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History of Pentaminos



(Just what is a Pentamino anyway?)

Pentaminos are a class of **polyominos**. OK what is a polyomino? A polyomino is a group of squares of the same size joined at the edges orthogonally. What? In simpler terms it is a bunch of squares joined along the edges, that is each square must share an entire edge with another square. Pentaminos are polyominos which are made up of 5 squares.

When I was younger my father had a plastic puzzle made up of the 12 pentaminos. The object was to put them back in the square box. Later I saw an article on polyominos in *Scientific American* by Martin Gardner. In my college years I wasted countless hours trying to find out how many polyominos there were in the different sizes.

You are familiar with some simple polyominos.



One **square** by itself is the simplest polyomino.



Two squares joined together are called a **domino**. There is only one domino, it is a rectangle two squares wide and one square high or one wide and two high. A polyomino doesn't change just because you rotate or flip it.



Three squares together are called **triominos**. There are 2 of them. One is a 3x1 rectangle, the other is a V shaped object with one square placed above the other 2.



Four squares together are called **tetraminos**. You have probably seen these shapes in the game tetris. There are 5 of them.

Pentaminos are five squares joined together. There are 12 of them. They make up the pieces of this game.

There are higher order polyominos. They get complicated and numerous quickly. There is no known way to find out how many different polyominos there are for a given order without just counting. This is difficult for larger polyominos.



How to Play Pentaminos

The object of **Pentaminos** is to place all of the pieces (pentaminos) in the area or areas drawn.

To move a pentamino, drag it with the mouse, that is, put the mouse cursor on the desired piece, press either mouse button and drag the piece where you want it to go. You can still move the pieces after they have been put in the puzzle. You don't have to line them up perfectly, because the computer will slip them into a possible position if you are close.

To rotate a pentamino, place the mouse cursor on the piece and click the mouse button. Clicking the right button rotates the piece clockwise, and clicking the left rotates it counter-clockwise.

To flip a pentamino over, double click the mouse button on the piece.

If you mistakenly put a pentamino on top of another one their colors will blend together. If this happens, simply move one piece off the other.

The computer will inform you when all the pieces are placed correctly. If you think the puzzle is done, but the computer doesn't, make sure that all pieces fit together properly. There should not be any black areas in the puzzle, nor should any of the pieces be on top of each other.

In the registered version of Pentaminos some puzzles don't require you to use all the pieces, but each piece must be used entirely or not at all.



Starting Over on the Same Puzzle



Select **System - Reset Puzzle** from the menu bar.

Use this command to start over. It puts all the pieces back in their home position. You cannot undo this, so any work you have done will be gone.



Changing to a Different Puzzle

Select **System - Change Puzzle** from the Menu bar.

This command allows you to change puzzles.

The shareware version of Pentaminos has three puzzles. The Registered one has eighteen.

The shareware puzzles are: 1) a 6 x 10 Rectangle, 2) a 4 x 15 rectangle, and 3) an 8 x 8 square with the center removed.

The registered puzzle adds 15 puzzles, they are: 1) a 5 x 12 rectangle, 2) two 6 x 5 rectangles, 3) an 8 x 8 square with the four corners removed, and twelve additional puzzles; one shaped like each of the twelve pentamino pieces.

The registered version also contains bitmaps of all 7,335 possible solutions for all eighteen puzzles.

Note: When you change to a different puzzle your work on the previous puzzle is saved. When you return it will be as you left it.



Ending Pentaminos { bmc pent.bmp }

Select **System - Quit** from the Menu bar or **Ctrl-X** from the program.

This command ends the game and returns to windows. All puzzles are saved as you last left them.



Registering Pentaminos



(Thank you)

Select **Register** from the menu bar or Select the **YES** button on the opening form.

This command loads a new form which will allow you to register this program. The registered version of Pentaminos has 15 additional puzzles. It also contains a bitmap of all 7,335 possible solutions to all eighteen puzzles.

On the registration form several other programs by Astro Computing are listed. They are \$10 each or three for \$25.

Send orders to:

Astro Computing
P.O. Box 1247
Abingdon, VA 24212

You can see a discription of these other programs by selecting the **Help - Other Programs by Astro** on the menu bar.



About Astro Computing



Select **Help - About Astro Computing** from the menu bar.

This command displays a form telling about our company.



Other Programs by Astro Computing



Select **Help - Other Programs by Astro** from the menu bar.

This command opens a help file which gives a discription of other programs we have to offer. They sell for \$10 each or three for \$25. They also come in a shareware version for just \$2 each if you want to just try them out (\$10 minimum order please.)



About Pentaminos



Select **Help - About** from the menu.

This command displays the version number of your copy of Pentaminos, the copyright notice, and other information about Astro Computing. It also shows your free memory left. This information is helpful when corresponding with the author.

