

# INVISIBLE INK



hello

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SCIENCE  
CHALLENGE

22

Designed by Jack,  
Design engineer at Dyson

## The brief

Write your own secret message in an invisible ink solution.

## The method

1. Squeeze lemon juice into the bowl and add a few drops of water. Stir with the spoon.
2. Dip the paint brush into the juice mixture and write a message on the paper.
3. Allow the paper to dry completely. Your message should become invisible.
4. Hold the paper very close to the light bulb to heat up the message area (adult supervision required). Watch your message appear.

## Materials

- .....  
A lemon
- .....  
A bowl
- .....  
Water
- .....  
A spoon
- .....  
A paint brush
- .....  
A lamp, or other light bulb



## How does it work?

The lemon juice is an organic substance which reacts with oxygen in the surrounding air, oxidises and turns brown. By placing the paper right next to the lamp we speed up the oxidation process. The heat from the lamp causes the chemical bonds to break down.

## Did you know?

Oxidation affects lots of different surfaces, from metal to living tissue. A freshly-cut apple that turns brown, a bicycle that becomes rusty or a copper penny that turns green. Not all oxidation is bad – but think about choosing the right materials when designing a product for a particular use.

