

An LTDI Publication  
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Thinking about using IT in your teaching?  
Here are some ideas to get you started.

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### **Run classes in Parallel**

Rather than having the class meet all together, run several sessions in parallel eg split the class into three and have one group using a CAL package, another group researching a related topic on the WWW and the other group participating in a tutorial question and answer session.

### **Set group reports**

In order to alleviate the marking of coursework from each student in a large class, set up a range of group based activities which have a single submission by email or on a floppy disk. This also has the advantage of keep a record of the time/date of submission.

### **Set up a Drop - In Centre**

Set up a departmental Drop-In Centre and feature a different topic from the course each month. If there is a lack of institutional facilities for setting up a permanent centre, then perhaps think about running a 2 hour session in a computer lab. Students can just drop in and have look at relevant material and / or perhaps listen to a short presentation by honours students or a visiting lecturer.

### **Adopt a Group**

Transfer the first year support for teaching IT skills from staff to students by asking final year students to adopt a first year group. Give the students the responsibility for helping the first years to work through a CAL package or to demonstrate, for example, word-processing software or a WWW browser.

### **Provide CAL support**

Provide a range of computer based support material on a departmental server. Set a number of exercises relating to the packages in order that students make more effective use of the material. If the material doesn't provide adequate on-line help and feedback, make sure staff support or paper based material is available to provide assistance.

### **Provide open access materials**

Obtain some of the TLTP core CAL software and install on a departmental server. Make reference to the material in classes. If course outlines are made available on a central server, links can be made from specific lectures to all useful material.

### **Support self-help groups**

Set up self-help email groups, in order that students provide support for each other rather than depending on staff. If the groups require additional support, their problems could be submitted electronically to the lecturer by a group representative.

### **Provide student surgeries**

In order to complement a series of lectures, set a computer-based exercise and run bi-weekly surgeries when students can come along if they are having problems with the exercises. Tutorials relating to common problems can also be organised for only those requiring help rather than the whole class.

### **Answer Frequently Asked Questions**

Set up a Frequently Asked Questions (FAQ) database. This saves having to answer the same questions repeatedly and also helps to remove the possible stress of a student having to ask a question in front of a large class.

### **Involve students in peer group marking**

Involve student groups in marking other student's work eg groups could prepare a poster presentation on their findings from a computer based exercise and other groups be responsible for the assessment. This does not need to be a formal assessment : students could go round the posters and indicate using ticks/crosses or sticky labels which parts of the posters they consider to be good or bad.



# **LARGE CLASSES**

# TUTORIALS



## **Prepare for a lab. in advance**

Use a tutorial session to demonstrate a relevant computer-based modelling system or to run through a laboratory simulation prior to students undertaking a wet practical. This should save in the expense of equipment and laboratory space and at the same time allow students to try out different parameters.

## **Carry out an information retrieval exercise**

Set a problem for students to solve and ask them to find the answers from Web pages or from a number of selected CAL packages. Alternatively, arrange for a live link out to the Internet and involve groups in the selection of URLs to access. Students could also be asked to bring along information about three useful sites.

## **Pose a question**

Provide your students with a series of problems or questions prior to asking students to work through a CAL package. The responses from the questions can provide the basis for a follow-up tutorial, when any problem areas can be identified.

## **Run a series of computer - based games**

Arrange your tutorials round a series of game-based sessions with students reporting back on different stages of the game each time they meet.

## **Improve communication skills**

As a way of providing feedback on student communication skills, arrange to video student presentations and discuss their performance either individually or in a small group. Alternatively, groups could identify good and bad points from videos from the previous year and these points be used as a basis for discussion.

## **Report back on new information**

As a way of sharing out the responsibility of researching material for a project, set up an information retrieval exercise and ask groups of students to feedback on their findings to the rest of the class during a tutorial.

## **Carry out an evaluation study**

Provide some instructions in what constitutes a good or bad CAL package and then ask students to carry out an evaluation of a piece of CAL and feed their comments back to the tutorial class for discussion. The evaluation study could also involve developing a questionnaire, carrying out interview surveys.

## **Access Web based reports**

Access reports yourself or ask your students to access reports or journals from WWW written for professional bodies associated with a particular course eg academic papers, summary documents. The good and bad features of each could be discussed as a pre-cursor to a written exercise where students construct pages using different communication styles

## **Identify student's grey areas**

Ask students to create an electronic concept map of a lecture or a course and ask them to make a comparison between each of their maps. This can be a useful way of starting some discussion related to areas with which some students have difficulty.

## **Discuss controversial topics**

Plan a debate about a controversial subject area from a course and ask students to support their arguments using up-to-date information retrieved via WWW.

### **Make your lecture notes available**

Make information about your course available on a departmental files server or on WWW pages. In this way, students can access information about each of the lectures, obtain print outs of lecture notes and refer to any related CAL material.

### **Set up email discussions**

Set up email discussion/information lists for different subject areas or courses in order to facilitate communication between student / student, staff/staff and student/staff.

### **Make sure your software is compatible**

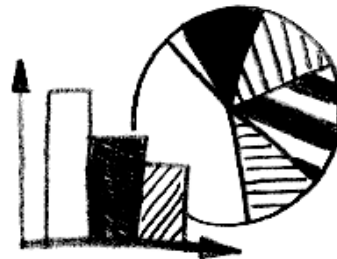
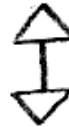
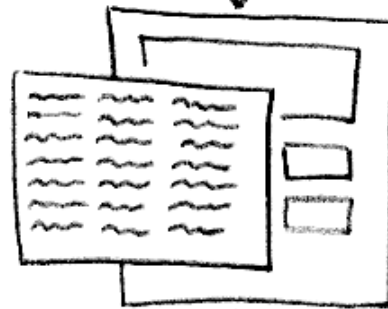
Encourage all members of departmental staff to use the same non-subject based software eg spreadsheet or word processing software etc. This should help to ease communication and the sharing of information.

### **Encourage the use of email**

If all your students have email accounts, use email to send out reminders about project submissions. Students are more likely to make use of email systems if staff in their department are perceived as being active users. When a student asks a relevant question why not send an electronic reply to the whole class ?

### **Ask for the electronic submission of coursework**

Insist that students submit their assignments electronically. This will date and time stamp work automatically, so that submissions can be recorded.



### **Automate your mailings**

Set up an information system which automatically carries out mailings to students and submissions to assessment boards.

### **Develop a departmental house style**

Develop a house style for any departmental WWW pages. Have a meeting with course co-ordinators to discuss possibilities and priorities for design. It can be useful to provide some design proformas in order to stimulate discussion. Maintain a centralised departmental directory of handouts which can be updated and printed out as appropriate.

### **Monitor student trends**

Use software to monitor trends in student assignments from year to year. Show students how their marks and grades relate to that of the rest of their class.

### **Alter ways of presenting data**

Use software to adapt data in order to demonstrate a range of different ways of explaining ideas or interpreting data to students.

### **Provide staff and student directories**

Set up a centralised system which has directories which only students or staff could access. The staff directory could include information on students, courses and references to appropriate research materials. The students directory could include information on courses, relevant information sources and examples of good and bad practice in assessments.

# **ADMINISTRATION**

# SPECIAL NEEDS

## Use a keyguard

For a student who has a tremor provide a keyguard to a standard keyboard - it allows the user to rest their hands and press the keys through holes, increasing accuracy in keypressing. Keyguards are available for most standard keyboards.

## Set up a lending library of resources

Arrange for your student to have a loan of a laptop for the duration of their course. Persuade your institution to establish a small bank of resources that can be lent to students as needs are identified.

## Enlarge the display

For visually impaired students stick brightly coloured alphabet stickers on top of the keys, and provide dedicated software packages that can magnify the display output by standard applications.

## Talk out loud

Provide one of the increasing number of word processing packages that accept voice input.



## Customise your desktop

Change the speed of the keyboard repeat or the speed of the tracker ball movement. Alter the size of the pointer on the screen. Consider switching from a mouse to an external tracker ball, other types of switch or input devices.

## Spell - check the work

Support students in learning to use the full grammar and spell checking facilities provided by modern word processing software packages.

## Provide headphones

Provide personal headphones /earphones so that the student can make maximum use of the software features.

## Improve speed and accuracy

For students with dyslexia, or with a physical impairment try using a Predictive Adaptive Lexicon with a standard package to increase input speed and accuracy.

## Ask advice

Ask your Occupational Therapy department if they have any ideas, or can lend you and your student a piece of special equipment.

## Use e-mail support

Encourage the use of email - for discussion, tutorial support and administration. Electronic communication can reduce inconvenience for students who have mobility difficulties, and can allow students who need longer to compose a contribution to a discussion to participate on an equal footing with their colleagues.

### **Pre- and post- test students**

Run pre- and post- tests to help evaluate a new piece of CAL. Use these in association with, for example, HCI evaluation checklists to initiate discussion relating to the relative quality of computer based materials with either staff or students.

### **Develop a question library**

Set up a library of objective tests on a departmental server. These could be developed, collaboratively, by a group of lecturers. If they are to be made available for students to work through by themselves, then it is important that they also provide constructive and useful feedback for all student responses.

### **Provide examples of student work**

Provide examples of good and bad practice in assessments on a dept. files server pointing out the good and bad features of student's work. It is also useful to provide constructive comments on the development of good examination skills.

### **Associate self-tests with CAL packages**

If self-assessment questions are not already available for a particular CAL package, set up files of MCQs which are associated with particular packages in order that students can test their knowledge. These also provide students with the opportunity to practice their examination an IT skills prior to a summative assessment.

### **Involve students in voting on other student's work**

Make examples of student's work or portfolios available on a dept. file server or WWW pages and ask students to complete a scoring grid or voting sheet as a way of assessing coursework. The votes can contribute to a final mark.

### **Develop scoring grids**

Using a scoring grid devised during a tutorial session, ask students to mark their own essay or lab. report. Use computer software for students to input their marks and to make a comparison between their individual marks and that of the rest of their class.

### **Involve students in posing questions**

After setting a computer-based group project for the class, ask the groups to work together to think up two questions relating to each of the other projects. An award could be made for the best question, with both staff and students nominating a question for the award. A comparison between the student and staff assessments could be made.

### **Ask students to construct questions**

After discussing issues relating to assessment, ask students, in groups, to construct a series of objective tests. Once reviewed and modified, these questions can be translated onto computer and used as revision tools for students.

### **Use Email to discuss topics**

Set up an email discussion group and ask your students to develop a scoring grid to be used for a later assessment. Use examples of previous student's work as a basis for discussion.

### **Determine course entry skills**

Run an introductory computer-based course test to ascertain student abilities. This can assist in identifying any possible problem areas and allow any necessary additional tutorials to be organised. CAL material could also be made available for additional study.

# Assess

# ment



### **Ask students to create their own Web pages**

Instead of setting an essay as an assignment, ask students, in groups, to work together to produce their own web pages. As part of the instruction stage, well and badly designed WWW pages could be reviewed. What would constitute a well designed Web page ?

### **Build up a resource collection**

Involve student groups in producing resource collections for a departmental fileserver. Each group can be allocated a different topic or resource medium, eg WWW, journal references, etc. These resources can then be used by subsequent classes.

### **Set group presentations**

As an alternative to using OHP's, ask students to give a group presentation to the class using Powerpoint. They could also be encouraged to experiment with other presentation media.

### **Write a new set of instructions**

Ask a group of students to write a set of instructions for using a CAL package or carrying out some computer based data analysis and ask another group to work their way through making recommendations for any modifications.

### **Identify group skills**

By way of an introduction to the development of student's group skills, ask students to observe the way in which another group of students work through a computer simulation package. Questions to ask might include : How do they go about carrying out the experiment ? What are the positive or negative ways of working together in a group ? This can trigger discussion into ways of developing effective group skills.

### **Software reviews**

Rather than asking students to go and use a piece of software, ask groups to review a number of pieces of software in related topics and to report their thoughts back to the class. It is beneficial to discuss the review criteria prior to the students carrying out the evaluation.

### **Support group discussions**

Ask students to defend their work on a computer - based group project. The discussion could take the form of a debate or formal discussion with a student chairing the session.

### **Review forms**

In order to monitor group projects, set up electronic review forms for student groups. These should be completed at different stages of the project work. For example, groups could submit a work update and an assessment of both their own and their peers groups' contribution to the specified project criteria. A tutorial could be used for groups to negotiate the criteria with the lecturer.

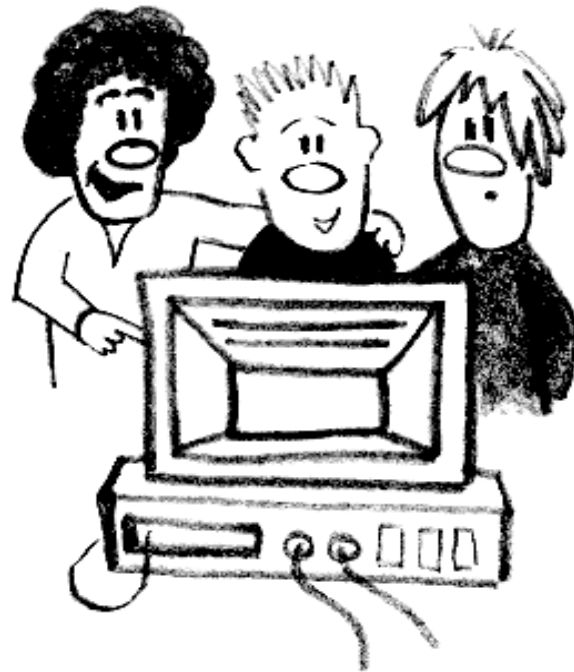
### **Summarise data**

Following discussions and/or meetings, ask each group to provide a summary of the main issues raised or the main findings. These can be collated and made available on WWW pages.

### **Encourage electronic communication**

Set up student support groups in the first year of a course which are maintained electronically. Each group can be provided with a shared closed area for asynchronous discussion and times arranged for 'chatting' online.

# **GROUP WORK**



# LECTURES

## Maintain a centralised resource collection

Develop a departmental collection of computer based resources which can be downloaded as required. This saves having to make use of centralised resources. For example, 35 mm slides can be transferred to an electronic format.

## Use electronic presentation media

Instead of using an OHP for presenting slides, use presentation software to illustrate lectures. Different WWW pages can be cached and video clips incorporated into a presentation.

## Identify different writing styles

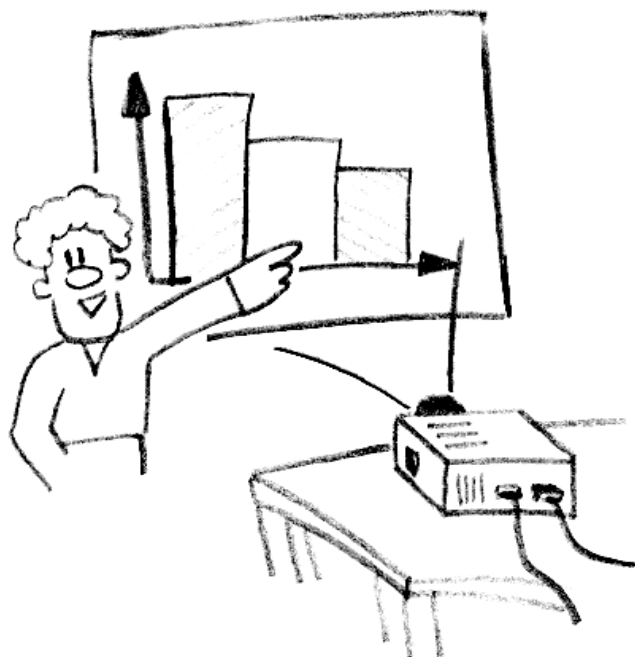
Download material from different journal sources on the WWW and use this as a basis for a quiz. From the writing style used, students have to identify the sources of the material. This can be followed up by an exercise where students write their own pages.

## Introduce some MCQs

Break up a lecture by giving students some MCQs as an alternative to sitting and just listening. Then ask for feedback on their responses. If the lecture is in a computer lab, then feedback could be obtained electronically and any common mistakes discussed.

## Ask students to write questions

In groups, students have to work together to write two questions relating to the current course topic. These questions are then passed on to the next group and they have to try and answer them. These questions can then form the basis for a computer based resource base of questions and answers for students to access.



## Run parallel classes

As an alternative to the class being in a lecture room - run parallel sessions one in a computer lab, and ask students to solve problems and feedback to the rest of the class during a plenary session.

## Set up a Resource Centre of relevant lecture material

Set up a Resource Centre, where students can pick up notes from any lectures which they have missed. Draft outlines of lecture notes could be made available from a departmental server for students to act as a framework to which they can add their own notes during the lecture.

## Provide lecture schedules in advance

Provide a detailed lecture schedule so students can identify which lectures are crucial and arrange their studies accordingly.

## Organise a video-conferencing link

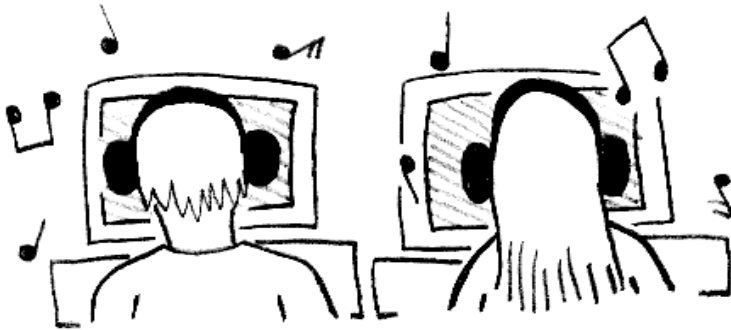
As part of a lecture, set up a video - conference link to an expert in one of the course subject areas and allow students to ask questions. A tutorial session could be arranged prior to this lecture in order that a series of useful and relevant questions could be planned in advance.

## Follow-up with question and answer sessions

Set up a shared resource like Knowledge Garden which allows students to ask questions, add comments or browse through questions and answers relating to a series of lectures. These discussions can be monitored by members of staff. In order to raise the level of the discussion, it is useful to provide students with instructions on how to ask good questions to the rest of the class.

# PROJECT

# W O R K



## Retrieve information via a computer

In addition, to asking for journal or book references, ask students to carry out WWW or specialist CD-Rom based catalogue literature searches for their project and to cite these sources in their write ups.

## Students survey

Set a project which asks students to survey other students using an electronically distributed questionnaire. Results could be published in a departmental newsletter. The statistical analysis of the work could be discussed in a tutorial.

## Assess project synopses

Ask students to submit a synopsis of their project plan or essay - eg a diagrammatic representation or a rough schedule of the work using graphics or word processing software. Award a mark for this which contributes towards a final assessment.

## Soothe those nerves

Allow students to play music on their CD ROM to soothe the rest of the team's nerves !

## Work out the Top Ten favourites

Get students to create a top ten favourite URLs or information sources, this list could be maintained and updated on a departmental server.

## Organise collaborative projects

In order to complement project meetings, ask students to carry out a collaborative writing project using appropriate software. The relative contributions to the project could then be assessed by the members of the group. This is particularly useful for part time students or students based at different campuses.

## Encourage the use of a range of software

In order to encourage students to make use of a range of different packages within a project, request that they should submit work prepared using a range of different software. Their report could be written using word processing software, the results using a spreadsheet package and the references produced using a computer database. Offer to run introductory classes for students who do not already feel confident about using the software.

## Develop information retrieval skills

Run a tutorial class, based in a lab, prior to the scheduled time allocated for project work and demonstrate to students how they might retrieve relevant information from WWW sources. This could involve an input from library staff.

## Carry out a survey

Get the whole class to carry out a survey, with each student collecting 10 responses. Use agreed coding systems to input the data into a spreadsheet or statistical analysis package. Combine the class data into one file and distribute for analysis by groups or individuals.

## Start a student newsletter

Get students to write a departmental or course newsletter using desk top publishing software. The newsletter could include reviews of software, URLs and articles relating to current research. Reviews or feedback on lectures and courses could also be included.

# COMMUNICATION

## **Set up a cross - course/ year collaborative project**

To increase communication between students in different years or across different but related courses, set up group or collaborative project which is dependent of each student's email contributions.

## **Run student surgeries**

Set up email surgeries for problems following a series of lectures - set a deadline for request submissions for help. In addition, a live chat session could be arranged for discussion relating to particularly difficult concepts. Any common themes could be raised during a follow-up tutorial.

## **Provide students with access to an expert panel**

Set up an 'expert' panel of staff or students to whom a series of questions might be asked. This could be maintained via email or using software like Knowledge Garden, constructing a frequently asked questions database.

## **Organise live links between students**

Arrange for live links between two groups of students either via the internet or as part of a video conferencing session. In order to take full advantage of such a session, select a topic for discussion which relates to part of the syllabus and provide students with instruction in ways of participating effectively in such a session.

## **Set students a task to use a mailbase**

Ask students to contribute to a discussion group or mailbase related to a particular subject area and report back on discussions.

## **Maintain a conference page**

Set up a conference page for some parts of your course syllabus. Discuss ways in which students can make the best use of such a method and assess their contributions.

## **Co-ordinate student Web pages**

Set up shared WWW pages and/or ask a group of students to construct their own pages with appropriate links. If this is set up as a collaborative project, students do not necessarily need to be based at the same campus.

## **Facilitate simulations or games**

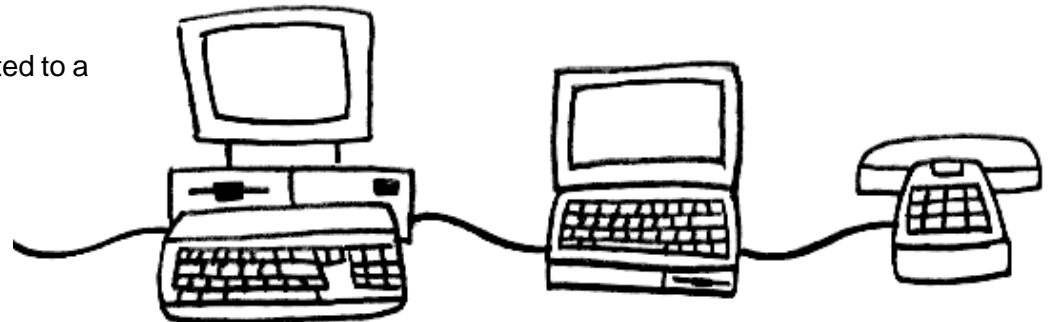
For students who are not always able to attend classes at one time, set up a series of video-conferencing sessions to carry out a simulation exercise where groups of students perhaps adopt different roles from a case study.

## **Establish a mentoring system**

Give final year students the responsibility of mentoring a first year student group via email eg this could be to assist with study skills or just to help navigate a new campus.

## **Ask students to work together on-line**

Set up a video-conferencing link with a shared whiteboard and ask students to work together on a problem. In this way students can share and amend each other's data.



### **Set up a resource collection**

Set up a resource collection of materials for students to download as and when required - students could also be asked to participate in the collecting of such materials.

### **Ask students to write a CAL package**

As an alternative to carrying out a wet practical, ask students to develop a CAL package relating to part of their course. This could involve the synthesis and analysis of a range of multi-media and appropriate references.

### **Share out the problem**

Set up a collaborative practical project where students exchange data electronically, solving different parts of a problem, but with each group/individual having to depend to each others' data to work through the problem. Students from different courses could be involved in such projects.

### **Run practice experiments**

Set up a simulation of a lab practical that students are about to undertake and run through the age to run a series of experiments and to feed their results back to the class. Feedback could be in the form of a Powerpoint presentation or as a poster presentation to the rest of the class.

### **Set up a database of results**

Collect a selection of results from experiments and ask students to analyse them in different ways using different software packages. Data can be selected in order to demonstrate different possible laboratory situations. A skeleton spreadsheet could also be set up in which the students were required to enter their data

### **Link up to other establishments**

Establish a video link to industrial laboratory facilities providing equipment which is perhaps too expensive or too costly for your students to use

### **Involve your students in writing laboratory manuals**

Involve second year students in developing instruction manuals for the use of basic computing packages, which are going to be used by first year students. They could then include a hints section, which provides advice on the best way of using the package.

### **Run feedback sessions**

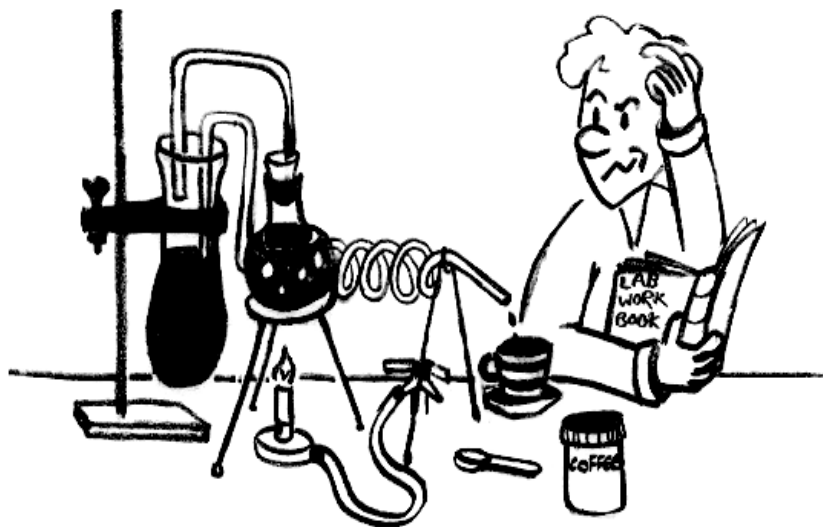
Ask students to work their way through a simulation package and to feed their results back to the class perhaps using Powerpoint. Their findings can then be discussed with the rest of the class and any problem areas identified. Students could also be assessed on their presentation.

### **Support your practical sessions**

Provide on-line support for students while they are undertaking practical work. This could mean providing a link out to the WWW or associated computer based material where the students could simulate the expt prior to carrying out the real one or relevant CAL materials where students could review the theoretical background.

### **Plan ahead**

Ask your students to submit an electronic project submission prior to carrying out a project, for example, in the form of a concept map or as a full project proposal with material and methods costings.



# **PRACTICAL WORK**

## Acronyms used in BRITe Ideas

**CAL** Computer Assisted Learning  
**IT** Information Technology  
**URL** Universal Resource Location

**FAQ** Frequently Asked Questions  
**MCQ** Multiple Choice Questions  
**WWW** World Wide Web

**HCI** Human-Computer Interaction  
**OHP** Overhead Projector

## Sources of Information and support in the use of Learning Technology

### Learning Technology Dissemination Initiative (LTDI)

LTDI is a SHEFC funded initiative which supports and encourages academic staff in the integration of technology into teaching and learning. They have a strong background in education and pedagogy, and focus on the practical issues that arise in and around delivery of material to students. Find more about LTDI at <http://www.icbl.hw.ac.uk/ltidi>

### Teaching and Learning in Scottish Metropolitan Area Networks (TALiSMAN)

TALiSMAN was established by SHEFC to offer training to academic and support staff in the use of networks, especially the MANs. More information is available at <http://www.talisman.hw.ac.uk>

### Teaching and Learning Technology Programme (TLTP)

Funded by the joint funding councils of England, Scotland, Ireland and Wales, TLTP has supported teams of academic staff in consortia or single institutions, in the development of a huge amount of software which is now available at little or no additional cost to HE institutions. Find out more at <http://www.icbl.hw.ac.uk/tltp>

### Teaching and Learning Technology Support Network (TLTSN)

This network has evolved from the experiences of some institutional TLTP projects to support other institutions in all aspects of institutional policy relating to the use of Learning Technology. There are 2 TLTSN Centres in Scotland, one at the university of Glasgow and one at Heriot-Watt University. Find out more at <http://www.icbl.hw.ac.uk/tltsn>

### Computers in Teaching Initiative (CTI)

CTI has a UK wide network of 24 subject centres which collect and disseminate information about learning technology in that subject area. Most CTI Centres maintain a resource collection, publish a newsletter and run workshops and events. For further information see <http://www.cti.ac.uk/>

### Evaluation of Learning Technology in Higher Education (elthe)

Elthe is a UK wide group for those interested in evaluating the effectiveness of LT. For more information see <http://annick.stir.ac.uk/elthe/>

### Institutional Support

All of the above groups provide support and information relating to the use of Learning Technology but for an institutional perspective it is always useful to contact your staff development unit or equivalent and/or your local computer services department

## Publication Details

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