

Activity Description

This is a cut-and-stick activity aimed at aged 9 – 13 pupils (but perhaps younger if suitable).

It consists of:

- Cut and stick cards for different types of hydrogen which pupils can match together with their production method photos and aims
- A follow-up information sheet which explains the answers

Hydrogen Type

Blue Hydrogen

Grey Hydrogen

Brown Hydrogen

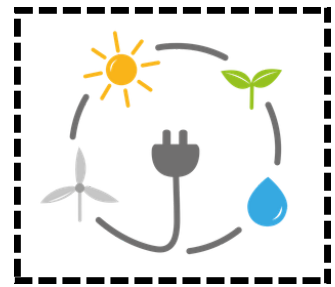
Green Hydrogen

Black Hydrogen

Yellow Hydrogen

Pink/Purple/Red Hydrogen

How is it Produced? - Photo



How is it Produced? - Name

Black Coal

Natural Gas

Solar Energy

Brown Coal
(Lignite)

Nuclear Energy

Natural Gas

Renewable Energy

Answers and Further Information

Colour	Production method	Production	Carbon Footprint
Green	Electrolysis of Water	Renewable Energy	Minimal
Pink/Purple/Red		Red Nuclear Energy	
'Yellow'		Mixed Renewable and non-renewable	Medium
Blue	Natural Gas Reforming & Carbon Capture & Storage (CCS)	Natural gas	Low
Grey	Natural Gas Reforming and releasing CO ₂		Medium/high
Brown	Gasification (reacting with steam and CO ₂)	Brown coal (lignite)	High
Black		Black coal	

What did we Learn?

- Whilst it's important to understand the colours and the production method that each colour corresponds to, it's always vital to relate this to the real world.
- The transition to net-zero and more sustainable energy sources means the production of some colours of hydrogen are more desirable than others:
 - Green and yellow hydrogen are produced using renewable energy (solar energy specifically for yellow hydrogen).
 - Pink/purple/red hydrogen is produced using nuclear energy, which is low carbon (so helps with achieving net-zero), but is not sustainable since it's a non-renewable resource.
- Some energy sources are not desirable because they produce hydrogen that is not sustainable and carbon intensive, such as grey, brown and black hydrogen.