



GCSE Science coursework...General Introduction and teacher guidelines:

1. Teacher Planning

Preparation for coursework needs careful planning. Decide what theory and which experiments or demos you must do with the pupils before they can plan their own investigation. Pupils cannot be expected just to know what to do – but must be able to build on the knowledge you have given them. Plan your lessons appropriately. Use questions as titles for investigations.

2. Practice in Experimental Technique

Use every practical to consolidate knowledge on accuracy and techniques. Pupils should be learning accuracy of “sizes of measuring cylinder” or “why we don’t use beakers to measure” from Year 7 and they should be reminded regularly on good scientific practice every time they do practical work.

3. Avoid telling them what to do

If you design the experiment and then tell them what to do – the pupils lose opportunities to plan properly and lose marks. When marking/moderating it is obvious when this has happened and planning marks of P4a should not be awarded – you are therefore stopping your pupils getting higher than P3!

4. Plans must be written before the experiment

Sounds obvious – but planning does mean ‘thinking about what I will do’ not reporting on ‘what I have done’. Plans therefore should not be written in the past tense.

5. Preparatory Work and Preliminary Work

Preparatory work (teacher led) is essential. An example is an investigation on electrical resistance where a practical lesson is given to find out the differences in resistance between a thick and a thin wire. Then giving the question “Does length make a difference to resistance of a wire” – the pupils will have some knowledge of how to test resistance. The pupils can then do their own “preliminary work” and test that the circuit is appropriate and what lengths of wire could make an appropriate range. Pupils then have access to the knowledge they need to plan an investigation.

When doing the work encourage pupils to write down any problems they encounter – this gives them some ideas for evaluation.

6. Ensure the choices of investigation allow for high marks

Help pupils to gain higher marks by choosing investigations which can use “numerical methods” eg. When gas is the product of a reaction then rate of reaction = gas evolved/time. Or % change in mass or $R = V/I$. All these can be taught in the preparatory lessons.

7. Coursework Mark Schemes

Coursework Mark Schemes are essential. They help all science teachers in the school and help in the moderation of the coursework.

8. Increasing demand of activity

Beware “increasing demand of activity”. Use a Mark Scheme to show the highest level which can be awarded. For example Resistance in Wire measurement is just reading a digital ammeter and voltmeter. It should not be awarded O8a. Compare this to Osmosis which has to measure mass of potato, volume of solutions, time and mass again at the end of the experiment. Ensure that you offer an investigation of the higher level to the most able students.

9. Level the Marks

Beware awarding P3 O8 A2 E1 - the O8 would be suspect.

10. What happens when students work together?

Firstly, question whether they need to work together. If investigations are offered by choice then not all pupils will choose the same investigation and there will not be a rush on apparatus. If students do work together to obtain results – be watchful and ensure they work as individuals to calculate averages and numerical methods. Write on the script that this was individual work and initial it.

11. Can I help pupils to improve their work?

Avoid writing ideas for improvement on their work. It must be the pupils work – not yours. You can return work to students – “you don’t want to hand me that yet do you!!” Use ‘post its’ for comments like “measuring instruments?” or “graph – what’s missing?” – this is being helpful to the students without telling them exactly what to write.

12. Must coursework be word processed?

No. You must accept handwritten work provided it is readable. It is the content which is marked. There are no marks for presentation.

Handwritten work often benefits from the student thinking about what scientific ideas to write and draw about rather than just downloading generalized facts and transferring them into a word document.

13. How many investigations do I do?

Work that has been handed in without A or E can be accepted but it may be better to return the work to the pupil for them to complete A and E rather than start a whole new investigation later. Ensure that pupils have all had the opportunity of completing one whole investigation.

Once they have a good mark in one section of a whole investigation – then you can concentrate on “partial work”. Evaluations can be done using small amounts of practical work (similar to prelim.work), and observations can be obtained on experiments planned by you if you are only taking the O mark when they have recorded the results. There are examples/results from experiments for Analysis in the “How to Improve Coursework Booklet”.

14. Teacher expectations of pupils?

Each coursework needs to be draft marked, returned to pupils and final marked with four weeks of the task being complete by pupils. A minimum standard of 5653 (POAE) needs to be achieved by the vast majority of pupils in year 10 & 11. Coursework should then be kept by HOD in a secure place for moderation.