St Paul's Catholic School and Sixth Form

Transition Work for Sixth Form

"Let your light shine before others." – Matthew 5:16

Sixth Form, the St Paul's way — with Christ at the heart of it all.

AQA Physics at St Paul's Catholic School and Sixth Form

The purpose of completing the task below....

After completing the task, you teacher will be able to....

Due date: Monday 1st September 2025

Task 1	Task 1 will include: **Researching information about two physicists.**
Task 2	In Task 2 you are expected to: **Match scientific practical terminology with definitions.**
Task 3	Finally in Task 3, **Practice at re-arranging algebra**

Specification: AQA A Level Physics- course 7408

Links to websites:

https://filestore.aqa.org.uk/resources/physics/specifications/AQA-7407-7408-SP-2015.PDF

Course Teachers email: sclarkson@st-pauls.leicester.sch.uk
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Task 1

Task 1 will include

Researching about 4 Significant Physicists

Present your research on A4 Posters or Power point slides.

You should present information about a key physicist of your choice. Include:

- Name date of Birth – death and photo if possible.
- Share their ideas, research
- Explain the key contribution(s) they have made to science
- Why you have chosen them
- Give clear web addresses, book references (and page no.), you have used in your research

You will present your research to the class in September.

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Task 2

In Task 2 you are expected to

Link Practical Terminology to its meaning.

Using the link to the specification above to help you research the meaning of the key terminology terms, and correctly match the term to its meaning.

Present your answer in a word processed document.

1. Accuracy	A These cause readings to be spread about the true value, due to results varying in an unpredictable way from one measurement to the next. These errors are present when any measurement is made, and cannot be corrected. The effect of these errors can be reduced by making more measurements and calculating a new mean.
2. Anomalies	B These can have values (called a quantity) that can be given a magnitude either by counting (as in the case of the number of shrimp) or by measurement (eg light intensity, flow rate etc).
3. Calibration	C A measurement is this if the investigation is repeated by another person, or by using different equipment or techniques, and the same results are obtained.
4. Measurement Error	D A measurement result is considered accurate if it is judged to be close to the true value.
5. Random Error	E Suitability of the investigative procedure to answer the question being asked. For example, an investigation to find out if the rate of a chemical reaction depended upon the concentration of one of the reactants would not be this type of procedure if the temperature of the reactants was not controlled.
6. Systematic Error	F This is the smallest change in the quantity being measured (input) of a measuring instrument that gives a perceptible change in the reading
7. Zero Error	G These measurements are ones in which there is very little spread about the mean value. It depends only on the extent of random errors – it gives no indication of how close results are to the true value.

8. Interval	.H This is one which may, in addition to the independent variable, affect the outcome of the investigation and therefore has to be kept constant or at least monitored.
9. Precision	I Any indication that a measuring system gives a false reading when the true value of a measured quantity is nothing, eg the needle on an ammeter failing to return to 0 when no current flows. This error may result in a systematic uncertainty.
10. Range	J This is the variable for which values are changed or selected by the investigator.
11. Repeatable	K The maximum and minimum values of the independent or dependent variables; important in ensuring that any pattern is detected. May be quoted as eg 'From 10cm to 50 cm'
12. Reproducible	L These variables have values that are labels. Eg names of plants or types of material.
13. Resolution	M Marking a scale on a measuring instrument. This involves establishing the relationship between indications of a measuring instrument and standard or reference quantity values, which must be applied. For example, placing a thermometer in melting ice to see whether it reads 0^0C, in order to check if it has been calibrated correctly.
14. Uncertainty	N This is the variable of which the value is measured for each and every change in the independent variable.
15. Validity	O These cause readings to differ from the true value by a consistent amount each time a measurement is made. Sources of these errors can include the environment, methods of observation or instruments used. These errors cannot be dealt with by simple repeats. If this type of error is suspected, the data collection should be repeated using a different technique or a different set of equipment, and the results compared.
16. Categoric Variable	P These are values in a set of results which are judged not to be part of the variation caused by random uncertainty.
17.Continuous Variable	Q The interval within which the true value can be expected to lie, with a given level of confidence or probability, eg “the temperature is 20 °C ± 2 °C, at a level of confidence of 95 %.
18. Control Variable	R The quantity between readings, eg a set of 11 readings equally spaced over a distance of 1 metre would give gaps of 10 centimetres
19. Dependent Variable	S The difference between a measured value and the true value.
20. Independent Variable	T A measurement is this if the original experimenter repeats the investigation using same method and equipment and obtains the same results.

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Task 3

Finally in Task 3,

EXERCISE (a) – Rearranging Equations

Equation	First Rearrangement	Second Rearrangement
(Power of lens) $P=\frac{1}{f}$	$1=$	$f=$
(Magnification of lens) $m=\frac{v}{u}$	$v=$	$u=$
(refractive index) $n=\frac{c}{v}$	$c=$	$v=$
(current) $I=\frac{\Delta Q}{\Delta t}$		
(electric potential) $V=\frac{\Delta E}{\Delta Q}$		
(power) $P=\frac{\Delta E}{\Delta t}$		
(power) $P=VI$		
(conductance) $G=\frac{I}{V}$		
(resistance) $R=\frac{V}{I}$		
(resistance) $R=\frac{1}{G}$		
(power) $P=I^2R$		

(power) $P = \frac{V^2}{R}$		
(stress) $\sigma = \frac{F}{A}$	$F =$	$A =$
(strain) $\varepsilon = \frac{x}{l}$	$x =$	$l =$

EXERCISE (b) - Further Rearranging Practice

1. a = bc + d,

   c=?

2. a = b/c – d,

   c=?

3. a = bc/d,

   d=?,

   b=?

4. a = (b + c)/d,

   c=?

5. a = b/c + d/e,

   e=?