



Year 6
Challenge!

Fire Extinguisher.

Task:

Use the sheet attached to make your own fire extinguisher. Then select your own type of written work from the list below.

How could you adapt this experiment?

- Use different quantities of vinegar or bicarbonate of soda.
- Time how long it takes for the flame to go out under different conditions.
- What other variables could you change?



**DO NOT
ATTEMPT THIS
WITHOUT AN
ADULT
PRESENT!**

Task Selection

- 1) Write an explanation about why this would be a better way of putting out fires than water?
- 2) Write-up your experiment using the structure you've used before.
- 3) Write a persuasive leaflet to influence people to fit and check smoke alarms.

FIRE EXTINGUISHER

Designed by Liam,
Design engineer at Dyson

The brief

Create your own invisible fire extinguisher.

The method

1. With the help of an adult, light the candle.
2. Mix a little bicarbonate of soda and vinegar together in the jar to make a frothing mixture.
3. Tip the jar over the candle so only the gas from the reaction comes out. Be careful not to tip the mixture out.
4. The flame will be extinguished.

Materials

Matches
(with adult supervision)
Bicarbonate of soda
Vinegar
Candle
A jam jar



Design icons

Dry chemical extinguishers are filled with powder, which is usually sodium bicarbonate or baking soda. When released over the fire, the powder decomposes at 70°C releasing CO_2 , smothering the fire.



How does it work?

The mixture of bicarbonate of soda and vinegar creates carbon dioxide. CO_2 is heavier than air so it sits at the bottom of the glass. When you tip up the glass, the CO_2 comes out and suffocates the candle.