

ARCADE CREATOR

**SPECTRUM
INSTRUCTION
MANUAL**

Tape 1, side 1

Welcome to Arcade Creator

With Arcade Creator you can create machine code computer games of two different types, platform or chase and shoot games. You can choose how many screens — you can play up to 40 — and you can choose between using the graphics which have already been prepared for you or, as the user, you can define your own graphics. These graphics are known as “user defined graphics” and are referred to throughout this manual as UDG.

Tape 1, side 1 is specifically concerned with these UDGs and on this tape you can design your own screens, your own sounds and your own characters or, as they are referred to in computer jargon, “sprites”.

On loading tape 1 you will be faced with the following chart:-

- (1) UDG Designer
- (2) Sound Generator
- (3) Sprite Designer
- (4) Screen Designer
- (5) Save to Tape
- (6) Load from Tape
- (7) Verify Tape Data
- (8) Keyboard/Joystick

You will find this chart, or menu, self explanatory. You will probably find the best way to learn it is through trial and error and we do suggest you experiment. However, to assist you we have detailed the various options available to you.

Before you start, please note that if at any time you wish to return to the menu press the Break button as specified on the screen. However, if this does not work press the Break and the cap shift button simultaneously.

1. UDG Designer allows you to design graphics which can be incorporated into your screen designs. You can design these graphics by using the cursor keys or joystick as a pen and the grid on the top left hand corner of the screen as paper. Follow the screen instructions if you wish to have a mirror image of your design, if you wish to rotate it or invert it. To file your design away so that you can refer to it again later, press the Enter button. Now you will be able to put your design in a file, all you have to do is select the file you wish to use and press P. To alter a UDG which is already filed press G, then select Enter and you will find it has appeared on the grid.
2. Sound Generator is self explanatory. The sound you wish to design is determined by three aspects; frequency, which itself consists of start end and step, its length and the amount of times it is repeated. Furthermore, there are two types of sounds you can create; a bleep, which is selected by pressing the 2 key and a ‘white sound’ which is selected by pressing the W key. You can toggle this white sound by

pressing B while white is displayed. We suggest that you experiment with various permutations and that you press the R key to hear the result. Once you have selected a sound press the Enter key and then press P to file it.

3. Sprite Designer enables you to design various characters. You will see a large grid. By using the cursor keys or the joystick and by using the fire button or a 0 or 1 to fill, you can design a character. As with UDG Designer, the R, M and I keys enable you to rotate, mirror or invert your character.

Once you have designed a character, press the F key and a new screen will appear. Under the heading "Current sprite", you will notice the character you have just designed. You can file this character in place of any of the sprites which are already filed. You can select the position with the cursor keys or joystick. To file your sprite under this section, press P. To retrieve a character which is filed, press the G button and it will appear under the heading "Current sprite". To observe your character in an animated form, initially get this character from its file. Then go to the beginning of the line which has four different illustrations of your character; press the fire button or 0 key and whilst this is depressed, move the cursor to the end of the line. Now press A and you will see the animation.

To alter the colour, press C and follow screen instructions.

4. To design your own screen, you can use the UDGs which you designed earlier. The UDGs are shown at the bottom of the screen and they are filed under four sub-headings, 0, 1, 2 and 3. Press any of these keys and observe the result. Each UDG is represented by a letter from A to U. Press one of these letters and the UDG will appear on the screen. The cursor keys, or joystick, will enable you to design the screen, but it will be made up of UDGs which you select. Other important keys are the space button, which enables you to erase and the Enter button which acts as a normal carriage return key. If you wish to include colours, press the X key. The description "Enter border colour" will appear on the screen. You can select any of the eight colours available on the Spectrum by pressing the 0-7 keys and the colour you will obtain will correspond to the colour shown on the key. Choose the number you require and press Enter. Continue to follow screen instructions. Two important points to note here are; firstly you should not alter your UDGs once you have started to design screens and secondly, do not change the UDG set after you have designed a screen, because the printing routine will use your new UDGs instead and you will have unrecognisable screens. When designing a string of UDGs, do not suddenly change the colour without changing the UDG too.

Another important key, is the Z key. This enables you to access the screen editor. If you press the Z key, a menu will appear on the bottom of the screen. If you press the L key, you will see the titles of various screens already designed. If you wish to see one of these screens, press G then

press the number that refers to the title of that screen and press Enter. If you then wish to edit this screen, press Q and Enter. You can now alter this screen by selecting a UDG and using the cursor keys. If you wish to store a screen that you have designed, all you have to do is press the Z key then press P, select a position number, then press Enter. Once you have chosen a name for your design it will be filed away and you can recall it at will.

Some important points to bear in mind are that if a screen takes up more than 1,000 bytes then your screen is too complicated and you will need to edit it. Notice that in the filing section the headings are given even numbers only. This is simply for ease of use and if you wish to intercept a heading, between the headings already on the screen, you can do so by choosing the appropriate odd number.

For sections number 5 and 6, to save your work make sure you have a blank tape, and for both 5 and 6 follow the screen instructions.

Tape 1, side 2

On this tape is a simple arcade game which was designed using Arcade Creator.

Tape 2, side 1

Your own designs

Upon loading tape 2, side 1, you will be asked whether you wish to load a new set of characters, screen designs, UDGs or sounds. If you wish to use the designs you created using tape 1, side 1, press the Y key, follow screen instructions and use the tape upon which you saved your designs as described in item 5 on the menu of tape 1, side 1. If you do not wish to use original graphics, press the N key.

Your initial choices

Designing your game is very straightforward and you will find most of the steps you need to take self explanatory. The best way to familiarise yourself with the alternatives available is by experimenting. The first question you will be asked is whether you will wish to use blank screens or not. The choice is entirely up to you and when you have made your decision, press Y, for Yes or N for No. If you do choose not to use any screens from memory then the memory is cleared. This is an irreversible decision. The advantage of using these blank screens is that less memory is used and in fact, for a shoot'em-up type of game, you could store up to 40 different levels.

The second heading that will appear on the screen is "Title screen layout of game name". This section enables you to enter the name of your game. There are two alternative methods you can use. You can have up to 16 letters printed double size on one line or you can have two lines, each of eight letters in length, printed in four times normal size.

The next heading will be “Enter your name”. If you enter your name you will see it displayed at the start of your game when it is loaded.

The next heading will be “Enter the number of screens in” your game. If you are using blank screens, you can use up to 40. If you use screen data from memory then how many screens you can use will depend upon how much memory these screens use. However, you should be able to find room for 20 screens.

You will then be asked to verify your selection. If you are satisfied with your choice, press Y for Yes and then press Enter.

Scoring

You will next be asked to enter the number of lives you wish per level. Alas, we cannot offer you infinite lives but you can choose between three and nine lives. If you like winning, you can make the game very easy for yourself.

In order to progress to the next level, you must reach a certain score. The next section concerns the value of this score. Clearly, the harder you wish the game to be, the higher you should make this score.

When you start a new level, you will be given a bonus value. This value will constantly be decreasing as you play. The next section enables you to choose the name of this bonus score. You can describe it as “Bonus” or, for example, “Energy”. If you choose Energy, then this means that your energy level will be constantly decreasing.

The next section allows you to select the value you would like your bonus score to start at.

You will then be asked if you want the player to lose a life, when your bonus, or whatever you have chosen to call it, runs out. This is up to you.

You have now reached a stage in which your appropriate screens will be displayed. If you are using blank screens, then you may select the background colour or the paper colour. We have only provided the option of darker shades here, as this gives depth to the screen and also simplifies the sprite printing process.

Game-play

For simplicity we have provided two types of game formats, chase 'n shoot, or platform. In a platform game you have a player who must jump from platform to platform and collect pieces of treasure. His score will increase while he collects the treasure, but he must avoid aliens which will cause him to lose a life if they catch him. You must decide the exact lay-out of platforms, the position and appearance of treasure and distances to be jumped and the type of aliens you must avoid. The permutations available to you here are limited by one thing only: your imagination.

Using chase 'n shoot mode, you can design not only the traditional invader type of format, but also any number of other formats, including commando, scramble and rocket-pack.

Certain general principles may help to bring ideas to mind:-

1. The player always loses a life when touched by an 'alien' or a 'bomb' from an 'alien'.
2. The player chooses whether he uses missiles. These missiles always kill 'aliens' and can be set to destroy treasure as well.
3. Missiles can be set to destroy barriers, thereby releasing who knows what, or allowing the player access to sealed loot or untold horrors.
4. The player always collects treasure when touched, but the score only increases if you have set it to do so.
5. The player may be set to lose a life if it hits a barrier.
6. Aliens and treasure can be set to reappear after being killed or shot by accident.
7. Aliens can be made to disappear at barriers, only to reappear at their starting point after a short delay.
8. Both player and aliens can disappear off screen left and right, and then bounce back. Aliens always bounce off top and bottom screen limits and likewise off barriers unless set to disappear.
9. It has not been possible to incorporate a scrolling screen option, but continuity between screens is quite easily implemented.

Very briefly, this has given you an idea of the range of combinations available. The best way to continue would be to start off modestly and build experience gained into future games.

Sprite types

These are now displayed and are dependent upon the mode you have selected:-

- Mode 0: Player
 - Missile
 - Treasure
 - Aliens
 - Bombs
 - Explosion

Although the names of the sprites are fixed it is by no means necessary to think of their usage as unchangeable. For instance, you could design a game called 'Wicked Witch', the object being as a Prince (player) that you should try to kill the Witches (aliens) with your Fireball (missile), and collect the Dragon's Teeth (treasure), all before the Witches sprinkle you with Magic Powder (bombs) and turn you into a Frog (explosion).

- Mode 1: Player
 - Treasure
 - Aliens
 - Killers

Once again do not be restricted in your thinking by the names you are given.

Graphics

The next section will require you to specify how many of the various sprites you require. This is of course up to you. Once you have done this you will be required to select the shape of your sprites. First of all you will be required to select the shape of your sprite when facing left and then when facing right. Select your sprite by pressing the T key. If you wish to see what the sprite will look like when it is animated, press A. It is also possible to make various other alterations to your sprite.

The first of the options that are available to you is turning on the multi-colour mode. To select this mode, depress the R key until the cursor is over the multi-colour mode. Then to turn on the multi-colour mode, press T. You will now find that during the game, the colour of the sprite's ink will circulate through colours 2-5. This can be used to good effect for highlighting colour, killers or particularly menacing aliens.

The other options available to you only apply if you have chosen a chase 'n shoot type of game. Again these options are selected by pressing the R key and then pressing T. Reappear is useful if you wish aliens or treasure to be returned to the screen in their original position, after they have been killed or collected. If you select bombs, then they will be dropped by the aliens. Missile and barrier relate to what happens if they are hit by the sprite. If your sprite is an alien, you can make it explode or vanish if it is hit by a missile or you can make it vanish or bounce if it hits a barrier. Alternatively, if your sprite is treasure you can make it ignore a missile.

Once you have chosen the data for your sprite you must select its position on the screen. To do this you use the cursor keys and once you have found the position, press Enter.

Now you have selected the position of your sprite, you must choose the direction it moves in. When selecting the direction it moves in, bear in mind that in a platform game, when jumping, the player sprite will move up three spaces and along six.

Once you have chosen the direction you can move in, you can decide on whether or not the player will lose a life when he hits a barrier. You will then be required to select the speed at which your characters move. You can choose any speed from 12, meaning slow, to one.

Colour

When using colour, it is important that you bear in mind certain limitations of the Spectrum. Even the most professionally produced Spectrum computer game often has what is known as 'colour attribute' problems. All sprites, even though they are designed within a 2x2 cell, have to move around the screen within a 3x3 block. In other words, when a sprite collides with another object the colours will be affected. In commercial games, this problem is avoided by not allowing a sprite to move over background screens. If you do not avoid these colour attribute problems your game could become a riot of clashing colours. We would make a

general rule of thumb here, ensure a sprite's movement is such that there is a minimum gap of three spaces between the sprite and barrier.

To help overcome these colour attribute problems we have designed aliens so that when they move in an up/down direction they fit into a block which is two spaces wide and three deep.

Memory constraints

If you find that you have used up all or most of the memory and you still have to design another level, a warning will appear on the screen. When this happens you can continue by pressing C and make the most of the memory you have left, or you can press S which will mean you will only use the levels that you have already designed.

Sound

Once you have designed your graphics and game-play you will probably wish to incorporate sound into your game.

Sounds you can create with the Spectrum are relatively limited and it is beyond the scope of this program to create melodies to run throughout your game. Also, action on the screen will freeze for the duration of the sound. We have prepared a sound library which is divided into five sections.

Sounds stored in section A are heard when you start a new level

Sounds stored in section B are heard when treasure is collected

Sounds stored in section C are heard when a player loses a life

Sounds stored in section D are heard when viewing a high score

Sounds stored in section E are heard when a missile is fired

There is one other section, F, and the sounds stored in section F are heard when an alien is hit. We have already programmed three options for this section, any of which you can select. Option 1 is an explosion, option 2 a whine and 3 a squelch.

When you have finally completed the sound section, you should save your work to tape, then re-wind it and then verify it.

Tape 2, side 2

Game code

This program enables you to prepare a tape ready for saving the data which you have compiled, using ARCADE CREATOR. When it has loaded you will be taken through the following sequence:-

- A. Choose a title tune
- B. Insert a blank tape
- C. Enter game 'tape' name
- D. Loading screen (Y/N)
- E. Save game code and/or screen

A. Title tune

You may choose one of the three tunes below which will play in a loop whilst the title screen of your game is being displayed. As soon as a key is hit the game will start. You cannot hear those tunes yet. You will have to take pot luck and wait for your game to load and run.

Ditty

Classical

Modern

B. Blank tape

Insert a good quality blank tape into your recorder ready to save the basic loader.

C. Game name

You must enter a shortened version of your game name if it is longer than 10 letters. Remember that the Spectrum will only accept tape names up to 10 letters long.

D. Loading screen

You have the option of having a screen displayed whilst the main body of your game code is being loaded. If you choose to do this then follow the instructions below carefully:-

1. Take the blank cassette out of the recorder, make sure that you do not move the tape forward or backwards.
2. Load the screen you want displayed.
3. Re-insert the 'blank' cassette. Start the tape recording and hit any key to save both screen and game code. Make a note of the tape count immediately after your screen has saved. You will need to rewind to this point to verify the Game code. You cannot verify your screen data.

E. Save code

If you did not want a loading screen then the Game code will now be saved. Note the tape counter for verification purposes.

***YOUR CASSETTE IS NOW READY FOR USE WITH TAPE 2, SIDE 1.
DO NOT REWIND.***

