

# 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 7. 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 pupils and others to describe how school-specific software functions (see pages 53 to 56). (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 pupil could progress to the next level. A student record card is included on page 66 to note the results.

Software is mostly generic: access is needed to a word processor, spreadsheet, database, desktop publishing, CAD, 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 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 pupils.

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

**David Goddard and Chris Guy**  
November 2000

BJ's father, Jim, works very hard, digging holes to lay water pipes in. He works a long way from home so he gets back very late and he gets very tired. He needs 15 000 kJ of energy every day.

<b>BJ</b>	<b>Jenny</b>
<i>On the way to school</i>	<i>Breakfast</i>
Cola Crisps Chocolate bar	Cornflakes Milk
<i>Lunch</i>	<i>Lunch</i>
Beefburger Pizza Chips Cola	Cheese Lettuce Tomatoes 2 slices of bread Squash
<i>Quick snack</i>	
Biscuit	
<i>Evening meal</i>	<i>Evening meal (at friend's house)</i>
Sausages Chips Fried egg	Chapatti Lamb curry Yoghurt Cup of tea
<i>Supper</i>	<i>Supper</i>
2 packets of crisps Cola	An apple An orange

*BJ and Jenny's food intake for one day*

The table above shows BJ and Jenny's food intake for one day. The portions are of an average size and are roughly the same as they eat each day. For this activity, we are only going to concentrate on the amount of energy they are taking in and not whether it is a balanced, healthy diet. The table below shows how much energy each portion of food contains.

You need to set up a spreadsheet from the data in the table below and their food intake to calculate whether BJ and Jenny are taking in the right amount of energy based on their needs. Make sure you save your work and print a copy. Do not forget to put your name on it!

<b>Average portion</b>	<b>kJ</b>	<b>Average portion</b>	<b>kJ</b>	<b>Average portion</b>	<b>kJ</b>
apple	200	coffee/tea	100	orange	200
apple pie	1200	cola	600	pat of butter	200
baked beans	400	cornflakes	400	peas	300
banana	300	crisps	600	pizza	1200
beefburger	1700	custard	600	potatoes (boiled)	400
biscuit	400	egg (boiled)	400	potatoes (chips)	1000
bread (1 slice)	400	egg (fried)	500	red meat	2000
cabbage	80	fish fingers	700	rice (boiled)	500
cereal	400	ice cream	500	sausages	1500
cake (1 slice)	700	jam	400	spaghetti	500
chapatti	900	jelly	300	squash	300
cheese	900	lamb curry	1200	sugar (teaspoon)	100
cheese sandwich	1800	lemonade	700	thick soup	600
chicken	900	lettuce	40	tomatoes	100
chocolate bar	1500	milk (1 cup)	600	yoghurt	400

## Activities

- 1 Use a graphics package to show what either the Firebird or Kaschei look like. Alternatively you might like to draw Prince Ivan.
- 2 Use a word processor to re-tell the story, but this time in no more than 100 words. It must still make sense and have a beginning, a middle and an end.
- 3 Use a suitable package to create a frame for a comic. The sort of comic which may be best would be the American Super Hero type. You could either do one which sets the scene, or one of the more action-filled episodes.
- 4 Use a music processor to take one of the main themes you have heard and score it for a different instrument such as the recorder. Then get someone else to play it to make sure it is accurate. Your music teacher could help you with this.
- 5 *The Firebird* was originally scored as a ballet. You could use a graphics package to design the stage set for a new production of the ballet. You could be adventurous and work out how many different sets you would need for the whole story or take just one.
- 6 Imagine that your school is going to stage a production of *The Firebird*. Most dramatic productions benefit from a programme which could be sold to explain the production. You could use the names of people from your class to play the various parts and do the jobs needed to produce the work. Use a desktop publishing package to produce the completed programme. You could work as a team and include the artwork from earlier tasks.
- 7 For the really adventurous, you could use a MIDI keyboard to compose a short jingle to be played over the school's radio station or loudspeaker system to publicise it.

Suggested answer to Activity 1 (page 6) showing formulae used:

Time	Cost peak	Cost off peak
2	=A2*3.3	=A2*1.5
3	=A3*3.3	=A3*1.5
4	=A4*3.3	=A4*1.5
5	=A5*3.3	=A5*1.5
6	=A6*3.3	=A6*1.5
7	=A7*3.3	=A7*1.5
8	=A8*3.3	=A8*1.5
9	=A9*3.3	=A9*1.5
10	=A10*3.3	=A10*1.5
11	=A11*3.3	=A11*1.5
12	=A12*3.3	=A12*1.5
13	=A13*3.3	=A13*1.5
14	=A14*3.3	=A14*1.5
15	=A15*3.3	=A15*1.5

Answer for Activity 3 (page 7) showing formulae:

Time	Cost peak	New cost peak	Cost off peak	New cost off peak
2	=A2*3.3	=B2-(B2*5/100)	=A2*1.5	=D2-(D2*5/100)
3	=A3*3.3	=B3-(B3*5/100)	=A3*1.5	=D3-(D3*5/100)
4	=A4*3.3	=B4-(B4*5/100)	=A4*1.5	=D4-(D4*5/100)
5	=A5*3.3	=B5-(B5*5/100)	=A5*1.5	=D5-(D5*5/100)
6	=A6*3.3	=B6-(B6*5/100)	=A6*1.5	=D6-(D6*5/100)
7	=A7*3.3	=B7-(B7*5/100)	=A7*1.5	=D7-(D7*5/100)
8	=A8*3.3	=B8-(B8*5/100)	=A8*1.5	=D8-(D8*5/100)
9	=A9*3.3	=B9-(B9*5/100)	=A9*1.5	=D9-(D9*5/100)
10	=A10*3.3	=B10-(B10*5/100)	=A10*1.5	=D10-(D10*5/100)
11	=A11*3.3	=B11-(B11*5/100)	=A11*1.5	=D11-(D11*5/100)
12	=A12*3.3	=B12-(B12*5/100)	=A12*1.5	=D12-(D12*5/100)
13	=A13*3.3	=B13-(B13*5/100)	=A13*1.5	=D13-(D13*5/100)
14	=A14*3.3	=B14-(B14*5/100)	=A14*1.5	=D14-(D14*5/100)
15	=A15*3.3	=B15-(B15*5/100)	=A15*1.5	=D15-(D15*5/100)



Mathematics: Number and algebra AT2 (5f, j), Handling data AT4 (1a, b, c, d, g, j; 3a, b; 4a, b; 5b, c), Breadth of study (1h)

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

### Unit 3: Science (page 9)

This unit covers basic experimentation on the energy gained from food. It is not intended to consider the question of a balanced diet, nor the nutritional value of food.

Students will need access to a spreadsheet, a word processor and a database. Some mathematical predictions and a little sorting are required. Therefore the better tool for this would be a spreadsheet. It is important that students become aware of choosing the right software for the right purpose and learn to justify their choice.

## Notes for the non-specialist teacher

Many teachers are worried about delivering ICT if they are specialists in another curriculum area. The major worry is usually “What do I do if things go wrong?” Surprisingly, the answer we would recommend is “Enjoy it!”. Nothing will explode, you will not damage the computer, and the students will probably find out how to put things right. Once it has been put right, you too will have learned something and you will be more confident next time.

The software which is required to do the activities in this pack should be quite easy to master – the pupils can do it! But for your guidance we would like to demystify the horrid computer jargon you will encounter.

Four outline sheets are included on pages 53 to 56 for completion by the ICT Coordinator. The intention is to provide school-specific information which can be copied and handed out to students. The sheets are as follows:

- Using our database (page 53)
- Using our word processor (page 54)
- Using our spreadsheet (page 55)
- Using our version of Logo (page 56)

Similar sheets could also be produced by the ICT Coordinator for other software packages that non-specialist teachers may wish to use.

### Databases

A database is only a collection of information which can be manipulated. You can sort it into a different order, you can find information which has common points, or you can search for one item of information. Imagine a card filing system such as you get in libraries. On the card might be the author's name, the title of the book and its cost. In computer-speak these are called **fields**. One card containing these pieces of information would be a **record** and all the cards together would be a **table**.

To set up a database, you have to have a mental picture of how it would be laid out on one of these record cards. How many letters could you get across the page? This is called the **field width**. You would probably not need the entire width of the page, so you can decide how wide you want your field. Imagine you are drawing a line next to the title or field name – think about its length. Some databases restrict the title, too. Some do not allow more than eight letters, some do not allow spaces. Ask your ICT specialist about restrictions in your school software. (Remind them to speak slowly and in English – they get excited if they think you speak their language.)

Once the card index is set up, we can decide what order we want to keep it in – by author, by title or by price. If we keep it by author, we may keep it alphabetically by surname. We may choose to keep it according to price. Price would be a **numeric field**. (This is one which only contains numbers. Some software asks you to decide when you set up the fields if you want it numeric. If you put numbers into a non-numeric field and then sort it, you get odd results like 100 coming before 2.)

A database lets you quickly change the order things are stored in – you could sort it into order by price and then by title if you wish. It will let you select information – all the books by Dickens, C or all the books which cost less than £3. If you know the title, for example, it will give you the information about who wrote it and how much it cost.