

WRANGLE COUNTY PRIMARY

DRAGON WORLD

THE USERS' MANUAL

The *DRAGON WORLD* Package

(A) SOFTWARE

1. The Adventure Part 1
2. The Adventure Part 2
3. Supplementary programs
 - a Dragon Music
 - b Riddle Solver
 - c Mazes
 - d The Riddles

(B) BOOKS

1. The Story of Dragon World
2. The Book of Ideas (for teachers)
3. The Users' Manual

(C) OTHER ITEMS

1. The audio Story of Dragon World (cassette side 1)
2. Original *Dragon World* music (cassette side 2)
3. Dragon template (plus instruction sheet)
4. 'Town of Treasures' record sheets
5. Concept Keyboard overlay (A4) [B.B.C. version only]

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WRANGLE COUNTY PRIMARY

DRAGON WORLD

Users' Manual

*"No dragon can resist the fascination
of riddling talk and of wasting time
trying to understand it."*

J.R.R. Tolkien "The Hobbit"

The Contributors to the *Dragon World Package*

Peter Forrest

the Dragon World story
the adventure design
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The Book of Ideas

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Users' Manual
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Dragon World story — the voices

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dragons — Richard Smith, Nicky Scott, Shirley Pegna

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Northamptonshire Computer Education Centre

version for RML 480Z

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Introduction I

When I started writing computer-based adventures in 1983 I was only partially aware that I was consolidating a number of vague ideas I had concerning primary education. Ever since my first days in the classroom fourteen years earlier I had felt that there must be a 'better' way of preparing children for adulthood. I could not accept that a child's learning tables and spellings for the Monday morning tests, staying in at playtime to re-write a story legibly, turning to page 37 to read a comprehension passage or copying notes about the Tudors from the blackboard was either an efficient or an enjoyable way of 'learning'. Furthermore I was not convinced that what was supposed to be learned was even useful. But I kept quiet because I wanted to remain in the education business, I had doubts about my own gut feelings, well-qualified experts obviously knew better than I did and, I must confess, this style of teaching didn't require too much effort other than the ability to stay awake to put the ticks and crosses in the right places. Occasionally I went berserk and, observed from beneath raised eyebrows, allowed children to create their own fantasy worlds to the accompaniment of *Genèsis*, *Tangerine Dream*, *Yes* and *Jethro Tull*. "Matson's at it again," the eyebrows said.

I couldn't help noting that when children were totally committed to perfecting their roles in a dance-drama production their enthusiasm was such that they actually wanted to work in other areas. As long as they didn't feel that they were being conned or patronised they were quite willing to undertake educational tasks related to the drama project.

In 1983 I met the occasional teacher who was worried that he/she had spent a week in *Granny's Garden* and had ignored the timetable for five days. Eighteen months later I was able to meet teachers who had been looking for the elusive *Flowers of Crystal* for a whole term and weren't experiencing any guilt whatsoever.

No child is going to sit at a computer playing with *Dragon World* and come away better educated because of what he/she has seen on a screen. *Dragon World* was not designed to teach children anything. Its purpose was to provide a gateway to another world, a world in which children would be stimulated and motivated to ask questions, find answers, discuss issues, keep records and use their imaginations to make that world their own world. Above all its purpose was to give teachers an opportunity to make the classroom a good place to be in.

On its own *Dragon World* can do nothing. The most important element in the whole package is absent — you must provide yourself. If you can become a visitor to *Dragon World*, dive in the murky pond to look for hidden treasures, cook a meal for a friendly dragon and jump on crocodiles disguised as stepping stones there is every chance that your children will follow you.

Mike Matson

Introduction II

I first came across computers and adventure programs and Mike Matson (in that order) in January 1984. I took over a class at Topsham Middle School for a term, and it just so happened that they were halfway through testing out *Flowers of Crystal*. They had gone through part one the previous term, and it was up to me to use part two of the program with them as soon as it was ready.

When it arrived I took it home conscientiously to try it out. I thought it was awful. It seemed in turns too easy and too difficult, and completing it that weekend became a real chore, unrewarding and frustrating. (If someone had told me then that 'Educational Computing' was going to choose *Flowers of Crystal* as the best educational software package of 1984 I would have thought they were completely crazy.)

I was all for phoning Mike up and telling him of my feelings — and also refusing to waste my class' time on it — but luckily the headteacher at Topsham managed to convince me that the only true test of the material was to let children use it. He was absolutely correct. I'm convinced that doing the program even in its unfinished state, and without any documentation from Mike or particular stimulus from me, was the highlight of the children's school life so far.

An adventure program doesn't teach any one particular skill; what it does do is stimulate and encourage a wide range of skills which might seem almost incompatible at first sight: logical thinking at the same time as imaginative fantasy; care in keeping records at the same time as the ability to make intuitive leaps; reading for a purpose at the same time as reading for fun.

We often compartmentalize these skills into particular 'exercises' in school. Isolating a skill can be useful, and even sometimes essential. But it can also lead to learning which never gets transferred to the real world. The great advantage of a program like *Dragon World* is that, once involved in it, children are practising various skills **in context, and therefore learning how and when to use them in an appropriate way.**

So if, like I originally did with *Flowers of Crystal*, you feel that *Dragon World* is all very well, but doesn't really teach children anything at all, I urge you to give it a fair trial.

And if, again like me, you have just slogged your way through the program and have become infuriated by the frequent trips back to the beginning you've had to make, the difficulty of one section and the banality of another, then please remember that you've been doing the program in the worst possible way. A group of children who have hours or days or even a whole week between visits to *Dragon World* will re-act very differently to the program.

And they might not even make as many mistakes or jump to as many conclusions as a tired and frustrated adult may have done!

Peter Forrest

Using *Dragon World* at home

Dragon World was produced with the school in mind. For this reason the documentation makes reference to 'teachers' and 'classrooms' and does not mention parents. It should not be assumed that the authors of the material believe its use should be restricted to schools.

If you are a parent who wishes to explore *Dragon World* it is suggested that you browse through the package and make use of anything which is appropriate to you and your child. If possible **do** take some of the suggested ideas and try to encourage some of the 'away from the keyboard' activities. Much of the benefit of *Dragon World* will be lost if opportunities for discussion are not provided. This discussion may be with you, as a parent, or with a friend who has been invited to share the adventure. (See *Discussion and Dragon World* in *The Book of Ideas*.)

In some ways the parent can make far more use of *Dragon World* than the teacher who has to be in thirty different places doing thirty different things at the same time. You are able to enter the fantasy world along with your child and, even when you are taking a Sunday stroll, you can help to look for secret caves in the park, spot wisps of dragon breath in the sky, hunt for solitary trees standing guard over the treasure concealed beneath their roots and, perhaps, listen for Bewgo tunes played by ice-cream vans.

The *Dragon World* Adventure — Part 1

The adventurer's objective in Part 1 is to arrive in *Dragon World* having found the five magical teeth of Bewgo. Although the major portion of this part of the adventure is sequential the chances of finding the five teeth first time are extremely remote.

Musical teeth

Following the introductory screens a dragon appears and plays a tune (although those with a musical ear might prefer to call it a random sequence of between 7 and 10 notes). Each tooth represents a white key on a piano and moves when its note is played. The dragon asks how many notes have been played. If the answer is incorrect another selection of notes will be played. This sequence continues until a correct response is given.

The next sequence is dependent upon the response to the question, "Which came first, the dragon or the egg?". There is no correct answer. Choosing 'dragon' leads to a riddle sequence while choosing 'egg' leads to the dragon egg section.

Riddle sequence

The dragon chooses at random from its selection of 17 riddles. It 'knows' one answer only to each of its riddles. If an 'incorrect' answer is given the dragon plays safe by saying, "You may be right but I was thinking of one of these:" and lists the 17 answers to the 17 riddles. A chance to select the 'right' answer is given. (Correct spelling is necessary.) When an acceptable answer is given the dragon performs one of its four tricks. After a maximum of two riddles/tricks the program returns to "Which came first, the dragon or the egg?". It is necessary to continue with the riddle sequence until one of the magical teeth has been found. The elusive tooth may be given as a present after the dragon has breathed fire (but only if it is requested).

Dragon egg section

(See *The Eggs*)

Eighteen eggs are arranged on the screen above the message, "One of these eggs is a dragon's egg" and the question, "Which one do you think it is?". While the eggs nearest to the left edge of the screen are those of creatures most unlike a dragon the dragon-likeness increases towards the right edge. In addition to finding the embryonic dragon it is necessary to locate the second magical tooth which is hidden in one of the other eggs. Once the dragon's egg has been found the baby dragon emerges and requires feeding.

Baby dragon feeding

Baby dragon, being typical of her species, weighs 30kg at birth. She requires feeding until her weight is 100kg. Although the dragon feeder is informed that the baby is a fussy eater her appetite is not, in fact, related to *types* of food but to the *initial letter* of food names. As she does not appear to get any bigger one must assume that the whole dragon feeding exercise is no more than another little dragon trick or riddle. When baby dragon is replete another riddle allows the third magical tooth to be found. Three windows appear and one has to be chosen.

Window 2

Six sorcerers are to be found lurking behind this window. Their true identities are revealed by reversing their names. *Yeknod*, *Nogard*, *Nobbig*, *Regdab*, *Etoyoc* and *Raguoc* have special qualities which are needed in windows 1 and 3. The six sorcerers behave like a fruit machine until three of them have been chosen to help.

Window 1

In order to get beyond the two walls which lie behind this window it is necessary to choose methods which are appropriate to the qualities of the chosen sorcerers e.g. the presence of *badger* is necessary if one wishes to go *under* a wall. Beyond the walls waits the *Juggler*.

Using the two cursor keys [←] and [→] it is possible to move a bowl with which to catch the ball which the Juggler insists upon dropping every so often. No further progress is possible until the ball has been caught (and the fourth tooth found).

Window 3

The presence of Nogard (with his musical teeth) is virtually a necessity if success is to be achieved in this last sequence. A randomly-drawn path exists through a pitch dark cave (the route being different each time this section is tackled). The example paths shown at the beginning of this sequence do not necessarily represent the actual route. Using the cursor keys [←], [↑] and [→] it is possible to steer a course. If Nogard is helping he will provide musical hints in the form of high and low notes to show whether one is on course, or left or right of the path. The fifth and last magical tooth is to be found en route. If one wanders more than two 'steps' from the path some friendly skeletons appear. Three attempts at following the path are permitted. By successfully negotiating the path the adventurer arrives in *Dragon World* and, if all five magical teeth have been found, is given the password necessary to commence Part 2. If all five teeth have not been found a clue is given concerning the whereabouts of one of the teeth.

The *Dragon World* Adventure — Part 2

Access to Part 2 is allowed when the correct password (given at the end of Part 1) is typed in. The aim is to find five treasures to be presented to the dragons. There are twenty four different treasures but five of them occur twice making a total of twenty nine treasure-bearing locations. (For further information see *The Treasures in Dragon World*.) Each treasure, when found, is identified by an 'easy' riddle. (See *The Riddles*.) If the 'hard' riddles are required it is necessary to type 'hard' and press [RETURN] before typing in the password. Cassette users will have to wait while the 'hard' riddles are loaded into memory.

Musical teeth

As in Part 1 the dragon plays a selection of random notes (but faster this time) and asks how many notes were played.

Dragon feeding

The ever-hungry baby dragon wishes to be fed again and, as in Part 1, responds only to foods beginning with *dragon* letters. Whenever she accepts a meal she shows one of the animals which were posing as sorcerers in Part 1 and asks, "Which animal is this?" The sequence continues until the cougar, badger, donkey and gibbon have been correctly identified. (Incorrectly spelled animals' names are not recognised.)

Bewgo's Stream

A route across the stepping stones must be found. Each stone is one of five different colours and is chosen by typing in the initial letter of the colour. There is only one safe route across the stream and this may be determined logically. One set of coloured stones is really a family of crocodiles and may be avoided in future once their colour is discovered. The route from one stone to another is dependent upon distance i.e. the nearest stone is the one to choose each time (as long as it isn't a crocodile). A wrong choice is rewarded by a 'dunking'. Four consecutive attempts to cross the stream are allowed. When the last stone is reached a path appears on the opposite bank.

Maze of No Return

A blue cross at the bottom of the screen is steered through the maze towards a red square by using the four cursor keys. The maze is the same each time and there is only one main path. Three consecutive attempts are allowed. The cursor keys do not auto-repeat i.e. holding down a key will not cause more than one movement of the blue cross.

The Town of Treasures

In this final section one must look for five treasures which the dragons "will be able to share for ever". There are four territories to explore: the flats (which is where some of the dragons live), the tree, the pond and the road. The tree is sub-divided into two exploratory areas, the branches and the roots. Each of the animals is able to assist in one of the five territories, the choice of animal being related to its characteristics e.g. the gibbon helps in the tree's branches. (Children may like to be asked why the dragon helps in the pond.)

When a treasure has been removed from a particular location that location is closed and cannot be re-visited. If a second or third visit is made to a territory the particular animal residing in that area will not help again unless it is offered some food although the dragon, having been well fed throughout the proceedings, does not expect further titbits.

Once five treasures have been collected they *may* be offered to the dragons but there is no obligation to do so. If a sixth treasure is found and is to be kept then one of the first five treasures must be discarded. When five treasures are given to the dragons the finder is informed how many of the dragons are pleased with the gifts. (For further information see *The Treasures in Dragon World*.)

This part of the adventure is open-ended in that children may give whichever treasures they wish to the dragons without being right or wrong but the reaction of the dragons is dependent upon the nature of the treasures. If five of the treasures please the dragons this message appears:

“Now the treasures have been found the world may be a happier place. But that will be another story!”

If less than five dragon-pleasing treasures are given the message is:

“Next time you may be able to find some treasures which they all like.”

There are two dangers in the Town of Treasures. At certain locations the coyote is lurking and, unless he is offered choddrops, will, after his third appearance, return the treasure hunter to the beginning of the program. The second difficulty occurs when all available treasures have been taken but not given to the dragons. To avoid an aimless meandering around the Town of Treasures the unfortunate treasure hunter must take option 5 ‘start again’.

Dragon World — a Flying Visit

For a number of reasons you may wish to go through the two parts of the adventure as quickly as possible. The following notes should make this task a little easier.

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Part 1

musical teeth — count the number of notes played.

dragon/egg riddle — choose ‘dragon’ and continue answering riddles until the fire-breathing trick. When asked, “What would you like?” say ‘tooth’. After two tricks and no tooth choose ‘dragon’ again. Once the tooth is found choose ‘egg’.

egg choosing — 1. select c3 and reply ‘tooth’ to the question, “What am I hiding?” 2. select f2.

baby feeding — choose foods beginning with **d, r, a, g, o,** or **n**. When asked, “What will you feed her now?” choose *dragon* foods again but do not repeat any.

riddle — “What can be filled . . . ?” — answer ‘tooth’.

window 2 — choose a selection of sorcerers which includes ‘Nogard’ but excludes “Etoyoc’.

window 1 — pass the walls using methods appropriate to the selected sorcerers: through/Yeknod, round/Raguoc, over/Nobbig, under/Regdab. When you meet Juggler you’re on your own!

window 3 — cave path: listen carefully to the sounds and at the tenth step keep to the left of the path to find a tooth.

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Part 2

password — (to obtain the hard riddles type ‘hard’ [RETURN]) type ‘ogweb’ [RETURN].

musical teeth — as Part 1.

dragon-feeding — as Part 1.

Bewgo’s Stream — the correct sequence is ‘y/b/r/w’ repeated 3 times.

maze — you can do it.

Town of Treasures — avoid these locations: flats 4, 6 branches 1, 5 roots 1, 8 road 4, 7. To leave pond choose ‘water lily’.

The treasures are located as follows:

flats	branches	roots	pond	road
1 friends			choddrops	
2 emeralds	silver	sweets	carrots	sapphires
3 gold	peace	warmth	worms	diamonds
4	kindness	pearls	love	
5 money		laughter	cat food	happiness
6	rubies	cat food		toys
7 worms	carrots	choddrops		
8 bananas	health			bananas
9				perfume

The Treasures in Dragon World

In Part 2 of the adventure 24 different treasures are to be found. These treasures fall into 3 main categories:

commodities

emeralds
gold
money
silver
rubies
pearls
sapphires
diamonds
perfume
toys
sweets

foods

worms
bananas
carrots
cat food
chocdrops

'real' treasures

friends
peace
kindness
health
warmth
laughter
love
happiness

In their own way each of the three types are treasures although it is only the first eight 'commodities' which equate with the usual concept of *treasure* as found in sunken galleons or buried chests.

To most children the whole idea of a worm being a treasure is not only ridiculous but quite repugnant. In the *Dragon World* adventure, however, a worm is seen to be of value in two ways. Firstly, it is highly prized by the badger because her very existence is dependent upon the acquisition of such valuable items of sustenance. Secondly, it is of value to the treasure seeker because, by being given to the badger, it can be exchanged for another treasure. The bananas, carrots and cat food are valuable in the same way but the chocdrops are of value in that they buy 'freedom' from the coyote. It may be worthwhile for children to discuss the difference between *gifts*, *payments*, *bribes* and *ransoms* etc. although perhaps not using those terms. For example: they could be asked whether they give presents for the benefit of the recipient or to make themselves happy.

The 'real' treasures are the ones which the dragons most desire. The dragons' response when the treasures are given to them depends upon how many of the five are 'real' treasures. If five 'real' treasures are given then five dragons will jump up and down. Additionally the proportion of dragons liking the treasures is dependent upon the number of 'real' treasures offered. The treasure finders will be told that *one or two, a few, half, most or all* the dragons are pleased.

The Riddles

Riddles occur throughout the two parts of the Dragon World Adventure and take a number of different forms. In addition to the two main 'blocks' of riddles there are two isolated riddles. In Part 1 the child is asked,

"Which came first, the dragon or the egg?"

There is no right or wrong answer to this riddle (unless, of course, you know differently). In the context of the program the riddle is a device to allow the adventurer to take one of two branches depending upon whether the answer given is "dragon" or "egg". Also in Part 1 there is this riddle:

*"What can be false but never true,
sometimes filled but never emptied?"*

As the aim in Part 1 is to find the five magical teeth of Bewgo this riddle should present few problems.

Part 1 Riddle Sequence

(See *The Dragon World Adventure Part 1 — Riddle Sequence*)

The dragon's riddle repertoire is as follows:

1. What goes up as the rain comes down?
2. What is water when it floats?
3. What is always behind a lion?
4. Which part of a dog smells best?
5. What has two hands and no arms?
6. What stays with you in the sun?
7. Which fruit is the colour of itself?
8. What goes up but never down?
9. What stays still when it is turned?
10. What gets wetter as it dries?
11. Which part of a dog is on a tree?
12. What is told but never heard?
13. What goes up without moving?
14. Which lion has no teeth?
15. Which nose can pick up food?
16. What has no mouth but can blow?
17. What has two legs and no feet?

The dragon's answers are:

umbrella, ice, tail, nose, clock, shadow, orange, smoke, corner, towel, bark, time, stairs, dandelion, trunk, wind, trousers.

The Riddles in Part 2

Each of the 24 treasures in Part 2 is identified by an 'easy' or a 'hard' riddle. When the program is loaded the 'easy' riddles are in memory. They will be replaced by the 'hard' riddles if 'hard' [RETURN] is typed in before the password is typed in.

The riddles are not listed here as they may be seen (and printed) by using the supplementary program "The Riddles".

The following example illustrates the difference between the 'easy' and 'hard' riddles:

My first is in **g**et but not in pet
My second is in **l**ot but not in let
My third is in **e**el but not in see
My fourth is in **be**d but not in bee. gold

In the easy riddles there is one letter only which occurs in the first word but not in the second. There is, therefore, no more than one possible answer to the riddle.

My first is in **b**ig but not in small
My second is in **h**ouse but not in wall
My third is in **l**eg but not in arm
My fourth is in **da**nger but not in harm. gold(?)

In the 'hard' riddles there may be more than one possible riddle letter on each line and, therefore, there is more than one possible answer. In the above example 'gold' is not the only possibility. Out of 180 combinations (most of which are nonsense words) there are 4 other answers which are equally valid, these being 'bold', 'bole', 'been' and 'geld' (ouch!).

N.B. The *Riddle Solver* program will allow you to find the 180 combinations quite easily (assuming that you have nothing better to do with your time).

The Eggs

In Part 1 of the adventure eighteen eggs are shown on the screen. The creatures to which the eggs belong are, with the possible exception of the dragon, egg-laying animals. The egg graphics are purely symbols and obviously bear no relation to the shape or size of the real eggs.

3.	butterfly	sparrow	parrot	fly	vulture	dragonfly
2.	worm	spider	slug	salamander	lizard	dragon
1.	cod	trout	salmon	piranha	shark	dragonfish
	a	b	c	d	e	f

It was intended that the creatures represented by the eggs form a spectrum of animals ranging (from left to right) from the least dragon-like to those bearing the greatest resemblance to dragons.

Also it will be noted that the three rows represent air, land and water creatures. Whether the dragon, dragonfly, worm, fly and butterfly are in the correct category is open to debate.

The Supplementary Programs

The four additional programs were designed to complement the main adventure. On-screen instructions are kept to a bare minimum as it is not intended that the child should 'flit' from one program to another but that the teacher will select the appropriate parts of the supplementary programs for children to use. As these programs are not as 'user-friendly' as the adventure younger and/or less-experienced users will require much more assistance (in the way of demonstration and explanation) concerning how to use the programs.

1. DRAGON MUSIC

N.B. the notes relating to volume change, voice changing and the playing of chords refer to the B.B.C. version only.

Sounds play an important part in *Dragon World* and the *Dragon Music* program both assists the adventurer and provides opportunities for extension activities. A menu provides six options and one may return to this menu at any time having chosen option 1 to 5. (Option 6 enables one to finish using the program.)

1. Adjust volume

A note plays continuously (until [RETURN] is pressed). The left and right cursor keys [←] [→] allow the volume to be set to any level between 1 (low) and 12 (high). In the average classroom situation a higher, rather than a lower, setting will be necessary. (*It should be noted that individual computers have their own volume levels set by an internal control and, unless this control has been altered, it will be found that the 'natural' volume level varies considerably from machine to machine.*)

2. Play music

At the beginning of both parts of the main adventure the child plays a passive role while the dragon performs a tune on its teeth. Option 2 converts the computer into a music synthesizer allowing the child to play the dragon's teeth.

The keys [S] to [K] and [Z] to [M] become a two octave keyboard.

Pressing [TAB] permits the keys to cycle through three octaves. The octave change needs to be rapid in order not to interrupt any notes being played. As a result no more than a very short tap on the [TAB] key is needed to effect a change. Of course it may be the case that the [TAB] key is held down in order to achieve a special effect.

Keys [1] to [5] change the *voice* (sound envelopes) to allow different sound qualities and effects.

Chords (as well as cacophony) are possible, voices 2 and 4 permitting notes to be synchronised more closely than the other voices. The way these chords are produced is not continuous (cf a piano) but cyclic (cf a guitar).

Voice and octave changes may be made while a note is playing continuously.

Although melodies (in the key of C or A minor) are possible the aim of the synthesizer is to allow children to experiment with different sound effects (possibly to the annoyance of adults within earshot).

3. Make a recording

There are certain limitations to the recording option. A maximum of 128 notes may be recorded. Single notes only are possible. This option does not allow the sophistication of option 2 *Play music* (for technical reasons!)

By following the simple on-screen instructions it is possible to record a simple, short tune. A recording may be made in two stages. Firstly a temporary recording is made and is held in the computer's memory. Recording a second tune will destroy the first recording. Should a musician produce a particularly worthwhile composition it may be saved on disc or tape. If it is intended to make use of this second stage recording facility it is necessary to use a separate disc or tape. The *Dragon World* disc or tape MUST be removed before a permanent recording is attempted. The disc version of the program informs the user if a recording cannot be made on a disc for a number of reasons. When a permanent recording is to be made it is necessary to type in a name in response to the request "Please give a file name". Any data saved from a computer becomes a file. It cannot be saved unless it is given a distinguishing name. A maximum of 7 characters is permitted. (Cassette users are advised to use a fresh tape for each recording, if possible, in order to make it easier to find the file later and to make a written note of the filename.) Disc users are warned that two files with the same name cannot be saved on the same disc e.g. if a tune is saved with the name "tonedef" a second tune saved with that name (or even "ToneDef") will erase the first.

4. Listen to a recording

If a recording does exist one has only to type in the file name and press [RETURN] for the tune to be loaded into memory. Disc users must ensure the disc containing the file is in the disc drive and cassette users must ensure that the tape is wound forwards or backwards to the appropriate position. Typing *CAT [RETURN] (before the program is loaded) will display a catalogue of the recordings which have been saved on a disc (or on a tape if *PLAY* is pressed).

5. Highest or Lowest

In order to find a safe path through the dark cave in Part 1 of the adventure it is necessary to listen to the musical clues provided (by the Dragon's teeth). These clues take the form of single notes of different pitch. While some individuals have a natural gift for distinguishing between high and low notes most of us have some difficulty.

This option gives children the opportunity to listen to a random selection of notes and then select which one was the highest or the lowest. The number of notes to be heard may be selected (2-5) and the speed at which the notes are played (1-5) may also be chosen. The child is informed whether the choice was right or wrong, a staff appears and, while the sequence of notes is played again, the notation appears on the staff.

2. RIDDLE SOLVER

In Part 2 of the adventure the treasures which are located are identified by means of riddles. These riddles take the form of:

My first is in time but not in tie

My second is in egg but not in bag

Unless the hard riddles are chosen there is only one letter which occurs in the first word but not in the second (in the above example *m* and *e*).

Riddle Solver allows the children to ask a dragon a riddle of their own.

It is helpful if the children write down their riddles before asking the dragon. First of all they are asked,

"How many lines are there in your riddle? (2-9)"

The words common to all riddles (e.g. "My first is in") are written on the screen and it is necessary to type in no more than the riddle words (each followed by [RETURN]).

When the riddle is completed the answer will be given. If the riddle is complex (i.e. there is more than one possible riddle letter in a line) then all the possible answers will be shown as long as the number of possibilities is not too ridiculous. If a printer is connected it is possible to print the riddles and their answers (see section *Using a Printer*).

3. MAZES

In Part 2 it is necessary to negotiate a maze. The *Mazes* program allows children to practise before (or after) attempting the adventure. The mazes are drawn at random by the computer but each one has only one correct route. Movement through the maze is achieved by using the four cursor keys. After each turn (successful or otherwise) there is an option to repeat the same maze or a new maze may be drawn. Each new maze takes between 15 and 20 seconds* to construct. It may be possible for disc users to *dump* a maze to a printer (see *Using a Printer*).

*These timings refer to the B.B.C. version. At the time of writing it is not known how long the 480Z will take to construct a maze.

4. THE RIDDLES

This utility allows the riddles (both hard and easy) which feature in Part 2 of the adventure to be seen and, if a printer is connected, to be printed (see *Using a Printer*).

Using the Micro

Hints for those new to this sort of thing

Starting off

It is assumed that you will either know how to set up your micro or it has been done for you. If you are uncertain about how to load programs the notes on the inside of the back cover may be of assistance.

Sound Levels [B.B.C. version only]

When either of the two parts of the adventure is used it is possible to set the volume level before the program loads. By pressing (and holding down, if necessary) the keys [1] to [5] a noise is generated which will give some indication of how loud the sounds in the program will be. The volume level may continue to be changed until the space bar is pressed. Remember that a volume level which sounds high when the room is empty will probably be very low when the children arrive. Additionally it should be noted that sound plays an important part in both parts of the adventure and difficulty will be experienced if the sounds are inaudible.

In the supplementary program *Dragon Music* the sound level may be adjusted whenever the menu is displayed by selecting option 1.

Using the Keyboard

(If you are using a Concept Keyboard see the appropriate section.)

This symbol <S> indicates that nothing further will happen until [SPACE] is pressed. This ensures that children are given sufficient opportunity to read any text, ask questions, discuss possibilities etc. <S> DOES NOT mean that [SPACE] has to be pressed as soon as the symbol appears. This point should be stressed to children who are not completely familiar with using a micro. All too often a quick digit presses [SPACE] before anyone has had a chance to read the text.

When the computer expects an input a row of dots appears on the screen. The number of dots corresponds to the maximum number of characters which will be permitted. For each input certain keys are disabled. If, for example, a single numeral is expected there will be only one dot and it will be impossible to input any character other than one of the expected numerals. A short 'beep' will sound if an attempt is made to input an 'illegal' character.

Whenever a response is typed in it is necessary to finish by pressing [RETURN] to show that an input is completed. At any time before [RETURN] is pressed it is possible to remove the input by pressing [DELETE].

[CAPS LOCK] has been disabled i.e. upper case letters will not appear on the screen when an input is made. Whenever a *letter* key is pressed a lower-case letter will appear on the screen (except when taking the lift to the Ground floor in the block of Dragon flats).

When a *yes* or *no* response is expected it is possible to type *y* or *n* only (before pressing [RETURN]).

[ESCAPE] has been disabled.

Pressing [BREAK] on the B.B.C. or [RESET] on the 480Z will remove a program from memory. If this happens it will be necessary to re-load the program.

Using the Concept Keyboard*

N.B. The Concept Keyboard may not be used with the 480Z version.

The Concept Keyboard may be used with all the Dragon World programs except *Dragon Music* and *Mazes*. Disc users wishing to use the Concept Keyboard must press [C] when the first menu appears and cassette users before the main programs are loaded.

In Part 1 of the adventure movement of the bowl in order to catch the Juggler's ball is achieved only by using the cursor keys [←] and [→] on the computer keyboard and in Part 2 the maze may be negotiated only by using the four cursor keys. A note to this effect appears on the screen.

The overlay

The overlay provided is for the A4 size Concept Keyboard. It is worth making copies of this sheet as constant use shortens its life.

It will be noted that on the overlay there are boxes marked 'yes' and 'no'. When these are pressed the letter 'y' or 'n' only appears on the screen.

The boxes marked '<S>', 'DELETE' and 'RETURN' correspond to the positions of the [SPACE], [DELETE] and [RETURN] keys on the computer keyboard.

**Concept Keyboard is available from:*

Star Microterminals Ltd., 22 Hyde Street, Winchester, Hants. SO23 7DR.

Using a Printer

*N.B. The following notes refer specifically to the users of the B.B.C. version.*1*

Three of the supplementary programs — Riddle Solver, Mazes and The Riddles — have a printer option. Mazes requires the use of a machine code Mode 7 graphics dump (in ROM or on disc).

Riddle Solver and The Riddles

These two programs will allow text to be output to a printer if the printer option is chosen at the beginning of either program. In theory any printer in normal use with your computer will be suitable. Certainly there should be no problems with EPSON printers. If the printer option is chosen when no printer is connected it will probably be necessary to press [BREAK] and then re-load the program.

Users of EPSON printers may like to try the following to obtain different printing effects:

(a) Emphasised print

Ensure that there is no program in memory (by holding down [CTRL] and pressing [BREAK] before releasing [CTRL]). Turn on the printer. Type in *VDU2,1,27,1,69,3* and press [RETURN].

Load the program and choose the printer option.

(b) Condensed print

As above but type in *VDU2,1,15,3*.

If your micro is fitted with a printer utility ROM such as PRINTMASTER*2 you may wish to try some of the commands which change the printing modes. (With PRINTMASTER it is the *TEXT command which is used.)

Mazes

N.B.1 Cassette users may ignore this section.

N.B.2 If your B.B.C. micro is not equipped with a printer utility ROM and you do not possess a Mode 7 graphics screen dump (or do not have a clue what this sentence means) please ignore the rest of this section but avoid using Option 4 on the Mazes menu.

After an attempt has been made at negotiating a maze a menu is offered. (By deliberately taking a wrong turning in the maze the menu will be offered sooner.) Option 4 permits the current maze to be *dumped* to a printer. If disc users possess a suitable machine code Mode 7 graphics dump this may be used. When Mazes has been loaded in the normal way the *Dragon World* disc may be replaced by the disc containing the dump file.

The program asks for the name of the dump command. If, for example, a PRINTMASTER ROM is being used the command is *GDUMP**3. If the dump is on disc the file name of the dump must be typed in.

The maze will be dumped automatically (assuming that the printer is connected and switched on). In the event of the dump command having no effect an error will be generated and the Mazes program will start again from the beginning.

If the foregoing makes no sense tell yourself that there is no reason why you should want to dump mazes anyway.

**1 At the time of writing it is thought that using a printer with the 480Z will be fairly straightforward.*

**2 PRINTMASTER ROM is available from:*

Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts. HP2 6EX.

**3 Although the command is *GDUMP the * is not required. Other effects may be tried by using other dumping options e.g. GDUMP 0,1.*

Problem Page

Possible problems and (the occasionally serious) possible solutions

Q1 *The programs won't load. Is it me?*

A1 Quite possibly but check that your computer/disc drive/T.V./cassette recorder/monitor are switched on and working and that all leads are correctly connected. If the disc or tape is suspect return it to 4MATION with a brief (polite) note for an immediate replacement. (We have been known to send out completely blank discs on odd occasions.)

Q2 *Could it be that your disc is not compatible with my non-Acorn Super-Zap DFS?*

A2 Yes. Return the package and ask for a refund.

Q3 *A very good friend of mine managed to make me an illegal copy of Dragon World but I haven't any documentation. What can I do?*

A3 Keep looking over your shoulder.

Q4 *When I boot the disc all I get is your ***** logo and no menu. Why is that?*

A4 Possibly because you've been booting the disc while a Dragon World program is in memory. Press [BREAK] on its own before booting. If it still doesn't work see A1.

Q5 *The Maze program has got stuck before it has finished drawing a maze. What should I do?*

A5 Try (1) pressing [BREAK] or (2) holding down [CTRL] and pressing [BREAK] or (3) switching the computer off then on. Tell all your friends that 4MATION products are hopeless and re-load the program.

Q6 *I tried to print some riddles when I didn't have a printer and everything seemed to stop. Was I silly?*

A6 Just a little.

Q7 *The music on my 480Z isn't very loud! What are you going to do about it?*

A7 Tell you to ring Oxford 249866 and ask to speak to that awfully nice Brian Orchard.

Q8 *I am absolutely knocked out by the 480Z version. Can you please send me a dozen signed photographs of the programmers?*

A8 No, but try sending a cheque for at least £1.50 to The Northamptonshire Educational Computing Centre, Barry Road, Northampton. You are obviously very easy to please.

Q9 *Dragon World is completely useless on by black and white portable: my diploma course students can't read the writing. You should have thought about people like me when you wrote the programs. Will you please send me a transcript so that we know what we're missing?*

A9 Unfortunately we cannot do this but I believe that Anita Staker, Director of the M.E.P. National Primary Project, could suggest something.

Q10 *I keep missing the Juggler's balls. What can I do?*

A10 Persuade someone else to catch them for you or, if you really want to do it yourself, just give the keys a quick dab in order to move the bowl a short distance at a time.

Q11 *I get the impression that you're not taking this seriously. Am I right?*

A11 Yes.

Q12 *But your approach would be much less light-hearted if you were engaged in the serious business of educating children wouldn't it?*

A12 Yes, but not in front of the children.

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Peter Forrest

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Tim Johns (Topsham Middle, Devon)

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Mike Matson

Disk/Tape Loading Instructions

Disc and Tape

1. Switch on TV or monitor
2. Switch on micro
3. Switch on disc drive or cassette recorder
4. Ensure ALL leads are correctly connected

Disc

RML 480Z users — please see separate instruction sheet.

5. Remove disc from sleeve and insert (label uppermost) in drive
6. Hold down [SHIFT] — press [BREAK] — release [SHIFT]
7. The program menu will appear
8. Select program by pressing appropriate key
9. To change program press [BREAK] and repeat steps 6 — 7 above.

Tape

5. Insert cassette (not the audio tape) into recorder (correct label visible)
6. If DFS fitted type *TAPE (or *T.) [RETURN]
7. Type *CAT (or *.) [RETURN]
8. Rewind tape to the beginning then Fast Forward for a few seconds.
9. Press PLAY and check that the program is 'counting' on the screen
10. If such messages as 'Data', 'Block', 'Header' appear try adjusting volume and/or tone controls on recorder
11. If all appears well rewind the tape to the beginning of the required program. Use FAST FORWARD, PLAY and REWIND as you would to find a piece of music. Rewind the tape to a point just before the beginning of the program.
12. Press [ESCAPE]
13. Type CHAIN "" [RETURN]
14. While the program loads check that no errors occur (see step 10 above) — if they do happen rewind the tape a little

Note — B.B.C. disc and cassette users

Pressing [BREAK] will destroy any *Dragon World* program in memory.

