

Climate Change inquiry:

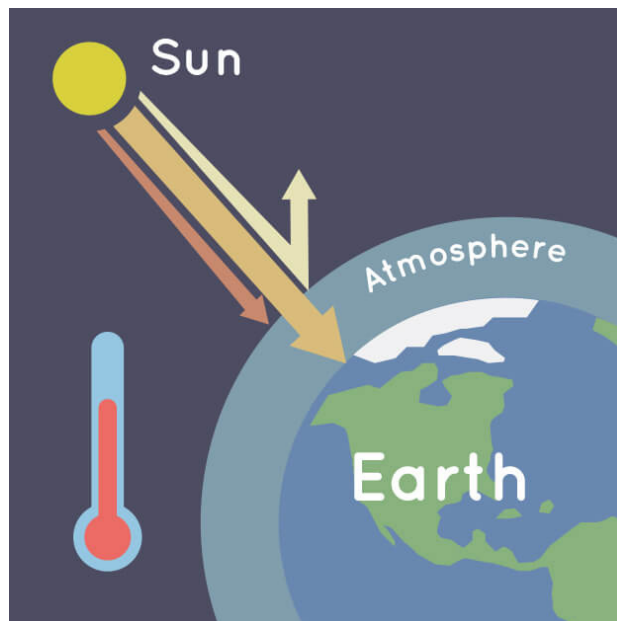


How does the Greenhouse Effect work?

The Earth is surrounded by gases called the **atmosphere**.

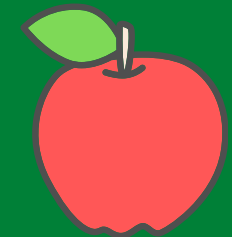
Breath in, and out...

You are breathing the lowermost layer of the atmosphere called the **troposphere**. The clouds and weather occur in the troposphere. The greenhouse effect occurs at the top of the troposphere.



Credit: NASA/JPL-Caltech

We call it the greenhouse effect because just like a glass greenhouse in a garden, sunlight shines in during the day and warms the air and plants inside. At nighttime, when it gets cold outside, it is still relatively warm inside the greenhouse because the Sun's heat has been trapped. It's like when you get into a car that's been sitting in the sun, it's a lot hotter inside!



Climate Change inquiry:

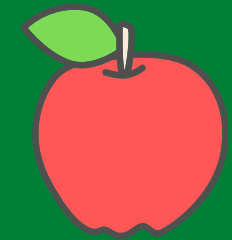


How does the Greenhouse Effect work?

Not all gases in the atmosphere trap heat, the main offenders are carbon and methane. These are also gases that we humans release into the atmosphere, by burning fossil fuels such as coal and oil and burying waste at landfills, among other things. This is why we are seeing the climate change at a faster rate than ever before.



Let's investigate !



Greenhouse effect experiment

In this experiment, you will find out how the Earth's greenhouse effects works

Equipment:

- 2 large glass jars with lids (1 litre is best)
- 2 x thermometers
- 2 x 250mL sized paper cups
- 60mL white vinegar
- 60mL water
- 1 teaspoon of baking powder

Method design:

Remember, to make this a fair test:

Cows

Moo

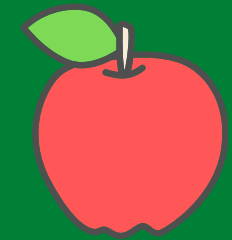
Softly



We **C**hange one thing

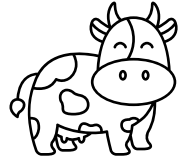
Measure one thing and

Keep everything else the **S**ame



Method design:

Cows/ Change



The one thing we are changing is the:

CO2 level

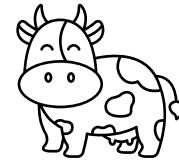
The reaction of the baking powder with the vinegar produces carbon dioxide (CO2)

Moo / Measure

The one thing we are measuring is the:

temperature

of each jar



Softly / Same

We are keeping the:

jar size

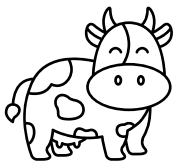
cup size

amount of water and vinegar

thermometers

position and time in the sun and shade

the same



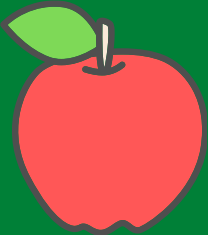
Method:

1. Pour 30mL of water and 30mL of vinegar in each paper cup so they are mixed.
2. Place one cup in each jar
3. Stand one thermometer in each jar
4. Add the baking soda to the cup in one jar and screw the lid on immediately. Label this jar CO₂
5. Screw the lid on the other jar, and label it No CO₂
6. Place both jars in a sunny spot, making sure not to disturb the cup inside.
7. Set a timer for 5 minutes, and record the temperature every 5 minutes for half an hour using the worksheet.
8. Carefully move both jars to a shady spot and set a timer for five minutes, recording the temperature every five minutes for half an hour.

Hypothesis: what do you think will happen?

In one jar we will have a lot of CO₂, and not in the other jar. Using your own knowledge, and the information on page one, write down your hypothesis or prediction of what will happen in each jar as we conduct the experiment. Do you think one jar will heat up faster? Do you think one jar will cool down faster? Write your hypothesis below.

My hypothesis:



Results:

	Time (mins)	Temperature of CO2 jar	Temperature of no CO2 jar
In sun			
In shade			





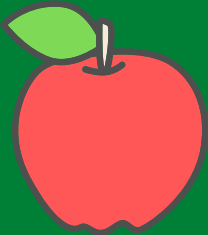
Results:



Did one jar heat up faster than the other? If so, which one?

Did one jar cool down faster than the other? If so, which one?

Did this support your hypothesis? (Was it what you predicted would happen?)

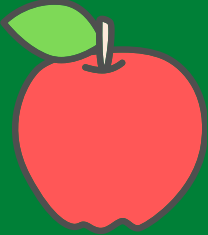




My conclusion:



Explain in your own words the results, and explain why this happened. Remember to start with whether or not the results supported your hypothesis.

A large, empty yellow rounded rectangle with a thick border, intended for the student to write their conclusion.

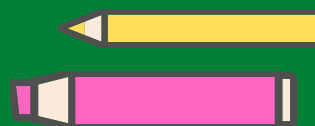
There are things we can all do to help!



Climate change is a problem we all face. As the Earth warms, we see weather patterns change, and events like droughts become longer and more frequent.

There are small steps we can make every day to help. If everyone takes small steps, it makes a big difference!

- **Walk or ride a bike instead of using the car when you can.**
- **Reduce the number of things you buy that you don't need.**
- **Take your own bags to the shops and buy foods with less packaging.**
- **Don't just throw things in the bin when you don't want them, stop and think- would they make a good present for someone else? Is there something you could make out of it, or find a different use?**
- **Recycle, buy things in packaging that can be recycled, and even clothes and toys can be made out of recycled items!**
- **Take shorter showers, use less hot water!**
- **Turn all electrical items off when you don't need them.**





Doing my part!



What are some things you can do to help at home and school? You can write or draw them below.

A large, empty rectangular box with rounded corners and a thick yellow border, intended for students to write or draw their answers.