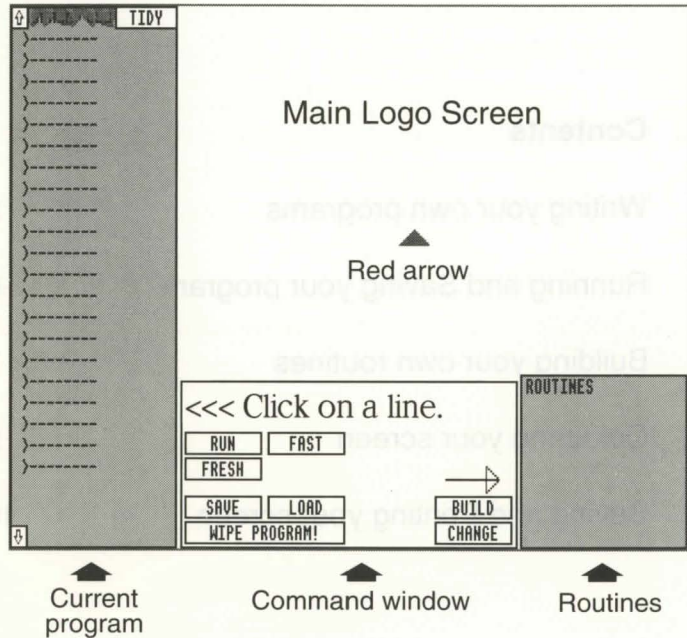CRYSTAL LOGO

Crystal Logo

Contents

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The Turtle.

The red arrow or **TURTLE** in the centre of the logo screen acts like a pen drawing a line on the screen by following the instructions in your **PROGRAM**.


Main Logo Screen

Red arrow

<<< Click on a line.

RUN	FAST
FRESH	
SAVE	LOAD
WIPE PROGRAM!	

ROUTINES

BUILD
CHANGE

Current program   Command window   Routines

Writing your Program.

Your program is a list of instructions for the turtle to follow. Use the mouse to create this list.
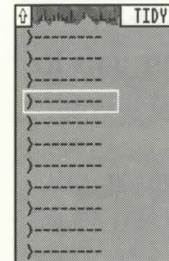
You create your program in the left hand column.

Choose the line you want to fill or change by moving the mouse until a blue rectangle appears around the line and then click the **SELECT** button on the mouse.
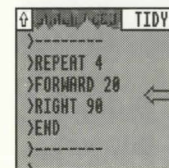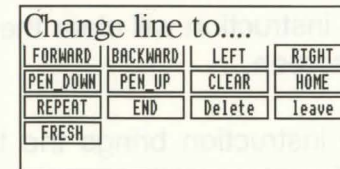
If you need to add a new line between two others, move the mouse to the right hand side of the column to make a blue arrow appear. When this is pointing between the right two lines click the **SELECT** button to slot in a new line.

>REPEAT 4
>FORWARD 20
>RIGHT 90
>END

If your program is too long to fit on the screen you can look up or down the length of your program by clicking the **SELECT** button on the arrows at the top and bottom of the column.

If you have empty lines in your program you can remove them by clicking **SELECT** on the **TIDY** button.

Once you have selected the line you want to change, the command window changes giving you a choice of instructions for the turtle. Use the mouse to select the instruction you need.

Change line to....

FORWARD	BACKWARD	LEFT	RIGHT
PEN_DOWN	PEN_UP	CLEAR	HOME
REPEAT	END	Delete	leave
FRESH			

FORWARD
BACKWARD

When you select either of these buttons, a set of numbers will appear allowing you to choose how far you want the turtle to travel.

FORWARD?

0	10	20	30	40	50	60	70	80	90
100	110	120	130	140	150	160	170	180	190
200	210	220	230	240	250	260	270	280	290
300	310	320	330	340	350	360

By clicking on the arrow buttons you can change the numbers shown (e.g. to 11, 21, 31, 41 etc.) so you can select any value from 0 to 369

LEFT
RIGHT

When you select either of these buttons, another set of numbers will appear allowing you to choose by how many degrees the turtle will turn before continuing its line.

RIGHT?

0	10	20	30	40	50	60	70	80	90
100	110	120	130	140	150	160	170	180	190
200	210	220	230	240	250	260	270	280	290
300	310	320	330	340	350	360

By clicking on the arrow buttons, you can change the numbers (e.g. to 12, 22, 32, 42 etc) so you can select any value from 0 to 369.

PEN-UP
PEN-DOWN

When you select **PEN-UP**, the turtle will stop drawing until you select **PEN-DOWN**. You can use this to move to a new starting place.

CLEAR

This instruction will clear the drawing area of the screen.

HOME

This instruction brings the turtle back to its starting place at the centre of the screen.

REPEAT

You can use this button to repeat a series of instructions. Pressing **REPEAT** will bring up a box of numbers from which you can choose how many times you want the instructions repeated.

REPEAT?

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36

By using the arrow buttons you can change the numbers so you can select any figure from 0 to 73.

END

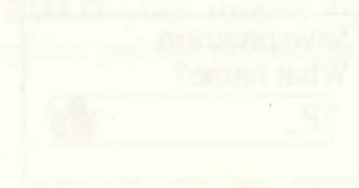You must insert an **END** instruction at the end of the series of instructions you want to repeat.

DELETE

Use this instruction to rub out a line if you want to remove it.

LEAVE

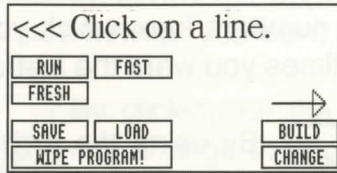If you change your mind and want to leave the line you have selected, use the **LEAVE** button.

FRESH

This instruction clears the screen and brings the turtle back to its home position.

Running and Saving your Program.

```
<<< Click on a line.
  RUN    FAST
 FRESH
  SAVE   LOAD           BUILD
 WIPE PROGRAM!         CHANGE
```

Once you have written your program, you can run it in one of two ways by either clicking on **RUN** or **FAST**.

RUN Clicking on **RUN** allows you to watch the turtle follow your instructions as it draws on the screen.

FAST If you click on FAST the turtle will disappear from the screen and the program is run quickly.

FRESH This instruction clears the screen and returns the turtle to its home position.

SAVE When you are pleased with your program, click on the **SAVE** button. A box will ask you to name your program. All saved programs from Crystal Logo begin with **P_**. Type in the name after these letters and press **Return**. The computer will tell you if you need to change discs and when to do so.

```
Save program
What name?

 P_                     TYPE IN
```
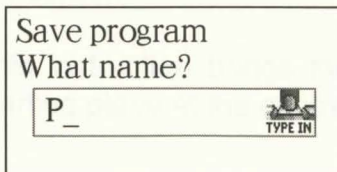
LOAD When you want to use your program again, click on **LOAD**. The computer will tell you if you need to change discs and when to do so. A list of all the programs and screens saved will appear. Type in your program's name (the **P_** is already there so you don't need to type it in again), and press **Return**. The program will load and will appear in the left hand column. Now you can run it again or change it.

WIPE PROGRAM! If you decide not to save your program, click on this button. Just in case you select this button by mistake, you are given a chance to change your mind. One more box will ask you if you really want to **KILL** the program or **KEEP** it after all. Be careful!!

Building your own routines.

BUILD By selecting **BUILD**, you can write up to four routines which you can use in your main program. These routines will be built up in the small box in the bottom right hand corner of the screen. You need to type in a name for your routine then press **Return**.
You **BUILD** your routine by making a list of instructions just like you do for the main program.

RUN — You can test and see your own routine working by clicking on this button. You can change your routine by selecting lines as usual.

FINISH WRITING — When you are happy with your routine, click on this button. It is now available as a complete routine to use within your main program. The name of the routine will appear, in a red box, below the other commands in the command window. Clicking on its name will insert the routine into the current line in the main program.

Change line to....

FORWARD	BACKWARD	LEFT	RIGHT
PEN_DOWN	PEN_UP	CLEAR	HOME
REPEAT	END	Delete	leave
FRESH			
TRIANGLE	SQUARE		

CHANGE NAME — Click on this if you want to change the name of any of the routines you have built. Delete the existing name and type in the new one.

CHANGE — Click on this if you want to change one of the routines you have already finished. The names of your routines will appear at the bottom of the selection box as well as in the routine list in the bottom right hand corner of the screen. Click on the name of the routine you want to change.

Change BUILD
What name?

ROUTINES
TRIANGLE
SQUARE

Leave

TRIANGLE   SQUARE

Colouring your screen.

Once you have run your program and the turtle has drawn on the screen, you can do several things with it.

COLOUR — This instruction brings up a paintbox of colours from which you can choose. Select the colour you want by clicking **SELECT** on one of the paint pots - its lid will open. Now colour your picture, area by area, by using the mouse and clicking **SELECT** in the area you want to paint.

RUB OUT   colour in!   FINISH   SAVE   PRINT
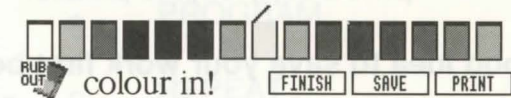
RUB OUT — If you make a mistake when you are colouring, clicking on this button will rub out all the areas coloured since you last clicked on a paint pot. The areas will return to the colours they were before.

FINISH — Click on this button to finish your colouring and return to the main screen.

Saving and printing your screen.

SAVE

You can name and save your screen in the same way as you saved your program. The screen will be saved as a sprite which can be used with !Paint or !Draw (Sprites take up a lot of disk space!) The computer will tell you if you need to change discs and when to do so.

PRINT

If you have the correct Risc OS printer driver installed before running the program, you can print a copy of your picture.

It is a good idea to save your work first before you attempt to print.