**6th Grade Literacy Fusion Activity: “An 'Artificial Leaf' That Could Be The Source Of Cheap Green Energy”**

Green leaves are amongst the cheapest and most efficient creators of energy. In the presence of sunlight they are able to transform carbon dioxide and water into glucose - A process we call photosynthesis. While it sounds simple, trying to imitate this has been one of the holy grails for science for decades - Now, there may finally be a breakthrough.

The 'artificial leaf' developed by a team of researchers led by MIT professor Daniel Nocera, is actually an advanced solar cell that resembles a thin poker card, more than a green leaf. When placed in a pool of water, it uses sunlight to split water into hydrogen and oxygen molecules, which can then be stored in a fuel cell, for use to produce electricity.

While this has been done in the past, Mr. Nocera's technology is being declared a breakthrough for a number of reasons. For one, the materials he is using are inexpensive, and ones that can be readily found almost anywhere. Also, unlike the previous 'artificial leaves', which lasted for less than a day, this specimen was able to function non-stop for about 45 days. Not only that, it is ten times more efficient at splitting water into its components than a normal leaf and Mr. Nocera is working on increasing the efficiency even further. And, it works even in polluted puddles of water, which is important if it is going to be of any practical use, in third-world countries.

While Mr. Nocera still needs to figure out how to create a cheap and practical fuel cell that can capture the hydrogen and oxygen and store them for future use, experts are hailing his technology as the first real breakthrough in imitating the humble leaf, in a cost-effective way.

To help commercialize the idea, Mr. Nocera's company has signed a contract with the Tata Group, an Indian conglomerate, who plans to use the technology in a small power plant, that is scheduled for construction in the next year and a half.

If successful, Mr. Nocera believes that this 'artificial leaf' will be a giant step forward in powering homes not only in rural Asia and Africa, but also, the rest of the world. That's because according to the scientist, his technology is so efficient, that it will take just a swimming pool full of water to generate the 16 Terawatts of energy, he estimates will be needed by the entire world by the year 2050. Now that's what we call cheap, green energy!

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