Electrocuting Granny

|  |  |
| --- | --- |
| **Topic:** Electricity and Circuits |  |
| **Curricular Link(s):** Electricity* Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers

Working Scientifically * Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat reading when appropriate.
 | **Learning Objective(s):** ALL – To be able to draw a simple circuit using the correct scientific symbols. To be able to follow a simple procedure to test voltage and record results.MOST – To be able to follow a simple procedure to generate results and record them appropriately.SOME – To be able to generate a scientific hypothesis using key terminology (i.e., the more acidic the fruit, the higher the voltage).  |
| **Risk Assessment:** Piercing skin of fruit or vegetable may be difficult – provide a demonstration and support students with this. Ensure that students understand the fruit and vegetables are not for human consumption.  | **Essential Question(s):** What is electricity and why is a battery needed in a circuit? Which fruit or vegetable generates the most voltage?  |
| **Equipment Required:** * Fruit and vegetables (e**.g., 1 orange, 1 lemon, 1 lime, 1 grapefruit, 1 potatoes, 1 courgette, 1 carrot, 1 apple)**
* **Voltmeters**
* **Black and red leads**
* Copper strips
* Steel strips
* 2p coins
* Steel nails
* Crocodile clips
 | **Resources Needed:** * Electrocuting Granny powerpoint
* Electrocuting Granny investigation worksheet for predictions, observations, and diagram
 |
| **Lesson Procedure:** * Introduce relevant book extract using powerpoint

“It was exactly as though someone had pushed an electric wire through the underneath of her chair and switched on the current.”* Elicit discussion on what is actually happening in a circuit using slides 4-6
* Use animated slides 7-12 to explain terms voltage and current

INDIVIDUAL WORK * Students complete a drawing of simple circuit to check on their understanding

GROUP WORK * Introduce practical
	+ Insert coin and steel nail into fruit/vegetable and connect to voltmeter using wires
	+ Students record voltage obtained on their worksheet
	+ Students should record observations on their worksheets
	+ Encourage close observation of metals to see if they have changed in any way

INDIVIDUAL WORK * Students write an explanation of how a piece of fruit can be used to try and electrocute Granny
* Provide students with key words: voltage and current
* (Challenge) On worksheet: Which fruit/vegetable produced the highest voltage? Why do you think this is the case?
 |