ENERGY STORAGE WITH DR JENNY PRINGLE

TALKING POINTS

1) What is one challenge facing the transport industry? (See *Introduction* to the article)

2) What are electrochemical devices? (See *What are electrochemical devices and electrolytes?*)

3) And what is an electrolyte? (See *What are electrochemical devices and electrolytes?*)

4) How does a basic battery work? (See *What are electrochemical devices and electrolytes?*)

5) What is currently the most commonly used technology in rechargeable batteries? (See *What are electrochemical devices and electrolytes?*)

6) Why does Jenny's laboratory want to move away from lithium-ion batteries? (See *How will batteries need to improve to help achieve this goal?*)

7) Why is energy storage such an important area of research? (See *What is the goal of Jenny's research?*)

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

HAVE A GO AT MAKING A BATTERY!

Did you know that batteries can be made from fruit such as lemons and common household materials like coins, wires and aluminium foil? You can buy kits that include low-voltage devices such as digital clocks that you can power using your battery, or make your own from scratch. Science Buddies shows you how:

https://www.scientificamerican.com/article/generate-electricity-with-a-lemon-battery/

TAKE YOUR BATTERY TO THE NEXT LEVEL

If you have access to voltmeters, ammeters or multimeters (ask your science teacher) you can conduct an experiment to see how big a voltage or current you can generate.

Here are some of the parameters you could change:

The electrolyte

Try using different types of fruit and vegetables to create your battery, or fruit juice or salty water. (Safety note: whilst fruits and vegetables are perfectly safe to use, other chemicals around the house or in the school science laboratory might not be – check with your science teacher, first!)

The electrodes

Try using different metals such as coins or nails. If you are doing this activity at school, speak to your science teacher about whether they have different metals you could try.

Different ways of wiring up a battery

What happens if you make several individual batteries (called cells) and wire them together? Is it possible to use the same piece of fruit to make several cells? What happens to the voltage or current if you wire them in series? What happens if you wire them *in parallel*?

MORE ONLINE RESOURCES

SciShow is a great YouTube channel full of fun experiments and the scientific explanations behind them. This video shows you how to make a lemon battery and explains the chemistry behind what is happening:
https://www.youtube.com/watch?v=GhbuhT1GDpI