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| **Prac9****Physics Practical** |
|  | P:\Drayton Logo\Drayton Manor logo filled 2014.JPG**Y13 Core Practical****Capacitance**  |
| Skills Assessed

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| 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 |  |
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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
 | MethodYou 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/RCQ = Itt = RC |