Physics Induction Task:
Resistance of a Wire

Key Skills:

- Research and referencing
- Justification of equipment and method to obtain valid and accurate conclusions
- Assessing risks and suggesting precautions
- Demonstrate how scientist's use experiments to develop and test their ideas (How Science Works)

Your Task:	A filament light bulb is a device that uses the principles of resistance to convert electrical energy to thermal energy to light energy. The way this happens is simply from a flow of electrons in a piece of wire, which is the filament, colliding with ions. The physical properties of the filament affect its resistance. Your first required practical will be to investigate how one of the physical properties of a wire, its length affects, the resistance. You will plan an investigation to see this and calculate the resistivity of the wire.
Success Criteria:	1. Give an introduction to electricity by explaining what Current, Resistance and Voltage and resistivity are. Explain how a filament light bulb works 2. For a given wire discuss all the factors that affect its resistance 3. For the above investigation state independent, dependent and control variables 4. A testable hypothesis – how do you expect your independent variable to affect your dependent variable and why? 5. A list of equipment needed – with detail and justification (use words like 'resolution' and 'accurate'). Produce a circuit diagram. 6. A step-by-step method, including justification of what is being done (use words like 'accurate' "precise" and 'repeatable') 7. A risk assessment for your chosen method 8. How to calculate the resistivity from your raw data
Your Starting Point:	Your work should be able to be understood by a scientifically literate A-level student and therefore of A-Level detail. It should not exceed 2 pages (4 sides) of A4 in length including any diagrams or figures and must be submitted on paper. Consult A-level text books to consolidate the basics Some websites to get you started: http://hyperphysics.phy-astr.gsu.edu/hbase/electric/resis.html
How you will be Assessed:	**Grade A -** Most/All (7-8) success criteria met fully in appropriate detail as explained above **Grade C –** Some (4-6) criteria points met in appropriate detail or all criteria met but lacking detail in some areas **Grade E -** Few (1-3) criteria points met in appropriate detail or more met but lacking detail **Please note:** ***Do not copy and paste work without fully referencing it. Plagiarised work will not be assessed***