approximate amount of time needed for activity: 15 Min

Supplies needed: (optional) 3 signs, 1 that says "Your Town, mid 1940s," 1 that says "Montreal, 1987" and 1 that says "Kigali, Rwanda, 2016"

Number of people needed to lead this activity: 1

Appropriate number of participants: 13-46

Recommended age range: 9-99 years of age

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Brief description overview:

Participants play a game in which they impersonate food, refrigerators, chlorofluorocarbons (CFCs), and then hydrofluorocarbons (HFCS) first with rules preceding the Montreal Protocol, then with rules after the Montreal Protocol, ending by noting our projected new rules that will be adopted in the years to come after the meeting in Kigali, Rwanda to amend the Montreal Protocol.

Instructions for leading this activity:

Set the year—this is after the end of World War II in the mid 1940s when lots of people were purchasing refrigerators and chlorofluorocarbon (or CFCs) were in wide use as the refrigerant in these appliances.

Show everyone the sign “Your Town, mid 1940s.”

Invite participants to make groups of three. In each group, two people face each other and raise their arms so their palms meet to form a refrigerator, the other remaining person gets inside the refrigerator and is the food. One person (who is not in a group of three) is “it.” When the “it” person yells out “food,” all the people who represent food leave their refrigerator and run to a different refrigerator. The person who is “it” tries to get into a refrigerator too. Whomever is left out of a fridge is now “it.” Try this a few times to be sure everyone understands.

Now have the person who is “it” yell out “refrigerator” and have all the people who represent refrigerators run to form a different refrigerator (food stay in place so the people know where to form refrigerators). The refrigerators can and should separate; they don’t need to travel together to form a new refrigerator. Again, the person who is “it” tries to get into a refrigerator so whomever is left out is now “it.” Try this a few times to be sure everyone understands.

Now have the person who is “it” yell out “CFC” and everyone moves and makes new groups of three. People can choose to remain in the same position or change—food can become refrigerators, and refrigerators can become food. Try this a few times to be sure everyone understands. Once each prompt is understood, now have whomever is “it” randomly alternate between calling out “food,” “refrigerator,” and “CFC.”

At some point stop the action and announce we are going to change the game!! **Show everyone the sign “Montreal 1987.”** Invite everybody come to Montreal and announce that the year is 1987. They are all here for the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer. Ask participants **“What does the ozone do?”**

Answer: The ozone layer prevents most harmful UVB wavelengths of ultraviolet light (UV light) from passing through the Earth’s atmosphere.

What harm comes to the Earth when the Ozone layer is depleted?

Answer: These wavelengths cause skin cancer, sunburn, and cataracts, which were projected to increase dramatically as result of thinning ozone and well as harming plants and animals.



For more embodied activities for youth engagement with drawdown solutions
 visit: <https://insidethegreenhouse.org/content/draw-down-act>

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Announce that we are phasing out Chlorofluorocarbons (CFCs) and replacing them with Hydrofluorocarbons (HFCs) because they do not hurt the ozone.

Play the game again, this time yelling out HFC when everyone is to change places. At some point stop the action and announce we are going to change the game again!! **Show everyone the sign “Kigali, Rwanda, 2016.”** HFCs spare the ozone layer, but have 1,000 to 9,000 times greater capacity to warm the atmosphere than carbon dioxide. To respond to this, in October 2016, officials from more than 170 countries met in Kigali, Rwanda, to negotiate a deal to address this problem. Through an amendment to the Montreal Protocol, they decided that they will phase out HFCs—starting with high-income countries in 2019, then some low-income countries in 2024 and others in 2028. Right now, countries around the world are figuring out how they will be a part of this continuing game.

This is a game that has many players and the ending is not yet known.

Discussion Questions:

- What part of a refrigerators has the biggest impact on the environment?
- How has this changed over time?
- What is a creative way that you could share this information?



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