EDUCATIONAL SOFTWARE



Spectrum LOAD " " BBC/ Electron Chain " " Commodore 64 SHIFT RUN/STOP

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Since there are inherent differences between machines there will be variations between programs of the same title written for different machines.

Details of other programs in this series and of other educational programs can be obtained from your software supplier or from : Scisoft ltd 5 Minster Gardens, Newthorpe Common, Eastwood, Notts. NC16 2AT

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SCIENCE 1

Scisoft's Science 1 package contains four exciting and stimulating programs which fully utilise the capabilities of your microcomputer. Furthermore each program contains a number of different options. They are ideally suited for 9-13 year old pupils who are looking for enjoyment as well as education from their software.

The four programs are :

SIDE	A	BUG	-	An educational adventure game for children.
				Can you keep the rare South American bug
				alive? Use your scientific knowledge
				whilst searching 'Mystery Mansion'.
		ELEMENTS -	-	Use our giant data base to find out
				interesting facts on the elements
				'Symbol', 'Mass', 'Atomic Number', 'State'.
SIDE	В	ORGANISM	-	What is furry and flies? Don't know then
				consult our data base on animals. Includes
				animals with and without backbones.
		PLANT -	-	Pollinate the plant and watch the flower
				grow! Sounds easy but first you must use
				all your scientific skill to get the
				conditions right.

On loading "BUG" the following menu appears:

- 1. Instructions
- 2. Play the game
- 3. Temperature test
- 4. Temperature graph

1. provides the instructions for playing the game (obtained by pushing 2 on the main menu).

The object of the game is to find the hidden box in Mystery Mansion. This box contains the necessary requirements to keep a rare South American bug alive. Once you have found the box you must then command the computer to perform certain tasks (4 in all), if these are in the wrong order or if you have not picked up (TAKEn) the appropriate items then your bug is sure to die.

There is a thermometer in each room that you visit. You must quickly assess whether the temperature is changing and if so then to use your scientific knowledge to keep bug alive, whilst continuing the search for the box. Incidently each time that you play 'BUG' the box is hidden in a different place. Items which you may pick up during your search are shown on the plan of the house as *. Bug prefers to live in a temperature of 35° and will quickly die if the temperature rises above 40° or drops below 30° C.

Bug will also die under other unfavourable conditions, if you think this is likely then abandon your search in that particular room and get out as fast as possible. Be careful not to bang into walls since the building is very oldand can bring rubble down on top of you. Beware of the blue room since without a light it is very dark.

Movement is carried out using the cursor keys (5 to 8). On entering a room you will be confronted with a multiple choice question these are randomised each time you play the game. When you land on a * you see before you a number of objects. If you wish, you can try to do various things with these objects but at this stage other than TAKE, these commands are likely to be ignored. The following keywords that you have at yourdisposal are : TAKE OPEN FEED CLOSE LOCK UNLOCK

Suppose item number 3 is a heater and you wish to pick this item up, then you would type in:

TAKE	ENTER
3	ENTER

Pressing any key and then ENTER returns us once again to the house so that we can continue our search.

Once the box has been found then the following appears:

Congratulations you have found the environmental box. To complete the adventure the next four commands must be in the correct order. COMMAND 1

Also there is a list of the items which you have collected and a list of the key words. If having found the environmental box, you think that you need to collect further items from the house, then you are given the option to return after each command. If you select not to return, then you must get the order of these four commands correct. HINT - the commands follow quite a logical sequence of events.

Should your bug sadly die, then this is probably due to unfavourable conditions. Your scientific knowledge is possibly lacking in a particular area. You are however informed of why your bug died so that next time you come across a rare South American bug you will be able to successfully look after it. Good luck!

On completing the game you are told where the box was and then returned to the main menu. This time however press 3 and then ENTER. The object of this game is to estimate the temperature shown on the thermometer. At first the numbers are shown but these are removed if you get three questions right. Type in the temperature shown and then press ENTER to confirm your choice. The computer informs you as to whether you are correct. After 5 goes it gives you a test score and then returns you to the main menu.

The object of 'Temperature graph', 4 on the main menu is to note down on a piece of paper the temperature shown on the thermometer and then by using the cursor keys 5 & 6 to plot temperature against time. On pressing 0-9 you are shown a thermometer and a digital clock. (Initially it reads - 00:00.) Note down this time and also the temperature shown on the thermometer. Press 0-9 ENTER for the next set of readings, again note these down. Continue until you have ten sets of readings. You are then supplied with a graph in which both axis have been labelled. By

using the cursor keys 5 and 6 you can move the point \bullet up and down. When you think it is in the correct position then press P to plot the position. The point will then automatically move to the next column. Continue in this manner until all ten points have been positioned. The computer will then check your plotted positions with the correct ones and show you if you went wrong, the correct positions for the points. On pushing 0-9 and then ENTER you are returned to the main menu.

On loading "ELEMENTS" the following menu appears:

MAIN MENU

Press :=-

- 1 To find all details about an element
- 2 To list all elements
- 3 To search for an element's number, symbol, atomic weight group or form
- 4 For help

4 the help option, tells you that this program contains information about the chemical elements. The program helps you to find out about the elements using options 1 to 3 on the main menu. The program stores each element's name, atomic number, symbol, atomic weight, group and state. Read the instructions and then return to the main menu, now press 1 and then ENTER. Type in an element that you know. You will be surprised at just how many you do know. Also you may type in a substance which you think is an element but is actually made up of two or more elements. First type in Oxygen (Do not worry about using capitals the computer will deal with these automatically) and then press ENTER. Type in Y to the question "Is this OK?" The computer will then search it's data bank, find Oxygen and then print out facts about this element as follows:

Element

0xygen

Atomic	number	Symbol
8		0
Atomic	weight	Group
15.994		6

Form

Gas

Press ENTER to return to the main menu. Press 1 ENTER again but this time type in Brass. The computer will report that it has not found Brass amongst it's 103 elements. This is because brass is not a single element but a mixture of Copper and Zinc. Try these two elements.

On returning to the main menu this time press 2 ENTER. Press 1 followed by ENTER. The computer will then list all the 103 elements, some of which I am sure you have never heard of and in fact a Chemist is very unlikely to use chemicals containing some of these elements. On returning to the main menu again press 2 followed by 2. The computer will ag ain list the 103 elements but this time the chemical symbols to these elements are supplied. Many of these symbols are common sense eg H for Hydrogen and 0 for Oxygen but others are based on the Latin word for the element and Iron is not I or even Ir but Fe.

The other options under this section will give lists of the element plus it's atomic weight, group, form and atomic number. Having had a brief look at each section press 3 on the main menu. This is where the real power of the computer is demonstrated. As well as helping you with learning about elements it gives you an insight into how data bases are used. On pressing 3 and then ENTER you will be shown the following menu:

Search for an element by name, symbol, atomic weight, group, form or number.

Do you want to search by :=-

1.	Name
2	Symbol
3	Atomic weight
4	Group
5	Form
6	Number

Press 2 and then ENTER. A second menu appears :

Search by symbol :

Which of these conditions do you wish to use :-

- 1 Begins with
- 2 Ends with
- 3 Contains
- 4 Equals

Press 4 and ENTER followed by 0 (Do not worry whether it is a capital letter or not) and again ENTER. Type in Y in response to the question "Is this OK?" Type in N in response to the question "Do you want to use another condition?" The computer will then check through its data bank until it finds the element with the symbol 0. It will then print out Oxygen. You can then find out more about this element by pressing 1 on the main menu.

On returning to the main menu type in 3 again but this time type in 5 at the next menu. This will search for the various forms in which the elements exist. Type in 1 ie Gas and then N to the next question. The computer will then search a print out all the elements which are gases, many of which and some which you have not, heard of.

It is also possible to search for two combinations at the same time. For example from the main menu type 3 ENTER, then 3 ENTER at the next menu. At

the next menu type 1 (Is less than) then ENTER followed by 100. The computer will now pull out all the elements with an atomic weight of less than 100. However we want to use two conditions, so to the question "Do you want to use another condition?" answer Y. Now type in 4 (group) and press ENTER and the following will appear : Search by group

Which group do you wish to search for :-

In response type in \emptyset . Finally the computer will ask you if you want the computer to show the element if

1. Both conditions are true

2. Either condition is true

Type in 1 ENTER

The computer will now search it's data banks and pull out all of those elements which a) have an atomic weight of less than 100 and

For further use of this data base please refer to our Activity sheets and of course experiment for yourself.

On loading "ORGANISM" the following menu appears:

b) belong to Group Ø

A To look at invertebrates (animals without backbones)

- B To look at vertebrates (animals with backbones)
- C For help

Initial press C and read the instructions. This option tells you that this is a database and contains information on over 70 common vertebrates and invertebrates. The program helps you to find out information about these animals using three options. Using this data base you will be able to carry out the following :

- A To find all details about an animal
- B To list all animals
- C To search for an animal

You cannot however search for an invertebrate once you have entered the vertebrate section (B in the main menu).

To begin with press A on the main menu then B on the Invertebrate menu and A on the next menu. All the invertebrates stored in the data base will then be displayed. Note one or two of these animals down, for future use. On returning to the invertebrate menu press A this time and then type in one of the animals which you have just written down. Let us type in Earthworm. Do not worry about capitals but you must get the spelling right. The computer will then search it's data bank and pull out all of the facts on the earthworm. Thus:

Earthworm

Group Annelids Main form of movement Slide

Habitat Earth Parasite/Saprophyte Saprophyte

Structure

Segmented worms

On returning to the invertebrate menu type in C to search for an animal. Let us initially search for all the parasites therefore press D on the next menu, followed by A. For the time being answer N to the next question. The computer will now go through it's data bank pulling out all those animals which are parasites, that is all those animals which live off other plants or animals. As you can see the first parasite listed is the malaria parasite which in part lives in the blood stream of man.

Let us now search for all parasites in the data bank which live on the body surface. From the invertebrate menu type in the following :

С	ENTER	
D	ENTER	(Parasite/Saprophyte)
A	ENTER	Parasite
Y		
С	ENTER	Habitat (Where it lives)
J	ENTER	Body surface
В	ENTER	Both conditions are true

The computer will now go through it's data bank and pull out Mite and Tick. These both live on the body surface of man and animals and are parasites. The malaria parasite is not pulled out this time because It does not however live on the body surface. At certain times it lives in the blood stream. This is where a limitation of such a data base is shown up. The malaria parasite can also live inside the mosquito but this as well as many other millions of facts just cannot be incorporated within such a relatively small data base.

Now return to the main menu but this time follow a similar course with the vertebrates. You will notice that the facts about these groups of animals is different but that the format is very similar

For further examples of the use of this data base please refer to the activity sheets.

On loading "PLANT" the following menu appears:

- 1. Instructions
- 2. Play the game
- 3. Growth test
- 4. Growth graph

1. provides the instructions for playing the game. The game follows a similar format to the program "BUG" but this time a rare South African plant needs to be pollinated. If the plant flowers before pollination then the resulting seeds will be sterile and the species will die out. For further details on how to play the game please refer to instructions under "BUG" above.

ELEMENTS

- Activity 1 List of elements
 - 1. List all the elements (2 from the main menu) then type in 1
 - 2. Write down all the elements beginning with H
- Activity 2 Details about an element
 - 1. Find out all the details about an element (1 from main menu)
 - In response to the question "Find out about which element?" type in the first element beginning with H from activity 1
 - 3. What is the symbol, atomic weight and form of this element.
 - On being returned to the main menu find out similar facts about the other elements beginning with H
- Activity 3 To search for an element's symbol
 - 1. Search for an element's symbol by typing in 3 at the main menu.
 - 2. Type in 2 at the next menu
 - 3. Type in 1 at the next menu
 - 4. Type in H (Symbol begins with)
 - You do not want to use another condition so type in N to the next question
 - 6. Why do you think an extra element (Mercury) is given?

Activity 4 - To search for all of the Group Ø elements

- 1. Search for an element's symbol by typing 3 at the main menu
- 2. Type in 4 at the next menu
- 3. Type in Ø (Search by group)
- You do not want to use another condition so type in N to the next question
- 5. Write down the six members of Group Ø

Activity 5 - To find out what the Group Ø elements have in common

- 1. Type in 3 at the main menu
- 2. Search for group Ø elements (steps 2 & 3 above)
- 3. You want to use another condition so type in Y
- 4. Choose which second condition as being the form of the element
- 5. Type in 1,2 or 3 (gas, liquid or solid)
- 6. Type in that you want both conditions to be true (1)
- 7. What do all the group Ø elements have in common?

- Use the data bank to find out if they have anything else in common
- 9. Look up Chemistry text books to find out about other facts that these elements have in common.

Activity 6 - Common properties

Find out if other groups have properties in common with each other. Using either this data base or in conjunction with Chemistry text books

Activity 7 - Odd ones out

- 1. Find out the heaviest element that exists in gas form
- 2. Find out which of the Group 2 elements is a liquid

Mercury NCITVITY ? Radon ACTIVITY 6 eg Group 8 are all metals patiddus eteb ant yino puisu - om Sesed IIV S AIIAIIDV ACTIVITY & Helium Neon Argon Krypton Xenon Radon Becanse the symbol is High 6 H Mercury 18 muinteH ОH wntwtoH θH muiisH н VCIIVIIY 5 Hydrogen PIIOS 64°861 JH 20119 66.40F OM 589 9200*4 98 ACTIVITY 2 H 1.00797 6as AULIVITY AND AND ANTLEN ANTLEN ANTRENA VHZAFKZ

ORGANISM - ANIMALS

Activity 1 - List of invertebrates

- 1. Choose A from main menu to look at the invertebrates
- 2. List all the animals (B from invertebrate menu).
- 3. Now type in A at the next menu
- 4. Write down all the invertebrates with worm in their name

Activity 2 - Details about an animal

- Find out all the details about an animal (A from the invertebrate menu)
- In response to the question Find out about which animal? Type in Spider
- Which group does the spider belong to? What is it's structure and how does it move?
- On returning to the invertebrate menu, find out about the animals that you noted down in activity 1

Activity 3 - To search for an invertebrate's group

- Search for an animal by typing in C at the invertebrate menu
- 2. Find out it's group by typing in A at the next menu
- 3. Type in F for crustaceans
- You do not want to use another condition so type in N for the next question
- 5. Write down all the crustaceans listed

Activity 4 - To search for an animals habitat

- Search for an animal by typing in C at the invertebrate menu
- 2. Find out it's habitat by typing in C at the next menu
- Type in I for land
- 4. You do not want to use another condition so type in N to the next question
- 5. Do any of the crustaceans from activity 3 live on the land?

Activity 5 - To see which platyhelminths live in the intestines

- 1. Type in C at the invertebrate menu
- 2. Type in A for group
- 3. Type in C for platyhelminths
- 4. You want to use another condition so type in Y
- 5. Choose C for second condition
- 6. Type in D for intestines
- 7. Type in that you want both conditions to be true (B)
- 8. Write down the platyhelminth(s) that live in the intestines
- Repeat this Activity but this time try to combine in one go Activities 3 and 4

PUSH D TO RETURN TO THE MAIN MENU AND THEN B TO ENTER THE VERTEBRATE SECTION

Activity 6 - List of verteorates

- 1. Choose B from the vertebrate menu to list all animals
- 2. Type in A at the next menu
- 3. Write down all of the vertebrates beginning with S

Activity 7 - Details about a vertebrate

- 1. Find out all the details about an animal (A from vertebrate menu)
- In response to the question Find out about which animal? Type in Seal
- 3. Which group does the Seal belong to and does it constantly control it's temperature?
- On returning to the vertebrate menu find out similar facts about other animals beginning with S

Activity 8 - To search for a vertebrate's group

- 1. Search for an animal by typing in C at the vertebrate menu
- 2. Type in A for it's group
- 3. Type in E for the Mammals
- 4. You do not want to use another condition so type in N
- 5. Write down all the mammals

Activity 9 - To search for means of movement

- 1. Search for a animal by typing in C at the vertebrates menu
- 2. Type in E for main form of movement
- 3. Type in D for swim
- 4. You do not want to use another condition so type in N
- 5. Do any of the mammals from activity 8 swim?
- 6. Repeat this activity but find out which mammals fly

Activity 10 - To see how many birds in the data bank, swim

- 1. Search for an animal
- 2. Search by group
- 3. Select birds
- 4. You want to use a second condition
- 5. Now find out which of the birds in the data bank, swim

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VCLIATIA JO Beuðniu
VCLIATIA JO Beuðniu
VCLIATIA 6 Apsis 2003
VCLIATIA 6 Apsis 2003
VCLIATIA 8 Heddepod 804 Con 804 Comel 2003 Elebhauf
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