

## 4.3.21

T: Can I explain how to reduce my carbon footprint?



# Identifying States of Matter

Look at your water bottle.

Which states of matter can you identify in the materials that make up the bottle?



# Identifying States of Matter

Which of these materials and states of matter did you identify?

plastic lid  
solid

plastic bottle  
solid

oxygen  
gas

water  
liquid



# Identifying States of Matter

Let's take a look at a bottle of fizzy drink?



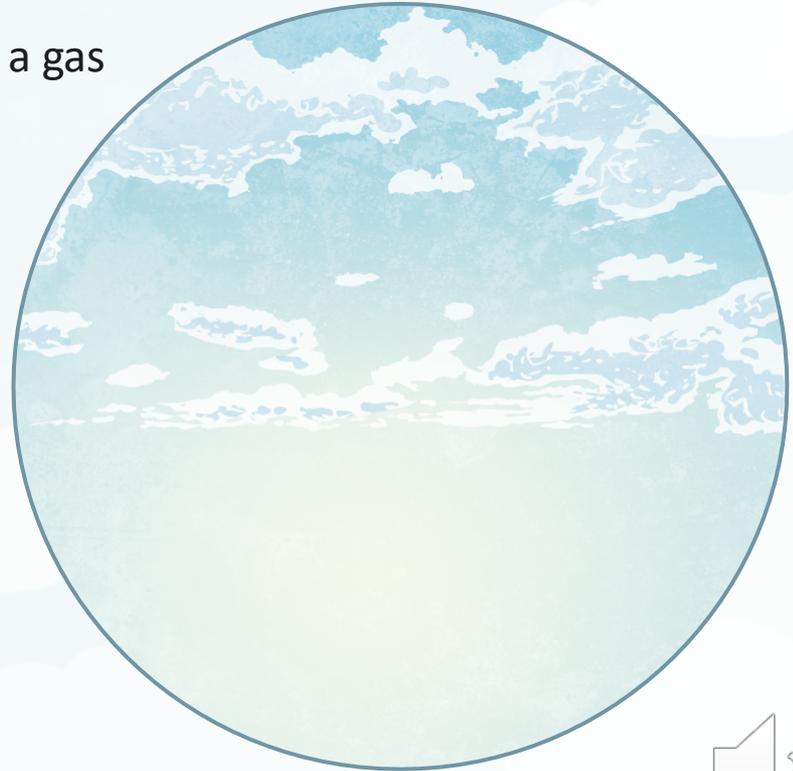
What are the bubbles in a fizzy drink?



# What Are the Bubbles in Fizzy Drinks Made Of?

Bubbles in fizzy drinks are made from a gas called **carbon dioxide**.

Carbon dioxide is a gas that is all around us. It makes up only about 0.04% of the Earth's atmosphere.



# How Are Fizzy Drinks Made?

Fizzy drinks are made by adding carbon dioxide to liquid under huge pressure. The carbon dioxide dissolves in the liquid and settles in the space above the liquid in the bottle or can.

When the container is opened, the pressure decreases and the gas escapes quickly, making a hissing sound. The bubbles appear as the carbon dioxide turns into gas.



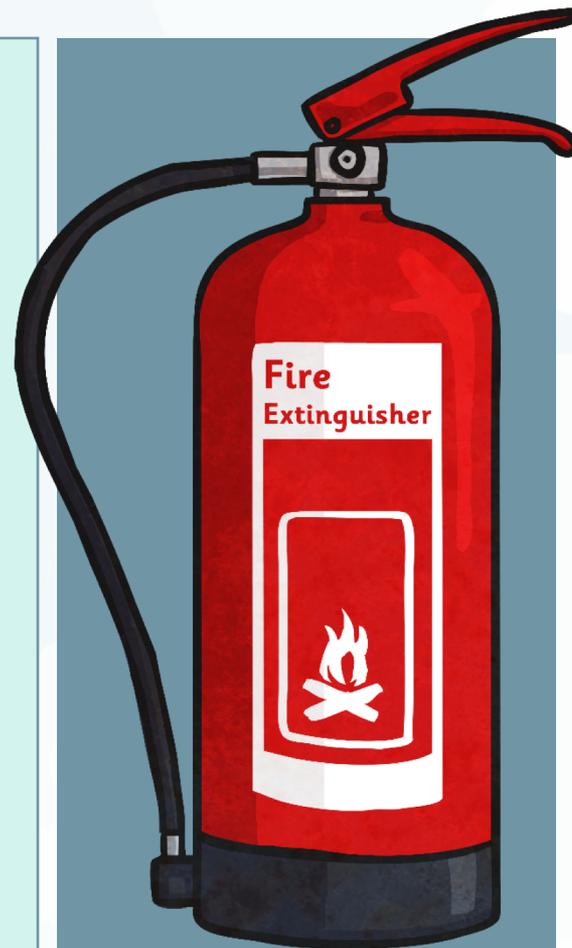
# Bubbles of Gas

Carbon dioxide can be very useful.

Some fire extinguishers use carbon dioxide to cool flames and to stop oxygen getting to the fire.

Carbon dioxide freezes at  $-78^{\circ}\text{C}$ , and it becomes a solid called dry ice. It is used to transport food that needs to be kept cool and fresh, such as on aeroplanes and trains.

And as you have read, carbon dioxide is dissolved in water to create fizzy drinks.



# Carbon dioxide

Although carbon dioxide can be very useful for different reasons, too much carbon dioxide is bad for our planet. This is because the release of carbon dioxide causes our planet to heat up and this is called **global warming**.

- The climate across the world has changed naturally over thousands and millions of years. In the past, the UK has experienced both freezing **ice ages** and warm **tropical** climates.
- Carbon dioxide acts like a **greenhouse**. It lets the sun's rays through to heat up everything inside the atmosphere, but stops the heat from escaping. This is making our planet warm faster than it naturally would and is causing world climates to change.



# How can we help stop climate change?

Helping to stop climate change is also known as **reducing our carbon footprint**.

**View the next slides to see what you do to help.**



## Take public transport!

If more people use buses and trains, they use less fuel per person, meaning less carbon dioxide produced!



## Go for a walk!

You will feel better for the fresh air and get some exercise at the same time.



# Travel

Can you be an active traveller?

How would each of these suggestions reduce your carbon footprint?



## Does your school have bike or scooter racks?

If so, use your own energy to get to school and reduce your **carbon footprint!**



## Do you really need to drive?

If the answer is yes, try car sharing. That way you can still reduce the amount of carbon dioxide you produce.



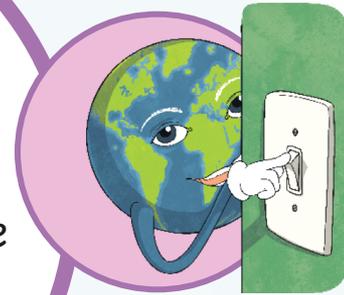
## Unplug!

Leaving appliances on standby continues to use electricity. If you don't need it, switch it off!



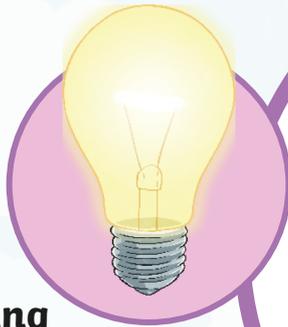
## Switch off!

Switch off lights when you leave a room. A simple way to stop wasting electricity.



# Home

Can you be energy efficient at home?  
How could you change your habits to reduce your **carbon footprint**?



## Energy-saving lightbulbs!

Invest in energy-saving lightbulbs around your house. They last 15 times longer and use 80% less energy than other lightbulbs. That's saving money as well as energy!



## Cool water washing!

Set your dishwasher or washing machine to a cooler setting. 90% of the energy needed goes towards heating the water.



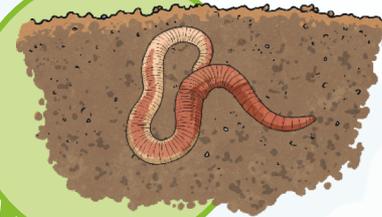
## Reduce!

Reduce the rubbish you create. Do you need all that packaging? Can you use that paper again? Reducing your waste means saving money too. Can you think why?



## Compost!

Even food scraps can be recycled. Compost them instead of throwing away. Create a wormery to see how food waste is broken down.



# Reduce, Reuse, Recycle

If you produce less waste, you can reduce your **carbon footprint**. You can become an eco warrior at home and at school, encouraging people to **Reduce, Reuse and Recycle**.



## Reuse!

Before throwing something away, consider if it can be reused. Plastic bags, paper, cardboard, even clothes can all be reused. You could organise a uniform 'Swap Shop' at school. You could arrange a junk modelling competition with your friends.



## Recycle!

If you can't reuse it, recycle it. Sort your waste to see what can be recycled. Recycling materials uses less energy than creating them.



# Today's Task

Your task today is to answer the questions about what we have learnt today. Once we return to school, we will be able to complete an experiment about gases. If you get stuck, you can always look back through the PowerPoint. **The sentence starters are also available to help you.**



# Today's Task

- What state of matter is carbon dioxide?

Carbon dioxide is a \_\_\_\_\_.

- Why is carbon dioxide useful?

Carbon dioxide is useful because \_\_\_\_\_.

- Why is too much of carbon dioxide bad for the planet?

Too much carbon dioxide is bad for the planet because \_\_\_\_\_.

- How can I reduce my carbon footprint?

I can reduce my carbon footprint by \_\_\_\_\_.



# Challenge

Today we have looked at the gas called carbon dioxide. Are there any other gases you know. Write a list of any gases you know and what they are used for.

