

Introduction

This pack is intended to help ICT Coordinators deliver Key Stage 3 ICT requirements using all the other National Curriculum subjects, plus Religious Education, for Year 8. Although the subjects are identified, they may be adapted to other subjects. For example, the Science unit may be delivered via Design and Technology.

Each unit is designed to stand alone, with no other resourcing necessary, but this does not preclude further research and extension tasks.

All tasks not only cover the ICT requirements but also, for each unit, a clear indication is given of the subject specific coverage. Therefore the ICT delivery uses time twice!

The philosophy is that these units may be delivered as separate ICT lessons and they may also be delivered by specialist teachers of other subjects. To this end, sheets are included for students and others to describe how school-specific software functions (see pages 55 to 58). (These need only be completed once by the ICT Coordinator and then duplicated.) Each unit is supported by teacher's notes and, where appropriate, sample answers to help with guidance.

ICT assessment is made easier by the inclusion of a section which details what outcome is needed to gain a particular level and a clear indication of how the student could progress to the next level. A student record card is included to note the results.

Software is mostly generic: access is needed to a word processor, a spreadsheet, a database, desktop publishing, CAD, a Logo-like language, graphics packages and possibly a music processor. It was a deliberate decision not to include specific software and to enable all units to be tackled with the range of software which we felt would either be available in most schools, or obtainable at little cost using shareware or freeware. With the variety of platforms in schools it is impossible to be machine specific.

We have included activities which will stretch even the most able student. However, some activities in each unit will be suitable for all students.

We hope you will enjoy using these activities as much as we have enjoyed creating them.

David Goddard and Chris Guy
October 2000

Venus

In size and distance from the Sun, Venus is almost a twin of Earth. It is easily spotted, as it is the brightest object in the sky after the Sun and Moon. Its atmosphere consists of clouds of sulphuric acid, which makes it very different from our own.

About 15% of its surface consists of mountains and lowlands. It has two vast upland areas: they are Aphrodite Terra, which is as large as Africa, and Ishtar Terra, which is the same size as Australia. The highest mountains on Ishtar Terra are more than 2 km higher than Everest. The surface has craters which are the result of impacts with meteors and volcanic activity. The surface temperature is higher than that of Earth.

Strangely, Venus rotates in the opposite direction to all of the other planets, a result – so some scientist believe – of a collision aeons ago. It has the lowest rotation time of any planet.

Earth

Earth is the only planet in the solar system on which we are sure that life exists. This is because on Earth water can exist as a solid, a liquid and a gas. Water covers around 90% of the surface of the planet and the land masses move slowly on “plates”.

The Earth moves around the Sun, so our position compared with other stars and planets changes, causing apparent movement in them.

The planet is slightly pear-shaped with a small bulge in the southern hemisphere and an imaginary line called the equator separating the two hemispheres.

Because the Earth tilts, we get seasons, as does Mars. There are ice caps at the poles on each, too.

It is the largest and most dense of the inner planets and has a mass equivalent to that of Pluto, Mercury, Venus, Mars and the Moon all put together.



NASA

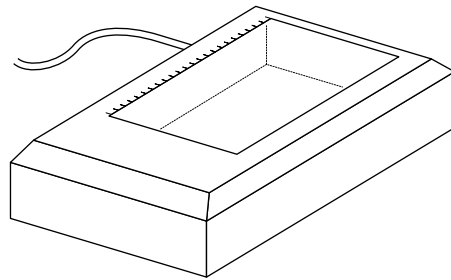
The Moon

The Moon is not a planet – it is a satellite which circles the Earth, always keeping the same side towards us. It has dark areas called maria (seas) made from basaltic lava, and many craters. Other features are large crevasses called rilles and bright streaks called rays. The Moon is covered in a coating of dust called regolith.

It would take 81 Moons to have the same mass as Earth, and its gravity is about one-sixth of that experienced on Earth. The velocity of an object orbiting the Moon is about the same as a high-powered rifle bullet. So if you stood on a very high mountain and fired a bullet horizontally, two hours later you will have shot yourself in the back (if you stay there)!

With a little practice, they produce quite good results, the only drawbacks being that they can only scan a narrow strip at a time and sometimes the image can become a little distorted.

Flatbed scanners cost about four times as much, but can scan a whole page of A4 at once. You can then select an area and manipulate it.



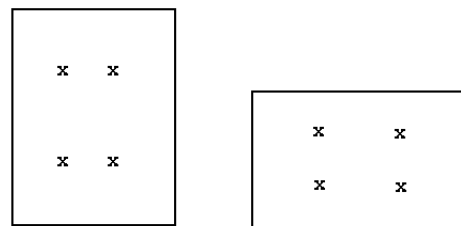
Flat-bed scanner on which image is placed and scanned

Video grabbers do a similar job, but will allow you to take the image from one frame of a video. Obviously, the quality of the grabbed image will depend on the sharpness of the original frame.

Currently, the way to get the best results, costing ten times more than a hand-held scanner, is a camera which does not use film, but stores the image directly onto a floppy disc, or even into its own memory. You can then upload these images into a computer, and manipulate them.

With all images, no matter how they are scanned, there are some fairly standard things most DTP packages will allow you to do to improve them:

- **Size:** The size of the image is vital. Think carefully if you want the image to be the dominant feature on the page, or whether you want it to illustrate a feature of your text.
- **Cropping:** Cropping allows you to position part of an image, usually the most interesting, in an area you have chosen.
- **Position:** The position of an image on the page is important, too. Often the first impulse is always to centre pictures. Whilst this often works, better composition can be gained by placing it according to the Rule of Thirds. Most photographers know that a rectangle has points of interest about one third of the way in and one third of the way down.



Positions of interest (Rule of Thirds)

If you wish to spice up your publication you can add some clip art. These are pre-drawn images, which these days can be bought quite cheaply. There are also fonts (see Step 4) which appear to be pictures. Most computers have access to a Dingbat or Wingding style.



Example of Dingbat font

Unit 6: Geography (page 27)

This unit looks at the development of countries. Data is provided for a number of factors used in measuring development. Some irrelevant data is provided to enable coverage of one element of ICT concerned with the selection of relevant data. Space is provided for schools to add data for any countries they are using.

The data given can be used by students to create their own database or the teacher can set up the database in advance. (The data can be downloaded from the Pearson Publishing Web site if desired. Access: <http://www.pearson.co.uk/enhance/ubers/datafiles.html>). Students with a good ICT capability should be able to set up the database for themselves; those at lower levels will need it set up for them.

Students are asked to sort the data in a variety of ways to look at the idea of measuring development.

Further up-to-date figures for many countries can be obtained via the Internet.



Geography: (1c, d; 6a(ii), f(iii), i(i))
ICT: (1a, b, c; 2a)

Unit 7: Modern Foreign Languages (page 31)

This unit acts as an introduction to desktop publishing, using the vehicle of the students' home town. The unit deals largely with the method, rather than the content, as variations in geography make this impossible. The suggestion that they produce this for a real audience could be modified to writing for a partner school somewhere in the UK.

Differentiation is by support and resource. Task modification is possible too.



Modern Foreign Languages: (4c, d; 5a, e, h)
ICT: (1a; 3a, b, c; 4a, d; 5a)

Unit 8: Art and Design (page 35)

This unit aims to give a flavour of heraldry, but does not go into all the conventions of the formal heraldic tradition. Note that arms are regarded as insignia of honour and their use is regulated by the College of Arms in England and by the Court of the Lord Lyon King of Arms in Scotland, therefore ensure you obtain approval before printing any of the designs for public consumption. Examples are given of how various shapes can be drawn on computer. The explanations use general, not software-specific terms.

Differentiation may be delivered by resource (eg books on heraldry, for example, *Complete Guide to Heraldry*, A C Fox-Davies, Wordsworth) or by allowing the use of different packages (CAD may be a possible alternative).

The activities allow use of a word processor for the students to record what they have discovered.



Art and Design: (1b, c; 2b; 3a, b; 4b; 5a, c, d)
ICT: (3a, b; 4a, b, d; 5d)