HNPS/1

DERBYSHIRE

Educational Software Centre

PRIMARY 7 PRIMARY

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PROGRAM NAME	Spider Nim
AUTHOR	J.S. Watkinson

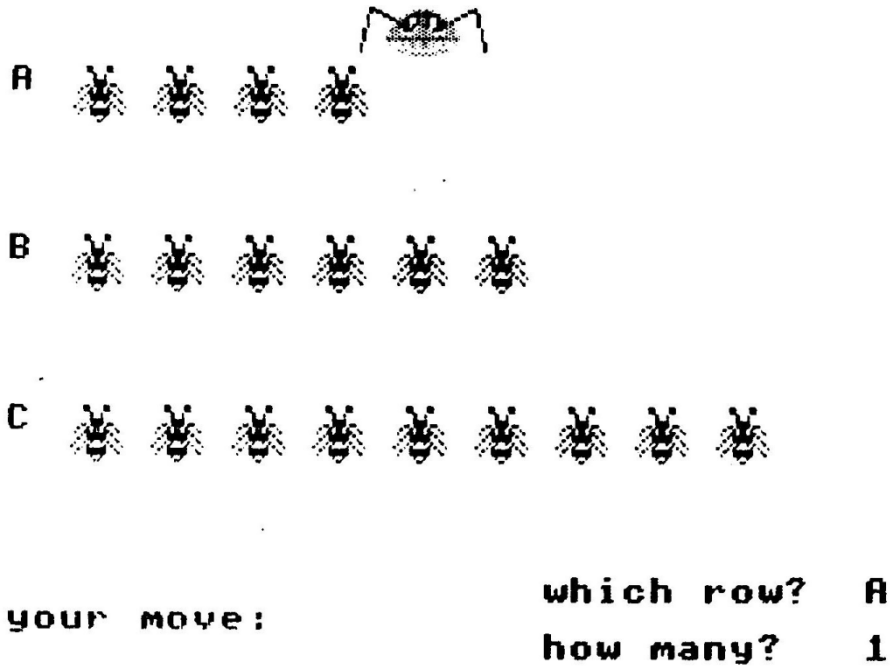
SPIDER NIM

Additional course material : none

Special requirements : none

SPIDER NIM is an animated version of the old game of NIM and is played by one player against the computer.

In the traditional game there are three piles of counters which are removed by the players in turn. In this version, there are three different-sized rows of bugs which are eaten by a spider.



The size of each row is randomly determined but will never exceed nine.

The rules are simple:

1) A player may remove as many bugs as he wishes but from **only one pile at a time.** He may remove the entire pile if he so wishes.

2) A player may not miss a move or attempt to remove zero bugs.

3) The player who takes the **last bug of** all is the **loser.**

Note that the computer will not allow cheating in any of the rules!

The player will always be given the first move. This is of great advantage as usually that is the move which created a winning position.

The spider will speed up during the game as his speed is a function of the number of bugs left to eat. If the computer is forced into taking the last remaining bug, so losing the game, the spider will turn purple with rage!

The game of NIM encourages clear logical thinking of the sort ....

"If I do this, then my opponent will do ...."

It is only after playing a number of games that the strategies become obvious.

PLAYING STRATEGY

The object of the game is to leave the last counter for your opponent. The three absolute winning positions are to leave your opponent with these pile sizes:

1	1	1
0	2	2
1	2	3

.... in any combination.

The computer will make every attempt to force you into one of these three positions. You, of course, must try to force the computer!

PROGRAM NAME	**Engine**
AUTHOR	**G. T. Atkinson**

FOUR STROKE ENGINE

TEACHER:

This program is intended for use by the teacher as an animated wallchart.

Use the **space bar** to 'freeze' the picture at any time. Press the space bar again to re-start the movement.

The 'H' key will give information about each of the four cycles.

space bar

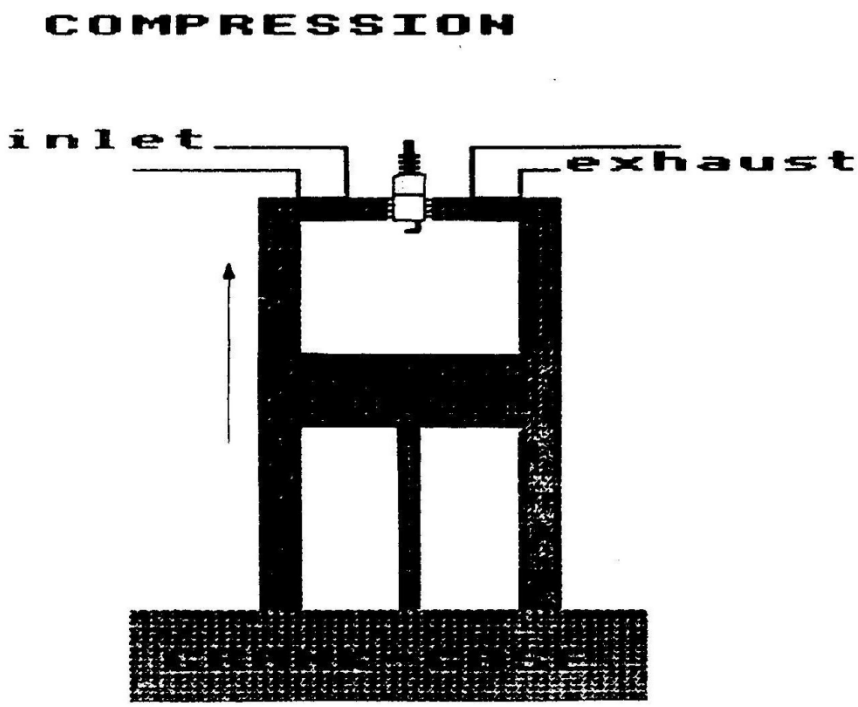
Using The Program

This program is a teachers aid and is not designed for use by children on their own. It should be considered purely as an audio visual aid.

It is possible to talk through the cycles as they happen due to the relatively slow animation speed. However, the space bar will completely stop the movement in order to allow discussion or further explanation.

An example of the screen display may be found on the following page.

DIAGRAM OF COMPRESSION STROKE



PROGRAM NAME	Wild Flowers
AUTHOR	J.S. Watkinson (based on questions set by Richard Scott)

WILD FLOWERS DATABASE

Additional Course Material : None

Special Requirements : Teacher's Guide
Sample Data File FLOW1

Using the program

When the title page has been displayed, the computer will ask you to type L for load if you have anything to load from tape or disc. At this point you may load any information previously gathered by the children and written on to a data file.

There is a sample data file on the program disc and it is called FLOW1. This contains details of twelve flowers and is not intended for use by the children. It is for the teacher to use as a familiarisation exercise only.

If you try to load a non-existent file, the computer will give a **channel error** message and stop. In this case, type **RUN** and try again.

Whether or not you have loaded a file, the next question is

Do you wish to tell me about a flower? (Y or N)

If you type **Y** the following questions are asked:

What colour is the flower?

(red, yellow, blue, violet, white, mixed (composite), other)

What height is the flower?

(less than 10 cm, 10 to 60 cm, more than 60 cm)

How many petals on each flower head?

(one, two, three, four, five, six, more than six)

Is the stem hairy? (Y or N)

How wide is each flower head?

(less than 5 mm, 5 to 10 mm, 11 to 15 mm, 16 to 50 mm, more than 50 mm)

Are the flowers in clumps or single?

What shape are the leaves?

(oval, rounded, jagged, long and narrow, divided)

Is the stem square? (Y or N)

Where was it growing?

(meadow, woodland, hedgerow, other)

.....and finally

What is the name of the flower?

(Note that here the computer will accept up to 19 letters and spaces, but not punctuation.)

The computer will then give you a checklist of what you have just typed in. If it is all correct, then a press on the space bar will make the computer accept it. If a typing error has been made, then the X key will make the computer repeat the questions so that the error may be corrected.

You will then be invited to tell the computer about another flower.

NOTE THAT, BECAUSE OF AVAILABLE MEMORY SPACE, THE COMPUTER WILL ACCEPT NO MORE THAN 40 FLOWERS.

If you do not wish to tell the computer about any more flowers, type **N** and the computer will ask if you wish to save the information on to a disc for later use. Typing **Y** will produce the prompt.

Are you sure?

This is because saving a file will end the program, so this facility should be used only at the end of a session and certainly before the machine is switched off.

If you switch off without saving your information then it will be lost.

It is strongly recommended that you use a separate formattted disc for your data files. The write-protect notch on the disc should be left uncovered whilst saving a file. File names may consist of no more than seven characters and the computer will not allow you to type eight!

IN EMERGENCY If you have tried to save a file and you get an error message like **Disc read only** or **Disc full** then do not despair!

First, correct the fault by making sure that you have a formatted disc with enough space and no write-protect label on it. Then type **PROCS** and press RETURN. You should now be able to save your data.

IDENTIFICATION ROUTINE

The children use this routine to interrogate the information.

It asks:

Do you wish to

A: find out about ONE flower?
B: find out about SIMILAR flowers?
C: tell me about ANOTHER flower?
D: change details of a flower?
E: see a list of ALL the flowers?

Type A,B,C,D, or E.

Pressing **A** will allow you to look at details of whichever flower you name. If the flower does not exist in the computer's memory it will tell you so. Spelling must be the same as the children originally typed in.

Pressing **B** give you the sorting routines. For example, if you want to know all the **yellow** flowers with **four** petals which grow in a **meadow** then you will have to use 3 headings which in this case have the codes **B,N,8.** You must press RETURN after each one.

Pressing **C** allows you to tell the computer about a new flower at any time.

Pressing **D** enables you to change details of a flower. This is an important function as children's observation is not always accurate and facts may need to be revised in the light of later discoveries.

Pressing **E** will display a list of all the flowers in the computer's memory at the time.

The computer will always return to the page which gives the opportunity to save the current information so that it can be loaded in on another occasion.

CLASSROOM USE

Obviously this program is part of a project on wild flowers. The important aspect of any data-handling program at Primary level is that the children are becoming used to the computer as a tool for storing and handling information and presenting back the facts combined together in whatever way is required.

In this case the facts are meaningful to the children because they discovered them by their own observations.

Best use of the sorting routines (see **B** above) can be made if the teacher compiles a set of suitable work-cards with questions which make the children ask the computer to sort information. A selection of ideas follows:

> Which **woodland** flowers does the computer know about? Find out and draw them.
>
> How many flowers in your collection have **five** petals? Find out where they all came from.
>
> Are there any **yellow** flowers which are taller than 60 cm? If so, which ones are they? Draw a full-size picture.
>
> In what ways are the poppy and the dandelion similar?
>
> Are the small-headed flowers almost amongst the shortest ones? Use the database to find out.
>
> What does the computer know about buttercups? Find a buttercup and check the computer's answers.
>
> How many flowers in your collection have more than one colour in the head? Find out from the computer and then draw them.

There are currently three other programs issued by Derbyshire which are based on this idea.

They are	**Minibeasts**	(Primary disc 2)
	Buildings	(Primary disc 3)
and	**Ourselves**	(Primary disc 3)

PROGRAM NAME	**Guitar Chords**
AUTHOR	**G.T. Atkinson**

GUITAR CHORDS

TITLE PAGE

This program is designed to enable the user to quickly find a guitar chord.

Type the key note of the chord you require to produce a major chord. Use the key note in conjunction with the function keys (f0 - f4) to select 7th, minor, flat, sharp or diminished.

Function key f5 will repeat the current chord.

A simple tuning section follows which will enable you to tune your guitar to the computer.

Space Bar

TUNING SECTION

In this part of the program, the user defined keys have been set up to reproduce notes generated by the six guitar strings.

f0 --- Bottom E
f1 --- A
f2 --- D
f3 --- G
f4 --- G
f5 --- Top E

f6 --- Finish this section

The keys f0 to f5 may be pressed as many times as necessary. The guitar should be carefully tuned to these six notes. Press f6 only when you have finished tuning your guitar.

THE MAIN PROGRAM

The computer holds in its memory all the major, minor, 7th and diminished chords. A major chord is produced by pressing the key note of the chord you require followed by RETURN.

The user defined keys have now been redefined as follows:

f0 --- 7th
f1 --- minor
f2 --- flat
f3 --- sharp
f4 --- diminished
f5 --- repeat chord
f6 --- repeat chord with a four beat prompt

Any other chord is produced by pressing the keynote of that chord in conjunction with one or more of the user defined keys followed by RETURN.

Keys f5 and f6 do not require the RETURN key.

The computer recognises the following musical keys:

C, C♯, D, Eb, E, F, F♯, G, Ab, A, Bb and B

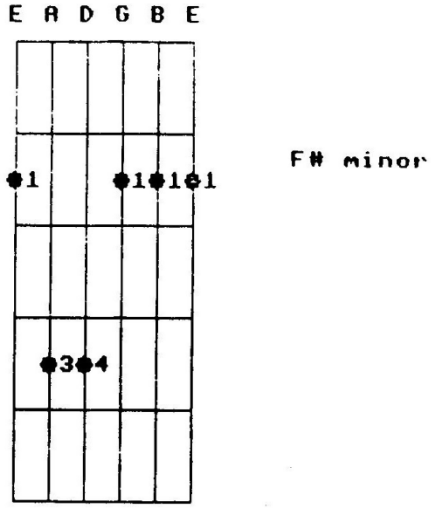
It is necessary to use these keys to produce your chord. For example, Db would not be recongised but C♯ will give the desired result.
The first fret on the diagram represents the first fret on the guitar unless otherwise instructed. (see the diagram in this documentation for Ab).
Fingers are numbered one to four starting with the index finger.
Some chords are four or five string versions but you will be told which strings to play. (see diagram).

It should be stressed that the chord shapes contained in this program **are not** the only solutions to each chord. There are usually several other chord shapes which will produce the desired result. The shapes and finger patterns used in this program are hopefully the most basic or widely accepted shapes. Some people may find that an alternative pattern is easier to cope with.

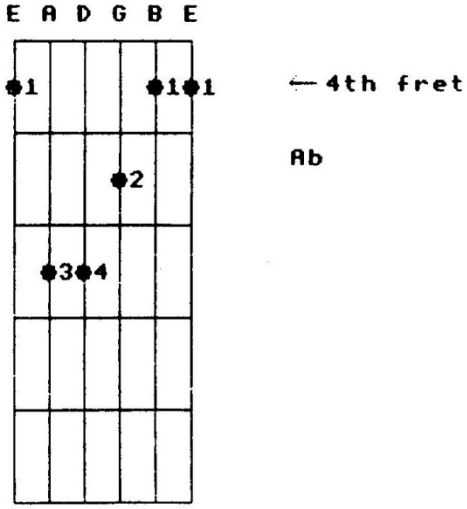
The aim of the program is not to teach chords, but to provide an easier method of finding them than flicking through many pages of a book. The computer can be operated one handed - leaving the other hand free to hold a guitar. If key f6 is used to repeat a chord with a four beat intro, the player has time to return both hands to the guitar and play along with the chord.

7th	minor	flat	sharp	dim	repeat	repeat with intro	CHORDS

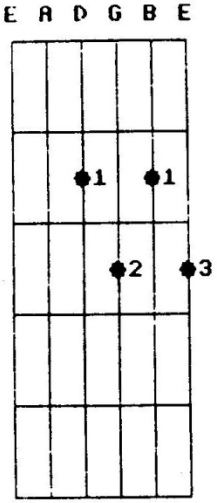
An example of a full six string chord.



An example of a full six string chord.

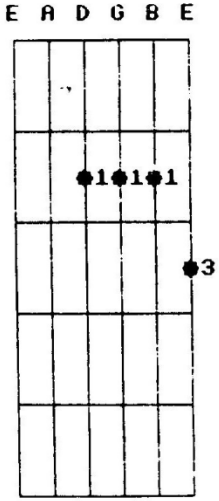


An example of a chord in which the top fret of the diagram has been re-designated.



C# dim

Do not play
bottom E and A



A7

Do not play
bottom E

Examples of the display for chords in which certain strings are not used.

PROGRAM NAME	Weatherplot (improved version)
AUTHOR	J.S. Watkinson

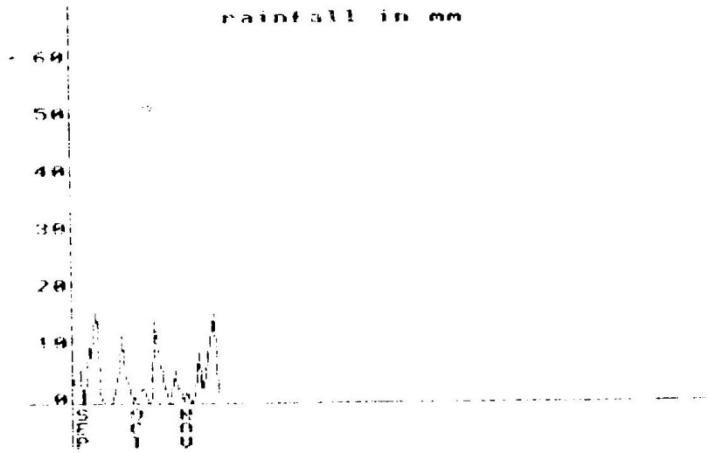
WEATHERPLOT (improved version)

Additional Course Material : Teachers notes (see below)

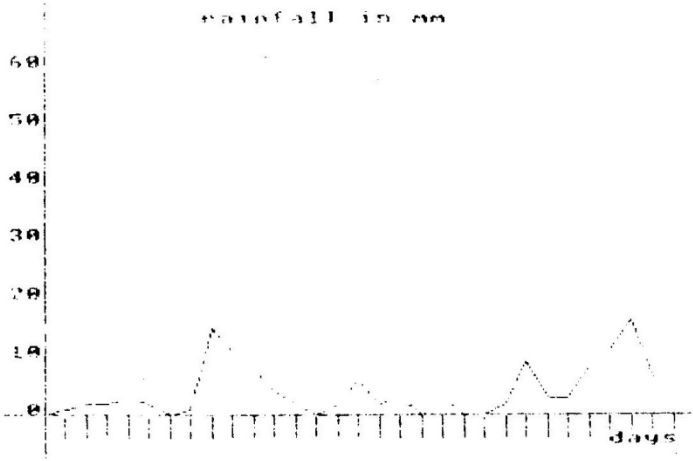
Special requirements : none, but printer useful

This is an improved version of **WEATHERPLOT** (for notes see the documentation for **DERBYSHIRE PRIMARY PROGRAMS TWO**, pages 41 - 44).

The earlier program would show the group of the weather readings for the whole year, or the part of the year already elapsed, as a full width screen display. This meant that if only a few readings had been entered, the graph was squashed in the left hand part of the screen, e.g.



The new version gives the option of displaying the full year as before, or up to the last thirty days, e.g.



Note that if only **one** set of readings has been entered, the computer cannot draw the graph properly. (All straight lines require **two** points!)

The program now has a printer facility compatible with the county recommended printer, the EPSON RX80.

To obtain a printed copy of the currently displayed graph, press the P key **whilst the graph is on the screen.**

The files should be recorded on a different disc kept specially for the purpose. It is recommeded that file names (which cannot consist of more than seven characters), should take the form of the date, e.g.

NOV14
NOV15 etc.

N.B. The readings of barometric pressure are in inches of mercury because it was felt that most primary schools would be using an aneroid barometer and these are usually calibrated in inches of mercury.

Please note that files written for the old version of this program may be used with the new version.

PROGRAM NAME	Stringword
AUTHOR	J.S. Watkinson

STRINGWORD

Additional course material : none

Special requirements : a formatted disc for holding word-lists

The program is for use by children who are using a spelling scheme which utilises letter strings within words, e.g.

letter string : **put**

words : **computer, putty, repute, amputate**

There are three units to the program,

(1) to create word lists
(2) to look at existing word lists
and (3) for the children to use the words

CREATING WORD LISTS

The creation program will invite you first of all to enter a letter string which is to be common to all the other words in the list. Please note that there is a limit of eight letters in this string.

The word themselves may then be entered. (Press RETURN after each one). There is a limit of thirty words with no more than eleven letters in each word. Also, lower-case letters **only** will be produced. This is deliberately done so that the child who uses the program will not have to be bothered with shift keys for producing odd capitals or apostrophes.

When you have entered as many words as you wish, type the code word **zzz**. This word will not, of course, appear in the children's program but is simply a code to tell the computer that it has reached the end of its current list. If you try to type more than thirty words, the computer will automatically take zzz as its thirty-first.

Next you will be invited to enter a **reference number** for your lists. This can be any number from 1 to 99 (although there is already a sample word-list 99 on the disc).

Place in the disc drive your special disc which is to hold your word lists. It is not advisable to try and put these onto the program disc. The word-list disc must be formatted and (for the purpose of writing lists) must not have a write-protect label on.

When you press the space bar the word list will be written on to the disc and is uniquely identified by its reference number.

LOOKING AT WORD LISTS

Simply place the word list disc into the disc drive and type the reference number of the list which you wish to look at, then press RETURN. If the list exists on the disc, then it will be displayed. If the list does not exist then an error message saying

Channel at line ..... will appear.

If this happens, type **RUN** and press RETURN. It is possible to see which word lists are present on a disc by typing ***CAT** and pressing RETURN. This will show on the screen all the word lists as e.g.

words12
words57
words99

THE CHILDREN'S PROGRAM

Please note that an outline of the philosophy of this type of spelling activity is not the purpose of this document. This is merely to show how the computer program is used.

The title page shows the words

look, cover, write, check

and the computer will ask if you want sound. (Type Y or N).

The next question asks you to specify the time (in seconds) that you want the word to remain on screen for the children to look at.

You are then asked to enter the maximum number of tries which the child is to be allowed at each word. This may not exceed nine although it is unlikely that such a high number of tries would be required anyway.

Finally, a request is made for you to type in the reference number of the word-list which you want to use and to place the data disc in the disc drive.

If the word list is present on the disc, it will be called in. If not, then an error message will be displayed. (See the paragraph at the top of this page).

HOW THE PROGRAM WORKS

When the word list has been called in, the first word to appear on the screen is the letter string. It will be printed at the top of the screen in red with the space bar prompt at the bottom. The space bar prompt will always appear in its 'language-free' format of a long thin rectangle at the bottom of the screen. This is so that the child encounters only the words which he is using in his spelling activity.

The letter style throughout the children's activity is based upon a standard widely-used scheme. The letters are formed in the same orientation as the child would write them.

Each word is presented to the child (in the order they were originally written by the teacher) and is held on the screen in yellow text for as many seconds as have been specified.

It then disappears and a white guide line is drawn across the screen. This is for the child to 'write' on. He types his version of the word and it will appear in yellow. The DELETE key works normally. When the word is finished, the child must press RETURN. If he types more than eleven letters, then the computer will automatically RETURN.

If the word has been spelled correctly, a short three-note fanfare will sound and, after the guide line has been erased, the letter-string within the word will be coloured in red, followed by the space bar prompt. Note that if the letter string occurs more than once in a word, e.g. 'an' in banana then it is the last occurrence of the letter string which is coloured in.

If the spelling is incorrect, the guide line will be erased and then the word is corrected by the computer. Any letters which do not exist in the word will fall out and any correct letters which are only positioned to the right of their proper position will move left. The word will then begin to colour white and any missing letters will be put in. The string will then be coloured red, followed by the space bar prompt. The computer will repeat the same word as many times as you have specified or until the child gets it correct.

At the end of the program a page is presented which shows in yellow any words which the child spelt correctly first time. Any words which he failed on will be displayed (in their correct spelling) in red.

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By providing a route to publish new ideas we hope to promote curriculum development involving the use of microelectronics in education in its widest possible sense.

It is intended that the service will evolve to best meet the needs of teachers and L.E.A. s. We welcome all comments and criticisms. The service is designed to respond rapidly to new developments. We welcome suggestions for materials to be included in the scheme. If you know of any suitable materials or have other suggestions to make please write to us.