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| **Prac9**  **Physics Practical** | | |
|  | P:\Drayton Logo\Drayton Manor logo filled 2014.JPG**Y13 Core Practical**  **Capacitance** | |
| Skills Assessed   |  |  |  | | --- | --- | --- | | 1. Follows written procedures | a. Correctly follows instructions to carry out experimental techniques or procedures. |  | | 2. Applies investigative approaches and methods when using instruments and equipment | b. Carries out techniques or procedures methodically, in sequence and in combination, identifying practical issues and making adjustments when necessary. |  | | c. Identifies and controls significant quantitative variables where applicable, and plans approaches to take account of variables that cannot readily be controlled. |  | | d. Selects appropriate equipment and measurement strategies in order to ensure suitably accurate results. |  | | 4. Makes and records observations | a. Makes accurate observations relevant to the experimental or investigative procedure. |  | | b. Obtains accurate, precise and sufficient data for experimental and investigative procedures and records this methodically using appropriate units and conventions. |  | | 5. Researches, references and reports | a. Uses appropriate software and/or tools to process data, carry out research and report findings. |  | | b. Cites sources of information demonstrating that research has taken place, supporting planning and conclusions |  | | | Met? |

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| Introduction | |
| In this investigation you will collect data of charging and discharging capacitors, analysing your data to a determine of the time constant, RC, using techniques including log-linear plotting | |
| Equipment   * Battery pack * Low voltage variable DC supply * Ammeter * Voltmeter * Crocodile clips * Connecting leads * Variable Resistor * Rheostat * Resistor (range 10kΩ to 100kΩ) * Capacitor (1000µF, 2200µF, 4700µF) * stopwatch | Method  You need to plan a method, to include suitable apparatus, that will provide sufficient, valid data, from a charging and a discharging circuit, to find a value for the time constant of an RC circuit. Your analysis should include the plotting of your collected data on a **log-linear graph.** |
| Relevant equation:  V = V0 e-t/RC  I = I0 e-t/RC Q = Q0 e-t/RC  Q = It  t = RC | |