Summer Tasks July 2023 (YEAR 12 – 13)

SUBJECT: **PHYSICS Task B**

Summer Task Title / Instructions:

Practical Skills in written examinations.

The work you have completed for the Practical Endorsement has been excellent preparation for your public exams in Year 13. It has been clear from the A2 public exams, practice and specimen papers that the practical activities completed form a significant part of all three papers, especially paper 3. Questions have focussed on the following key areas: -

- **Planning** – Can you describe practical activity including Identification of equipment – you will be expected to be able to draw the equipment if appropriate.
- **Variables** – Independent, dependent, control – identify.
- **Risk Assess** – Identify both the generic and specific dangers in each experiment. Be able to propose ways to minimise the dangers and outline any action required in the event of an accident. You are recommended to use CLEAPPS, and other online resources, to research and reference your risk assessment.
- **Analysis** – Link between scientific understanding and anticipated results.
- **Processing** – Can you draw graph and appreciate what intercept and gradient represent (if appropriate), do you know what to do with the data in terms of calculations required?
- **Evaluation** – What are the limitations of your experiment? How do you minimise uncertainty and errors e.g. improve quality of data? How could you improve your experiment? Can you constructively criticise a proposed method/diagram in order to improve or make safe the procedure?

Please choose ten PAGs from those listed below and produce a document for each that addresses all areas above.

Your classroom teacher will show you some exemplar material in advance of the summer holidays. The expectation is that you produce a minimum A4 or A3 document for each PAG.

1.1 Comparing methods of determining g
1.2 Investigating terminal velocity
2.1 Determining the Young Modulus for a metal
2.2 Force/extension characteristics for arrangements of springs
2.3 Investigating a property of plastic
3.1 Determining the resistivity of a metal
3.3 Determining the internal resistance
4.3 Investigating potential divider circuits including a non-ohmic device
5.1 Determining Wavelength using a diffraction grating.
5.2 Determining the speed of sound in air using a resonance tube
5.3 Determining frequency and amplitude of a wave using an oscilloscope
6.1 Determining the Planck constant
6.2 Experiments with light

Additional Guidance:

All of these practical activities are described fully or referenced in your course textbook.

All student sheets used in class will be uploaded to the Google Classroom in advance of the summer holiday.

Please look on-line as bulk of practical activities have supporting videos. Good supporting resources are available below: -

- www.physicsandmathstutor.com/physics-revision/a-level-ocr-a/module-1/
- www.alevelphysicsonline.com
- www.youtube.com/channel/UCDWYbhR94ZYFUXd4NJvAHYQ
- www.youtube.com/channel/UClVaddFslWk1TFoKNrvh99Q
- www.iop.org
- www.stem.org.uk
- isaacphysics.org

Tasks should be submitted on the Google Classroom by the first lesson in September.