Memory cards

Goal

Facilitate ākonga's learning of scientific vocabulary related to greenhouse gases, while fostering their creativity and curiosity. By engaging in this activity, ākonga will have the possibility to create their own game set and will not only become familiar with scientific terminology but also develop critical thinking skills as they conceptualise matching pairs.

Proposed activity

Materials:

- Cards
- Whiteboard Pens

Instructions:

- Give the ākonga the set of cards.
- Shuffle the cards and place them upside down.
- Ākonga find the matching pairs. [Hint: matching cards have the exact same image].
- After they match all the pairs, ākonga can use the blank cards and whiteboard pens to propose their own matching pairs and play it again.
- At the end of the activity, each rōpū (group) can choose one or two pairs of cards and share their learning with the whole class.
- Kaiako can guide a discussion by asking why and how ākonga proposed the new matching pairs. Always trying to encourage them to have an optimistic view of the future.

Printing instructions:

If you want to print additional cards, we recommend the following printing settings:

- Size: A4
- Full page slides (if asked)
- Colour (suitable for printing B&W)
- Print both sides

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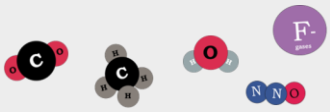
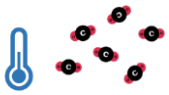
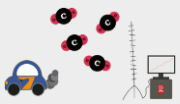
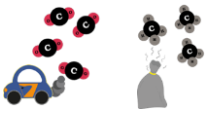
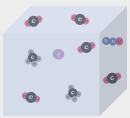
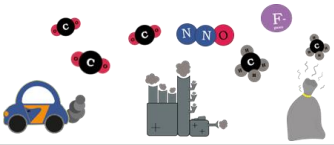
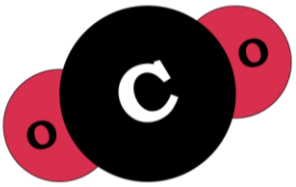
Memory cards - Key for teachers

Image	Pairs	
	I am called	**CARBON DIOXIDE.** I am made of 1 carbon atom and 2 oxygen atoms.
	I am called	**NITROUS OXIDE.** I am made of 2 nitrogen atoms and 1 oxygen atom.
	I am called	**METHANE.** I am made of 1 carbon atom and 4 hydrogen atoms.
	I am called	**WATER.** I am made of 2 hydrogen atoms and 1 oxygen atom. Water vapor is a greenhouse gas!
	I am called	**OZONE.** I am made of 3 oxygen atoms. I protect the Earth against UV radiation (in the stratosphere).
	We are a group of gases called	**FLUORINATED GASES.** We are powerful greenhouse gases, but usually not released as much as other greenhouse gases.
	We are called	**GREENHOUSE GASES,** or GHGs. We absorb radiation and this helps to trap heat in the atmosphere.
	"EVs" stand for	**ELECTRIC VEHICLES.** They emit much fewer greenhouse gases than petrol vehicles.
	One source of greenhouse gases is	**A FOSSIL FUEL VEHICLE.** It releases carbon dioxide and other air pollutants.

Memory cards - Key for teachers

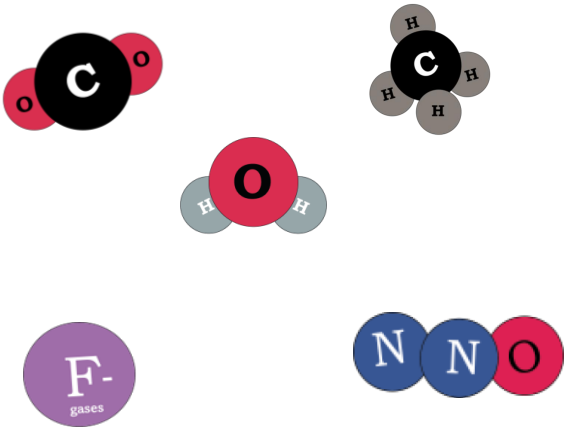
Image	Pairs	
	Plants take in carbon dioxide through	**PHOTOSYNTHESIS** during the day. Both during day and night they also respire, releasing carbon dioxide!
	Things like	**WIND AND TEMPERATURE,** can change how much greenhouse gases are in the air.
	When the wind is calm	molecules can keep close together, temporarily increasing the **atmospheric CONCENTRATION.**
	Low temperatures can	keep molecules close to each other, temporarily increasing the **atmospheric CONCENTRATION.**
	When the wind is strong	molecules are spread out far from each other, temporarily lowering the **atmospheric CONCENTRATION.**
	High air temperature	keep molecules far from each other, temporarily lowering the **atmospheric CONCENTRATION.**
	Scientists use instruments to measure	how much gases, like carbon dioxide and other greenhouse gases, are in the air. This is called the **ATMOSPHERIC CONCENTRATION.**
	Fossil fuel vehicles and landfill release greenhouse gases	**EMISSIONS,** which contribute to global warming.
	Atmospheric CONCENTRATION is	how **CLOSE TOGETHER** or how **SPREAD OUT** molecules (gases) are in the air.
	EMISSIONS are	**THINGS THAT GO INTO THE AIR,** like smoke or gases, often coming from cars, factories, or other sources.



I am called

CARBON DIOXIDE.

I am made of 1 carbon atom and 2 oxygen atoms.



We are called

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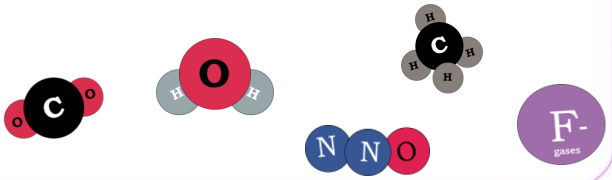

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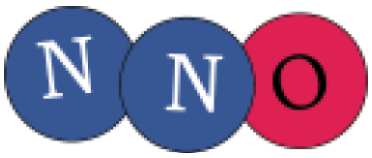
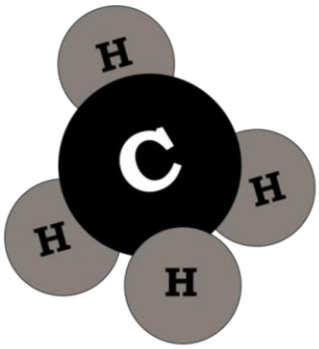


I am called

NITROUS OXIDE.

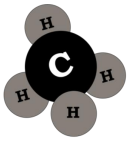
I am made of 2 nitrogen atoms and 1 oxygen atom.



I am called

METHANE.

I am made of 1 carbon atom and 4 hydrogen atoms.



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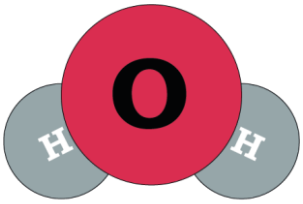
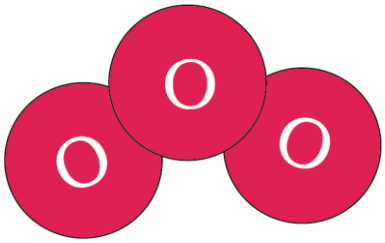


I am called

WATER.

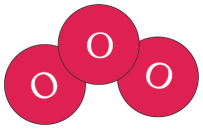
I am made of 2 hydrogen atoms and 1 oxygen atom. Water vapor is a greenhouse gas!



I am called

OZONE.

I am made of 3 oxygen atoms. I protect the Earth against UV radiation (in the stratosphere).



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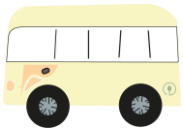
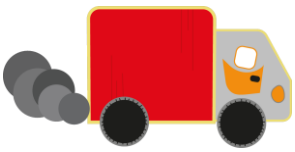


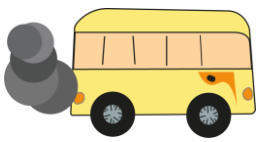

“EVs” stand for

ELECTRIC VEHICLES.

They emit much fewer greenhouse gases than petrol vehicles.





One source of greenhouse gases is

A FOSSIL FUEL VEHICLE.

It releases carbon dioxide and other air pollutants.



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Plants take in carbon dioxide through

PHOTOSYNTHESIS
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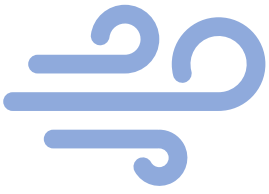

Things like

WIND AND TEMPERATURE,
can change how much greenhouse gases are in the air.

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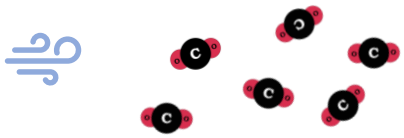
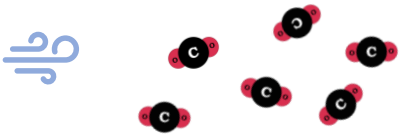
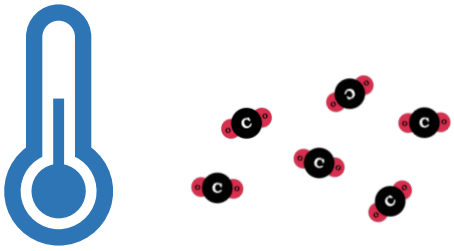
When the wind is calm



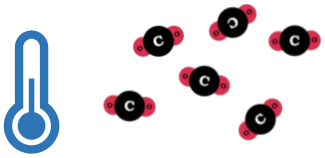
molecules can keep close together, *temporarily increasing* the atmospheric CONCENTRATION.



Low temperatures can



keep molecules close to each other, *temporarily increasing* the atmospheric CONCENTRATION.



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When the wind is strong

molecules are spread out far from each other, *temporarily lowering* the **ATMOSPHERIC CONCENTRATION.**

High air temperature

keep molecules far from each other, *temporarily lowering* the **ATMOSPHERIC CONCENTRATION.**

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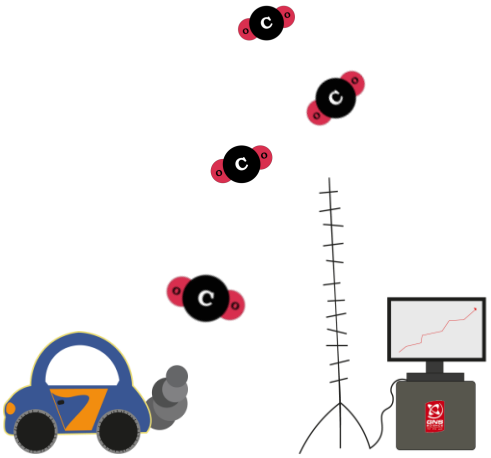

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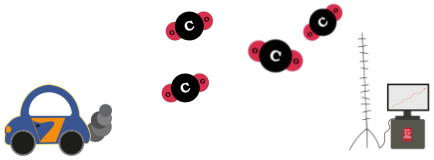
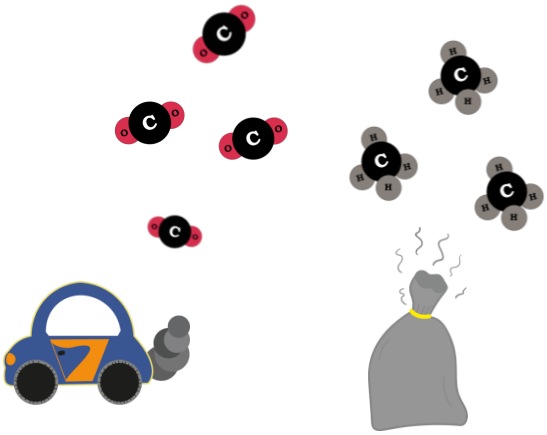
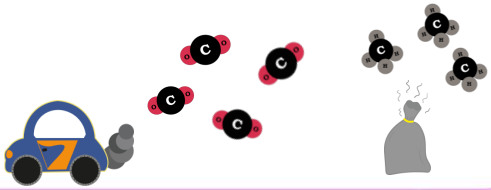




Fossil fuel vehicles and landfill release greenhouse gases

EMISSIONS,

which contribute to global warming.



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F-
gases

We are a group of gases called

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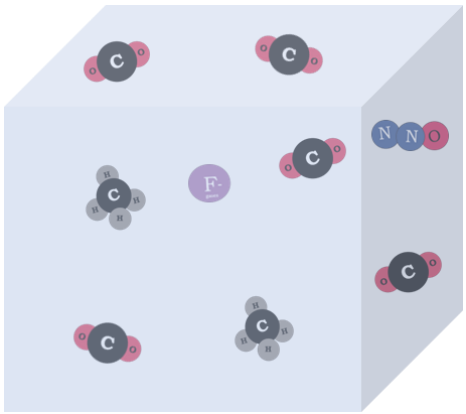
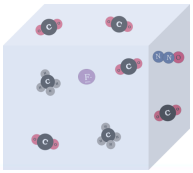
We are powerful greenhouse gases, but usually not released as much as other greenhouse gases.

F-
gases



Atmospheric CONCENTRATION is

how **CLOSE TOGETHER** or how **SPREAD OUT** molecules (gases) are in the air.



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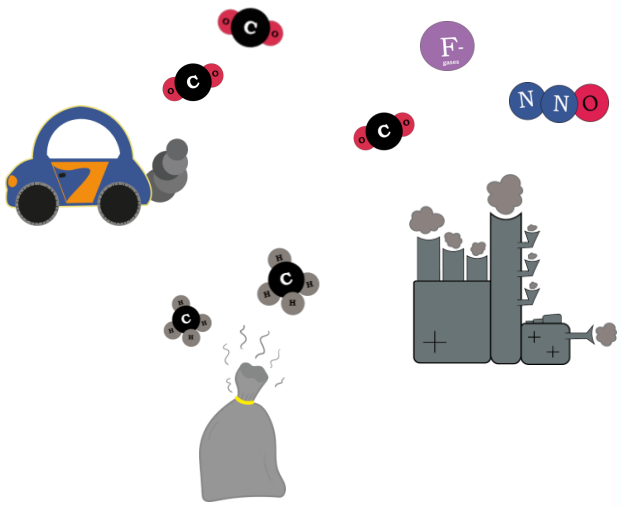

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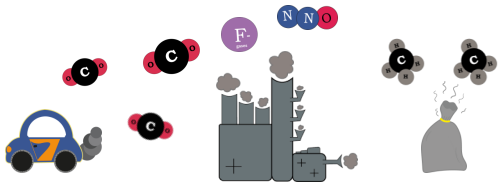

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