States of Matter: Investigating Gases

Aim:	Success Criteria:	Resources:
To compare and group materials together, according to whether they are solids, liquids or gases by investigating gases and their uses. I can investigate gases and explain their properties.	I can identify solids, liquids and gases. I can explain some uses of gases. I can investigate the weight of a gas.	**Lesson Pack** Plastic bottle of lemonade per group 3-5 different fizzy drinks Digital weighing scales Beakers or plastic cups
	Key/New Words: Gas, carbon dioxide, state, matter, material, weight, mass.	**Preparation:** Differentiated **Comparing Gases Activity Sheet** - 1 per child.

Prior Learning: Children will have learnt about solids, liquids and gases in lesson 1.

Learning Sequence

Whole Class	**Identifying States of Matter:** Place a clear bottle of fizzy drink on each table. Children identify the materials they can see, as well as their states. Explain using the **Lesson Presentation** how all three states can be seen in the fizzy drink bottle.	
Whole Class	**Bubbles of Gas:** Look more closely at the bubbles in the fizzy drink. Children discuss the questions on the **Lesson Presentation**.	
	Bubbles of Gas: Discuss further uses of carbon dioxide using the information on the **Lesson Presentation**.	
	Do Gases Weigh Anything? Show children the concept cartoon on the **Lesson Presentation** and ask them to talk to a partner about which child they agree with and why.	
Whole Class	**Do Gases Weigh Anything?** Discuss the question on the slide. Discuss the answer and ensure that children understand that gases do have a mass and do weigh something.	
	Comparing the Weight of Gases: Explain the context and method of the investigation to the children using the **Lesson Presentation**. Ensure that they understand how to find the weight of the carbon dioxide present in each drink. Children complete predictions and answer the questions on their differentiated **Comparing Gases Activity Sheet**. ★ Children answer the questions by underlining the correct options in the sentences. They may need support to find the difference between the weights for each drink. ★★ Children explain their prediction and use the prompts to answer the questions ★★★ Children consider the reliability of the investigation and answer the questions without prompts.	
	Evaluating: Ask pairs to discuss possible improvements they would make to the investigation. Take feedback on ideas as a class. Ask pairs to talk about any scientific questions they would like to investigate, following on from this investigation.	
Whole Class	**True or False?** Children decide if statements on the **Lesson Presentation** and are true or false.	

Taskit

***Research*it:** Can you find out who invented fizzy drinks? Why not make a fact file about their life and work?

***Explore*it:** Can you make raisins dance?! Add five or six raisins to a glass of fizzy lemonade and watch what they do. The bubbles stick to the rough surface of the raisins, making them float to the top of the glass. The bubbles pop on the surface of the drink, and the raisin sinks back down. This will continue until most of the carbon dioxide in the drink has escaped.

***Answer*it:** How do we use gases every day? Think about the different ways you have used gas today - perhaps in cooking food, heating your house and of course breathing!