

Primary science investigations

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Fire extinguisher



Fire extinguisher

We will be:

Investigating how carbon dioxide gas can be used to extinguish flames.



Learning objectives

Understanding

- I can describe the difference between a reversible and an irreversible reaction.
- I know that chemical reactions produce new materials.
- I understand that when you mix vinegar and bicarbonate of soda, one of the things you make is a gas, carbon dioxide.
- I know that some gases are heavier than others.

Enquiry skills

- I understand what 'variables' are.



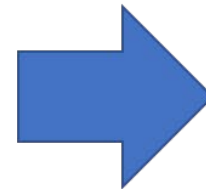
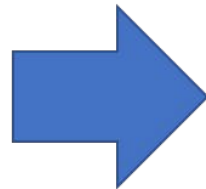
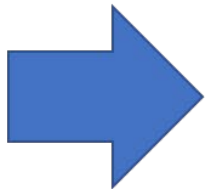
Useful vocabulary

- **Reversible change:** a change where no new materials are created and the original material can be recovered.
Can you think of some examples of these?
- **Irreversible change:** a chemical change where new materials are formed.
Can you think of any examples?
- **Gas:** a state of matter where particles have high energy and large spaces between them. A gas takes the shape of the container it is in and will flow.
- **Variable:** something that is observed or measured in a science experiment.
Can you think of some examples of these?



Method

1. Fill the bowl with tea lights and light them (or ask your teacher to light them).
2. Place bicarbonate of soda and vinegar into a jug. It will react, forming bubbles of carbon dioxide.
3. The carbon dioxide will rest in the jug, above the mixture. Carefully pour the carbon dioxide gas over the candles to extinguish their flames. Make sure you do this slowly, or the mixture will pour out too.



What did you find out?

- How do you know that this is an irreversible reaction?
- How did you know that a gas was produced?
- If you repeated the experiment, what variables could you change and investigate? For example, could the amount of vinegar affect the amount of gas produced?



- How do real fire extinguishers work? Do you have a carbon dioxide extinguisher in your classroom?
- Can you think of any other chemical reactions that produce carbon dioxide?



Evaluation

How do you feel about our **learning objectives** today?

- I can describe the difference between a reversible and an irreversible reaction.
- I know that chemical reactions produce new materials.
- I understand that when you mix vinegar and bicarbonate of soda, one of the things you make is a gas, carbon dioxide.
- I know that some gases are heavier than others.

Can you explain the difference between an irreversible and a reversible change and give examples?

If you feel confident that you can, show your teacher 5 fingers, or show 1 if you feel that you need to chat through the lesson again.





Acknowledgements

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