

##### Plastic (MSXDev 2023 GAME)#####

## Legal Info

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This software, the game, is freeware. This means the game is free to use for non-commercial use only with the condition that the game is not altered.

## Game Description

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Plastic is a, 32KB cartridge, MSX1 action game with an environment cleanup theme that uses 8K of RAM. This is an easy game to learn how to play but it is more difficult to master. The purpose of the game is to guide the many eyed starfish (starfish have a few eyes-one on the end of each arm) to the bottom of the ocean and clean up the ocean along the way;you control the starfish who cleans up ocean by collecting various items. Guide the starfish by floating down to the bottom of the ocean while collecting the 4 types of items to gain points. The 4 types of point gaining items are as follows: empty trash can, shield, turbo and trash (which is a toxic waste barrel). So while guiding the starfish, as he floats down to the bottom of the ocean, also attempt to avoid the plastic rubbish, getting in his mouth,in the ocean in his path marked with the letter p. If a plastic piece of rubbish enters his mouth,causing it to be ingested, it causes damage. Note that it is only the mouth area of the starfish's body that needs to be protected from waste plastic,waste plastic touching the non-mouth part of the starfish does not cause damage. Any part of the starfish, not just the mouth, can collect the above 4 item types, empty trash can, turbo, trash, shield, but hearts can only be collected or used by eating them through the mouth;sometimes a heart will come out through the piles of plastic bottles to the right of the screen.

The scoring scheme is based on the following formula

$$P = 125 * N * T$$

where

P=points awarded in some time interval.

N=Number of current empty trash cans collected at that point in time.

T=Number of current trash cans/toxic waste collected in some time interval.

A maximum of 9 empty trash cans can be collected. Naturally, a real life fact is,*trash needs empty waste cans to contain it and obviously this means the more empty trash cans you have the more waste that can be disposed*-this real life fact is modeled in the simulation by the equation above. To the best of our knowledge there is no ocean simulation clean up game on the MSX which has the game mechanics of "Plastic". So collecting empty trash can acts as a score multiplier per single waste, so T=1 in formula above, collected. For example: if there are 0 empty trash can (currently collected) then the point awarded (P) are 0=125\*0\*1, if there is 1 empty trash can (currently collected) then the point awarded (P) are 125=125\*1\*1, if there are 2 empty trash cans (currently collected) then the points awarded (P) are 250=125\*2\*1 and so on. A maximum of 9 empty trash

cans can be collected and the trash is “taken out” or “disposed” after some time period (regardless of if cans are empty or not) so you need to continue more empty trash cans throughout the game. The points awarded for collecting one of the 4 types of items: empty trash can, shield, turbo, trash (which is a toxic waste barrel) are 70,50,25,125 respectively; the caveat here is that when zero empty trash cans are collected then zero points are awarded for collecting the trash/toxic waste barrel.

Collecting turbos enables the starfish to move down faster for collecting hearts more easily; with zero turbo value the starfish cannot move at faster speed downward compared to the speed of a heart moving downwards. So one purpose of turbo down points is that it allows the starfish to move down quicker when down is pressed; when there are no turbo down point the starfish moves less quickly downwards (and so the game obviously feels slower). The maximum number of turbo points at any time is 250. Using the down key with non-zero turbo points enables the capturing of hearts more easily and makes avoiding enemies more easily. Hearts come out of hollow areas the piles of plastic bottles (on the right hand side of the screen).

Collecting 5 shields instantly activates temporary invincibility for a few seconds , the starfish flashes black and white when invincible,and invincibility means immune to damage from plastics.

So the challenge to this game is to get to the bottom of the ocean and clean the ocean along the way.

## Control Keys

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This is a one player game that uses the keyboard.

Space-starts the game

Left, right, down (with zero turbo points)-moves the player, left,right or down respectively.

Down (with non-zero turbo points)- enable the player to move faster downwards, for some distance, depending on the turbo down points value.

## Tested on Emulator and Tested on Real Hardware

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Tested and working on a real MSX computer (Sanyo PHC-70FD) so it will work on any real MSX computer. Game developed with Open MSX, version 0.12.0, so it will work with the OpenMSX emulator version 0.120 and it works with OpenMSX version 0.15.0.

## How to play

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In this section we discuss how the game is played and game play strategies.

The aim of the game is to guide the starfish, using left right or down, to the bottom of the ocean while cleaning up as much of the waste as possible, this is done by simultaneously collecting as many empty trash cans as possible and waste barrels (trash); having 0 empty trash cans means no points are awarded if a waste barrel is collected. The main source of points is obtained by collecting a high number of empty trash cans and barrels of waste simultaneously.

The space key starts a new game. The keys to guide the starfish are left, right, down; down also accelerates down, for some time, if turbo down is greater than 0. The more turbo points you have the longer the distance you can move downwards at a faster speed. Use turbos, to chase after a heart below the starfish's mouth or to avoid plastic waste if needs be. Having non-zero turbo points gives the ability to move downwards quickly and makes it easier to capture a heart, for reducing damage, or easier to avoid ingesting plastic waste. Hearts or plastic waste are ingested and collected through the starfish's mouth and no other parts of the starfish. However, the four types of item, empty trash can, shield, turbo, trash, can be collected with any part of the starfish. Collecting turbos increases the turbo down point up to a maximum value of 250.

Use invincibility to get past tough spots; collecting 5 shields instantly activates temporary invincibility which lasts for a few seconds.

What strategy will you use to get a high score?Below are three game play ideas.

\* One idea is to accept some damage from a waste plastic while attempting to capture a heart if there is a good chance to capture the heart (so overall there is no loss of damage). You do not need to dodge every single plastic waste as long as you can plan on capturing enough hearts to stop the overall damage level increasing to 100% in the long run.

\* Collect as many empty trash can as possible because, as explained above, it acts as a score multiplier.

\* Collect shield in such a way that the invincibility is used to avoid damage.

## Credits

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Everything in this game, code, graphics, sound by Z80 ASMer except for the music composition (which is Air on the G string, J. Bach,1723) with Arkos Tracker 2.

Game made using VASM assembler in 100 percent assembly language. The game is made in assembly for maximum speed as there is so many things happening on screen and other things the games does.

## Version History

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>>26-August-2023 The first version of the game is submitted to MSXDEV'23