

Introduction

Background

In many chemistry courses, students are increasingly being required to carry out an extended practical investigation. I have found that giving students a list of titles, with a few helpful questions for guidance, is often not enough stimulation for most students. They really need more detailed initial guidance. So I have produced these resource sheets to provide a more comprehensive starting point for the student. I hope that this will save the student time and the angst of where to begin. Hopefully the resource sheets will also save the teacher a large amount of the time that is usually spent on the initial discussions.

The resource sheets should point students in the right direction, give them the confidence of knowing that they are on the right track and thus allow them ultimately to spend more time on their practical work. In my experience once students have got some initial practical details to start working on they make faster overall progress.

How to use the resource sheets

Each resource sheet is presented as a starting point. Students should not see them as something to work through from start to finish. Students should still carry out their own research and detailed planning. Some teachers may wish to simply use the list of suggested investigations and the references. Although most of the suggested starter experiments are tried and tested students may still come across practical problems and may need to make small adjustments to methods and quantities. Teachers should remember that this is all part of the process of carrying out an investigation.

What do the sheets contain?

Each resource sheet has a similar format.

- Background – this is a very basic introduction to some of the chemistry involved.
- Practical Techniques – this tells the students the techniques they need to be familiar with in order to carry a basic investigation. It may not cover all the techniques if the student chooses to follow an unusual avenue of exploration.
- Where to start – this gives students some practical advice on where to start. Additional *experiment starter sheets* are provided for some

investigations. However some teachers may feel that this section gives the students too much advice and may choose to omit them.

- Possible investigations – this section gives suggestions for areas to explore. It is not exhaustive and students may come up with their own ideas.
- Sources of information – this consists of a list of useful references but again it is not exhaustive and students should also research their own sources.
- Teachers notes – I have included some basic information that I hope that teachers will find useful if they have not supervised a particular investigation before.

Safety

Please note that I have not provided any safety advice for the resource sheets. The hazards will vary for each investigation, depending on what the student chooses to do. Therefore it is essential that students prepare a detailed risk assessment before they start any practical work. Teachers must check and approve the student's plans and satisfy themselves that the appropriate precautions are being taken.

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