Supervision and management of project work

It is recognised that senior students **can**, subject to certain conditions, be allowed to carry out practical work without the teacher always being present in the same room, Those conditions are:

- the students are mature, responsible and have sufficient experience and training

- the possible risks have been identified and the ways of removing or adequately controlling them have been planned **in advance**. While the risk assessment may be carried out by the pupil, it **must** be thoroughly checked **by the teacher** before any experimental work begins.

- the teacher should be present during any stages which are considered to be of more than low risk. At other times he/she is usually in an adjoining room. Supervision ‘at an oscillating distance’ can be seen as an important part of a system of controls

While any system should have a certain degree of flexibility in it, situations such as one we came across where a student was sent in by the teacher to carry on with project work during a school holiday, apparently with no thought given to supervision, are entirely unacceptable.

**Technicians**

There are many technicians up and down the country who are not only highly capable but also actively enjoy assisting with project work. In a situation such as this, everyone benefits.  
However, the support to be provided should be measured against the competence of technician staff in the subject area, in consultation with their immediate line manager, and the prioritisation of other work within the department – just because an individual technician might be keen to be involved, does not mean that it is the best use of his/her time in the department..  
However it must be noted that the teacher has sole responsibility for the supervision of project work activities undertaken by the student and cannot delegate this responsibility to technician staff.

If a technician is not happy to be involved with the monitoring of this project work, whether this be due to workload, concern about their own competence regarding a particular procedure or any other reason, they **must** **not** be placed under any duress to do so.

**Access to chemicals**

Any requisition of chemicals for project work by a pupil must be approved by a teacher.

It is not good practice to give out a stock bottles of a reagent. In the case of hazardous chemicals, larger quantities could lead to more serious consequences should an accident occur. Also, with the best will in the world, it increases the chance of contamination and if there are several students using the same reagents it can create frustration and annoyance which could lead to other difficulties.

The best option is for the technician to prepare bottles/jars of the reagents that the students requisition at the beginning of their project which are then the ‘property’ of that student for the duration of the work.

We then come to the question of storage and access. It is unlikely that an Advanced Higher project will be confined to the use of chemicals that are all of such low hazard that they can be kept in the laboratory. So more secure storage is called for.

Although it may seem that the easiest way for students to get the chemicals for their project work would be to allow then free access to the chemical store, this is **not** **an acceptable option.** Even trustworthy students can make mistakes and have accidents and, perhaps more to the point, this option would seem to be in breach of the Home Office guidance as set out in the leaflet ‘Secure Your Chemicals’.

On the other hand, getting students to ask the teacher or technician **every** time they need to get hold of any reagent is going to be excessively difficult and frustrating; particularly for the technicians and particularly in a large school with a lot of advanced higher students.

If the facilities allow it, a compromise may be sought. If there is more than one storage area, the low-hazard chemicals that the students have requisitioned for their project work could be kept in one of them, with the high hazard substances remaining in the chemical store. If not, then possibly the low hazard substances (dilute acids and the like) could be kept in the prep room, or some other secure area and the high hazard ones remain in the chemical store to be handed out by technicians. It should be emphasised **that safety must always take precedence over convenience**. Thus while it may be deemed appropriate to allow freer access to less dangerous chemicals. a more formal requisition form would be appropriate for any chemicals with significant hazards.

It is for the school (or Local Authority) to come up with a solution that blends security and convenience in an appropriate manner.

The storage arrangements, where they differ from the normal storage arrangements, must obviously be risk assessed. Whether this is included as part of each student’s risk assessment or whether there is a generic, departmental risk assessment for the storage of chemicals for project work is, again, for the centre to decide.

**Training**

It is essential that, before any practical work is undertaken by a student, they are familiar with any techniques they might be using so that:

* They will be able to carry out practical work safely
* They will be able to carry out practical work effectively and accurately.

If it is a procedure the student has previously carried out in class, the teacher must check with the student that they are familiar with, for instance, the procedure for setting up apparatus for refluxing and, if not, have a brief reminder session.

If it is a novel procedure for the student, more thorough training, provided by the teacher concerned, will probably be needed.

Before carrying out any hazardous step of the project, the apparatus should be checked by the teacher. For example to ensure that in a distillation the clips or stands are in place to hold the apparatus together securely.