

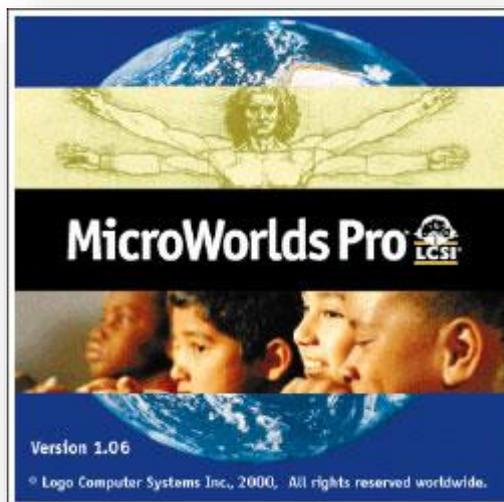
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IT Teacher



**CHAPTER
2**

**THE PROGRAMMING
ENVIRONMENT**



THE MICROWORLDS PRO ENVIRONMENT

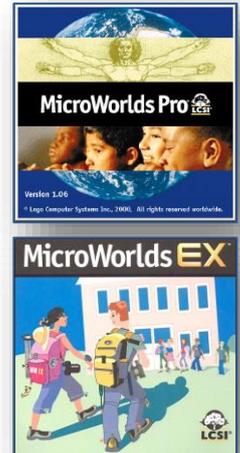
- An algorithm is always implemented in a specific programming language.
- The language that is going to be used in this course is called **LOGO**.
- The programming environment in which we will develop all our projects in Logo language is called **MicroWorlds EX** (the previous version was named **MicroWorlds Pro**).
- This application is a software product of **LCSI** Corporation and it is available for download in the webpage <http://www.microworlds.com>.

PROGRAMMING ENVIRONMENT

MicroWorlds Pro is a multimedia **programming environment** which allows us to create and execute programs that are written in a high-level language that is called **LOGO**.

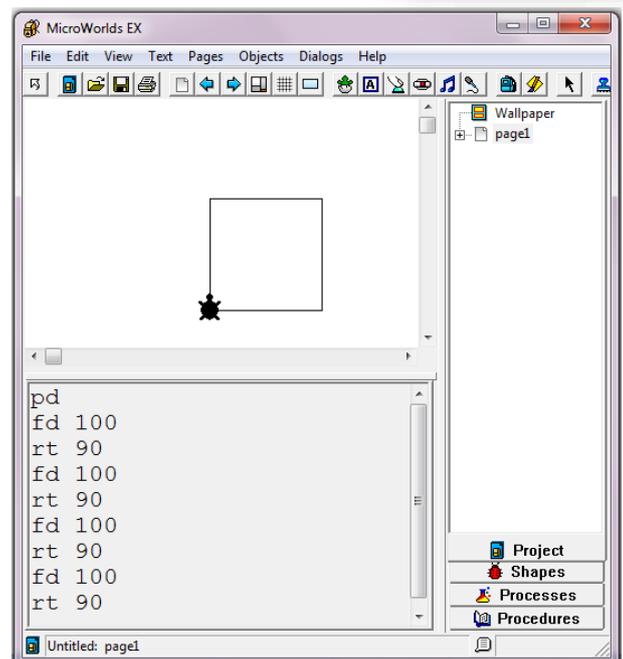
The projects we can develop in LOGO may be multimedia, mathematical, geometrical or design applications.

MicroWorlds Pro is an educational software which introduces students to programming inside a graphical user interface.



LOGO PROGRAMMING LANGUAGE

- Logo is a programming language which was developed in the early 1970s by **Seymour Papert**.
- Its name derives from the Greek word «ΛΟΓΟΣ».
- Logo is a particularly suitable language for children to make their first steps in programming.
- With Logo, a student can write algorithms which **guide a turtle** (that lives in the screen) to execute a set of **commands – instructions**.
- Each turtle is characterized by a set of features: **name**, **position**, **direction**, **pen width** and **shape**.
- To activate a turtle in order to execute a set of commands, we need to **click on it**.
- Turtles are very important elements inside Logo because they help us **design** and **decorate** our page as well as to create **animations**.



MULTIMEDIA APPLICATION

A multimedia application is a computer program which uses a variety of information methods such as **texts**, **sounds**, **images**, **animations**, **music** and **videos**, in order to have a more interesting and efficient communication with the user.

In MicroWorlds Pro we can easily guide our turtles to combine a variety of multimedia techniques in order to develop interactive projects.

MICROWORLDS PRO ENVIRONMENT

To launch MicroWorlds **welcome screen** we select: *Start → All Programs → MicroWorlds EX*

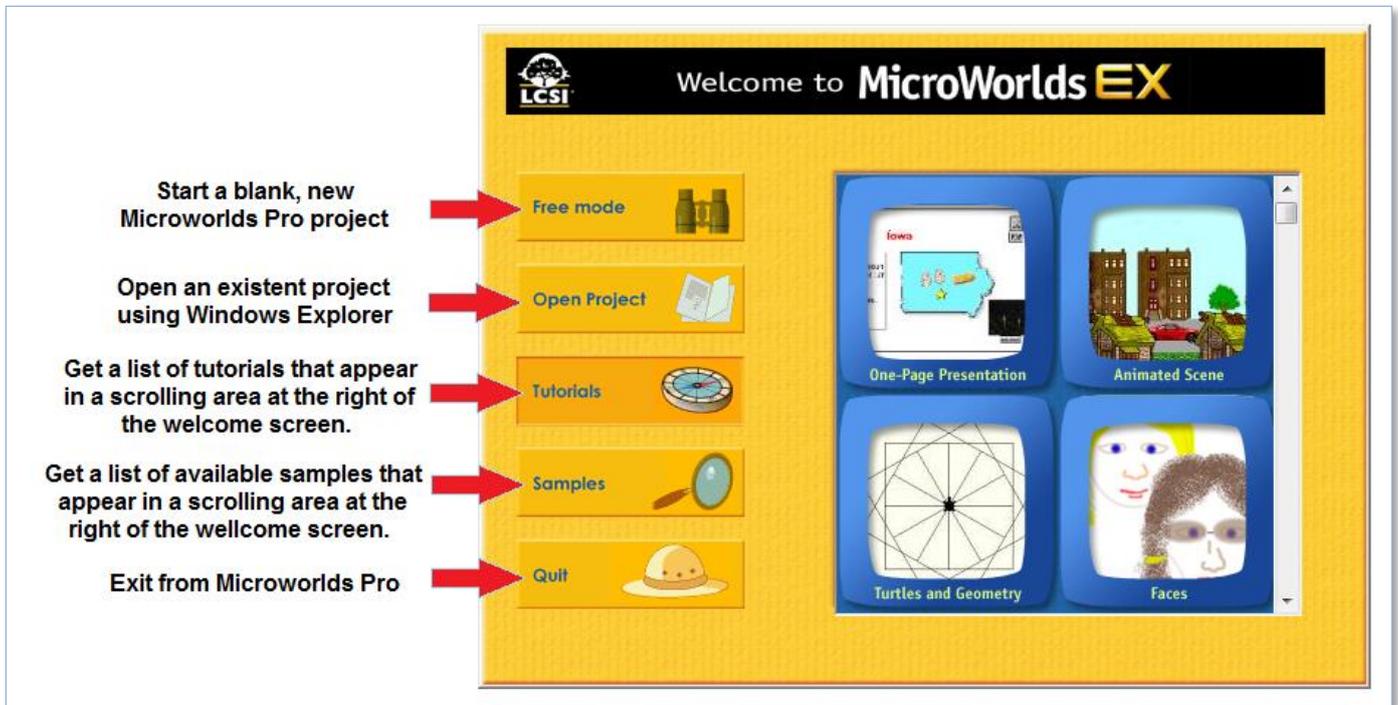
or we double click the **shortcut icon** on the desktop:



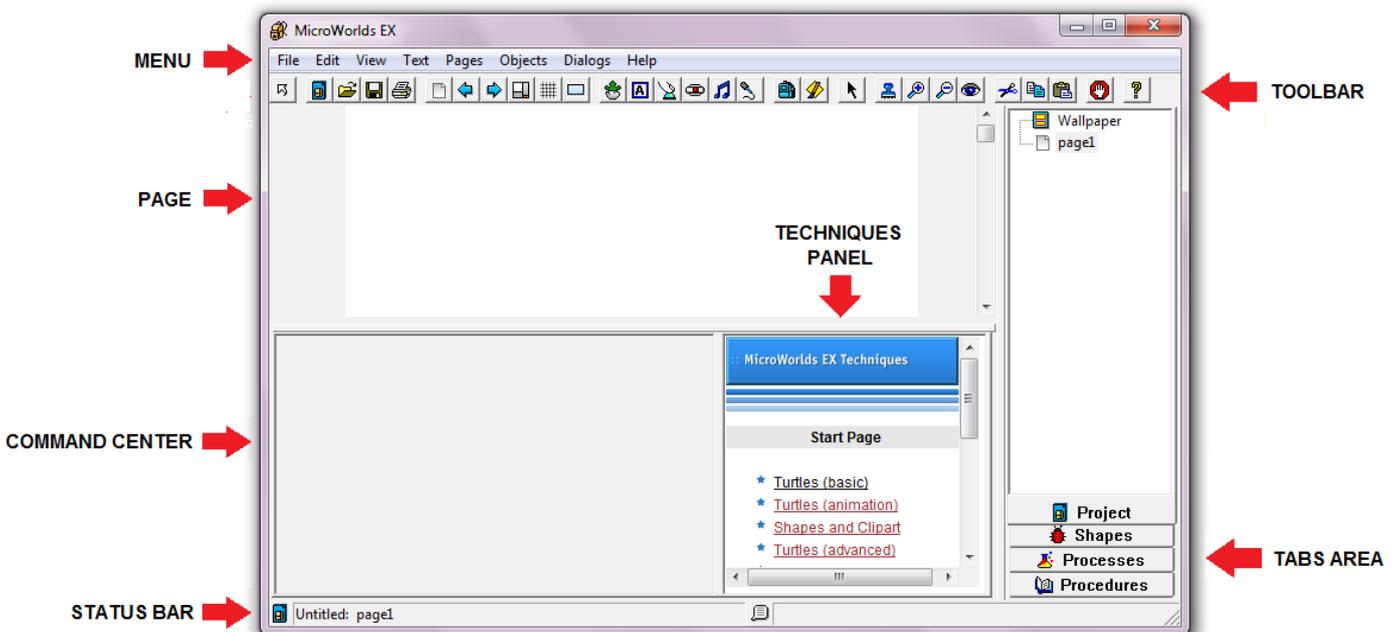
MicroWorlds EX (new version)



MicroWorlds Pro (old version)



If we select the **free mode** button then we open the **programming environment** of MicroWorlds and that is the **main screen** to create, edit or execute our projects:



Toolbar → It contains tools for file management, editing, and special MicroWorlds EX options.

Page → It is the "work area" and presentation area for our project. Printing text, drawing, and animating turtles are among the many things we can do here.

Status Bar → It shows the current project name and page. Also it displays temporary information about our project.

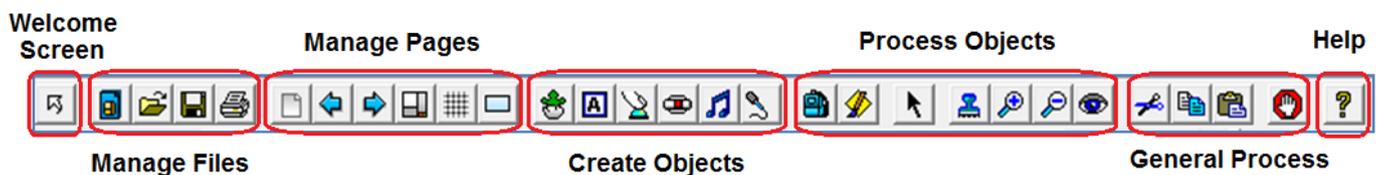
Command Center → Here we can type our Logo instructions in order to be executed immediately. This is a direct mode of commands execution.

Techniques Panel → It contains step-by-step descriptions for dozens of basic techniques. To access one of the Techniques, first select a topic from the drop-down menu, and then click on a technique from the list that appears.

Tabs Area:

- **Procedures** → Here we can write **Public Procedures** (procedures that any turtle in the project can run). We can also write procedures in a turtle's **backpack**, but these are **Private Procedures** (only available to that particular turtle).
- **Project** → It displays a **project tree** of all objects, their states, and state variables.
- **Processes** → It displays a process tree of all the processes that are running concurrently.
- **Shapes** → It contains the **Public shapes** (shapes that can be used by any turtle in your project). A turtle can also use **Private shapes** (shapes that are put in that specific turtle's **backpack**).

TOOLBAR



WELCOME SCREEN



Back to the **Welcome Screen**. This button appears only if we have enabled the Welcome Screen.

MANAGE FILES



Create a new project. It corresponds to New Project in the File menu.



Open Project. It corresponds to Open Project in the File menu.



Saves the project. It corresponds to Save Project in the File menu.



Prints the project page. It corresponds to Print Page Image in the File menu.

MANAGE PAGES

 **New page.** The default name for a new page is the word Page followed by the first available number.

 **Previous page.** It opens the previous page based on the order of appearance in the Pages menu (alphabetical order). After the first page, the button brings you to the last page of the list.

 **Next page.** It opens the next page based on the order of appearance in the Pages menu (alphabetical order). After the last page, the button brings you to the first page of the list.

 **Reset Layout.** It resets the layout to the original MicroWorlds EX layout, with the Command Center at the bottom and the Tabs on the right.

 **Presentation mode.** It corresponds to Presentation Mode in the View menu.

 **Grid On/Off.** It turns the onscreen positioning grid on or off. When the grid is turned on, objects can only be relocated and resized (using the mouse) in increments of 10 turtle steps.

CREATE OBJECTS

 **Creates a turtle** when we click on the page.

 **Creates a text box** when we click on the page. We can also drag a rectangle on the page to set the size of the text box.

 **Creates a button.** When we click on the page, the button's dialog box opens. We can also drag a rectangle on the page to set the size of the button.

 **Creates a slider.** When we click on the page, the slider's dialog box opens.

 When you click on the page, it opens the **Melody Editor** to create a melody.

 When you click on the page, it opens the **Record Editor** to create a recording.

PROCESS OBJECTS

 It displays and hides the **Painting/Clipart palette**.

 It displays and hides all open turtle **backpacks**.

 **Regular pointer** for clicking on buttons, typing text, moving, and selecting objects.

 **Stamper** to stamp turtle shapes, texts (text box must be transparent), or video posters.

 **Magnifier** to enlarge a turtle, clipart, a button, a text box and some choosers.

 **De-magnifier** to shrink a turtle, clipart, a button, a text box and some choosers.

 **Eye tool** to modify any object on the page. Click on the object with this icon to open an object's dialog box or view invisible objects.

GENERAL PROCESSING



It cuts the selected text, graphics, turtle shape, or object and puts it in the Clipboard. It corresponds to **Cut** in the Edit menu.



It copies the selected text, graphics, turtle shape, or object and puts it in the Clipboard. It corresponds to **Copy** in the Edit menu.



It pastes the contents of the Clipboard in the active window. It corresponds to **Paste** in the Edit menu.



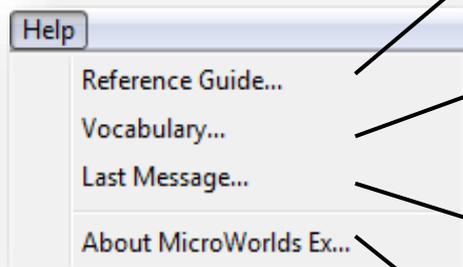
It stops all other processes. It corresponds to **Stop All** in the Edit menu.

HELP



It opens the index for the online MicroWorlds EX **Reference Guides**.

Alternatively, we can use the **Help Menu**:



It accesses the online **Reference Guide** for MicroWorlds EX, using your **default browser**.

It opens the **Vocabulary** section of the online Reference Guide for MicroWorlds EX. It lists a **catalogue** with all the **primitive procedures** of MicroWorlds that is sorted in alphabetical order.

It opens a one **page explanation** about the **last error** that was generated in our project. We can close the browser window to return to our project.

It displays a window with a description of the **version** of MicroWorlds EX that you are using. This information is useful when requesting technical support.