



Prize Winner

Science Writing Year 3-4

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Green Hydrogen

What is Green Hydrogen and how can it help with climate change?

What is Hydrogen?

Hydrogen is “a chemical element that is the simplest and lightest of all chemical elements and is normally found alone as a colourless, odourless, highly flammable gas having two atoms per molecule”

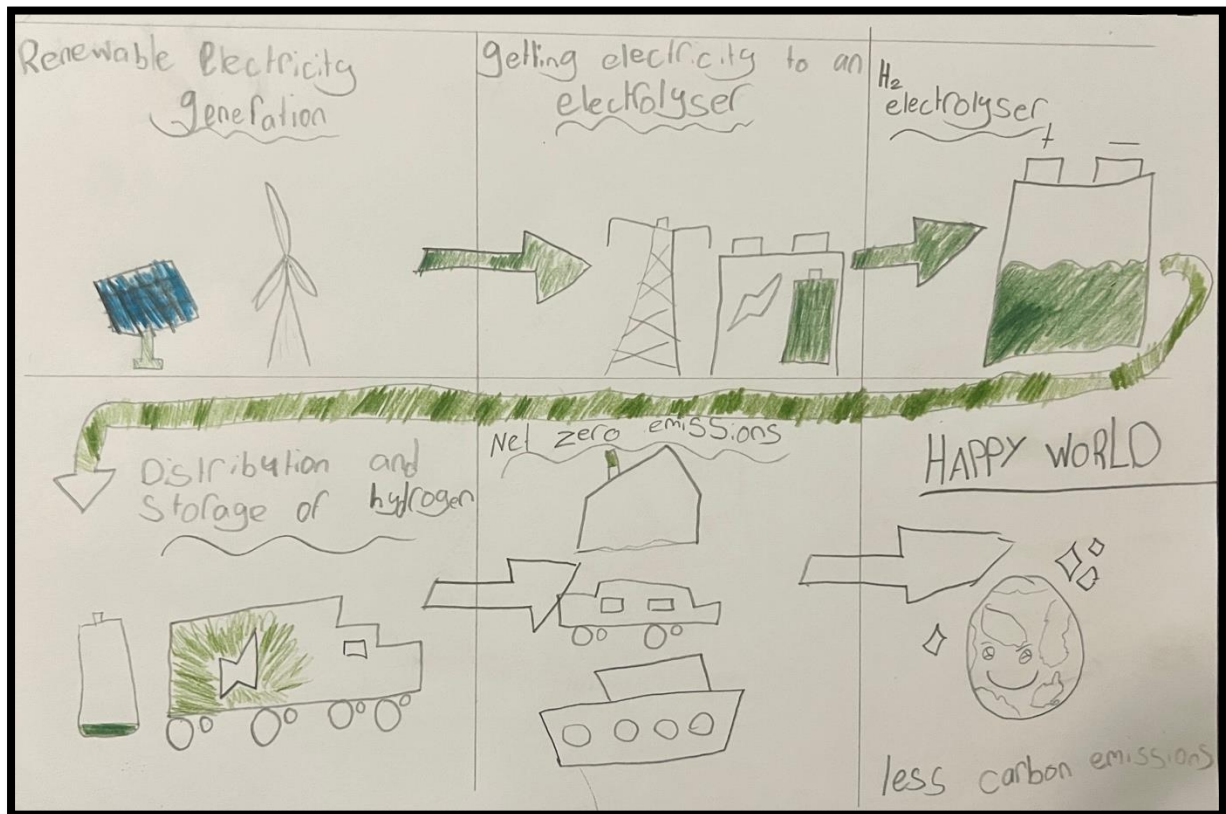
<https://www.merriam-webster.com/dictionary/hydrogen>

What is Green Hydrogen?

“Green Hydrogen is defined as Hydrogen produced by splitting water into Hydrogen and Oxygen using renewable electricity”

<https://www.Weforum.org>

There are lots of ways to produce Hydrogen but by producing Hydrogen in this way, we don't add any greenhouse gases to the atmosphere.



This is a picture I drew of how Green Hydrogen is made, stored and used. It shows that by using electricity made by the sun and the wind, we can separate Hydrogen (H₂) from Oxygen (O₂) create something that we can use as fuel.

What is climate change?

“Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun’s activity or large volcanic eruptions. But since the 1800’s human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas.”

<https://www.un.org>

Lots of scientists believe that if we don’t stop burning coal, oil and gas, the environment will be damaged and lots of species of plants and animals will become extinct. We need to be making energy so that we can keep doing all the things we do now like driving cars, making electricity and keeping our houses warm. We need to find a way to do these things without hurting the environment

How can Green Hydrogen help in creating less greenhouse gases?

Green Hydrogen does not use any fossil fuels to make it. It’s made by using electricity produced by things like solar panels, wind turbines and hydroelectric generators. If scientists can make Hydrogen easy to use, we will not need to rely on burning fossil fuels.

Once we stop burning fossil fuels, we will slow down the effects of climate change and will hopefully be able to save our environment from extinction.

What are the benefits of using Hydrogen as fuel?

Using Green Hydrogen doesn't produce any greenhouse gases

hydrogen is pretty easy to store. This means that we can make lots of it when we have the opportunity and use it when we need it.

Hydrogen can be used for lots of different things because it can be transformed into electricity

[Http://www.iberdrola.com](http://www.iberdrola.com)

What are the barriers to using Hydrogen as fuel?

Generating energy from Hydrogen uses lots of energy

“The production of Hydrogen requires more energy than other fuels.”

[Http://www.iberdrola.com](http://www.iberdrola.com)

First, we have to create the electricity to power the electrolyser to separate the Hydrogen from the Oxygen in water. When we do this using solar power, it only works when the sun is shining. When we do it using wind power, it only works when it's windy. It's really hard to make enough renewable energy to produce the amount of Hydrogen that we need.

Hydrogen can be dangerous

Hydrogen has no colour or smell, and it is highly flammable. This makes it dangerous if it's not stored properly or is exposed to flames. In 1937 the LZ 129 Hindenburg (a hydrogen filled airship) caught fire and crashed. 35 people died. If we are going to use hydrogen to generate energy, we need to make it safe.

We would need to spend lots of time and money on infrastructure

Infrastructure is the systems we need to do a thing. For example, if we want to drive petrol powered cars, we need to make sure that there are lots of petrol stations around the place. If we wanted to use Hydrogen instead of petrol we would need hydrogen stations and completely different types of engines. This all costs a lot of money and might take more time than we have available.

Conclusion

Green Hydrogen is a really exciting source of energy for the future. Lots of people think that one day Green Hydrogen will be used to power lots of the World's machines.

Although Green Hydrogen doesn't cause any harm to the atmosphere, there is a chance that if we don't treat it with care, it may cause harm to people. It's also going to be quite

tricky for the world to adapt to using Hydrogen instead of fossil fuels because we will need to change all of our systems to cope with the new fuel source.

Green hydrogen is made using renewable energy sources but at the moment solar panels and wind turbines are made using lots of fossil fuels so it may not be as green as we think it is.

Using green Hydrogen, sounds like a great way to use less fossil fuels, but there is lots of evidence that tells us that Green Hydrogen might not be the as easy to make as we'd like it to be and that we are going to need to rely on lots of different sources of energy if we are going to solve the problem of climate change. I think that Green Hydrogen could definitely be part of the solution but I think we will need to keep our thinking caps on for new and better ideas too.

References

<https://www.merriam-webster.com/dictionary/hydrogen>

<https://www.Weforum.org>

<https://www.un.org>

<Http://www.iberdrola.com>

I also interviewed my uncle Nige who is a chemical engineer at GMA and Mark Sales who is an engineer at Beach Petroleum

Word Count – 879

