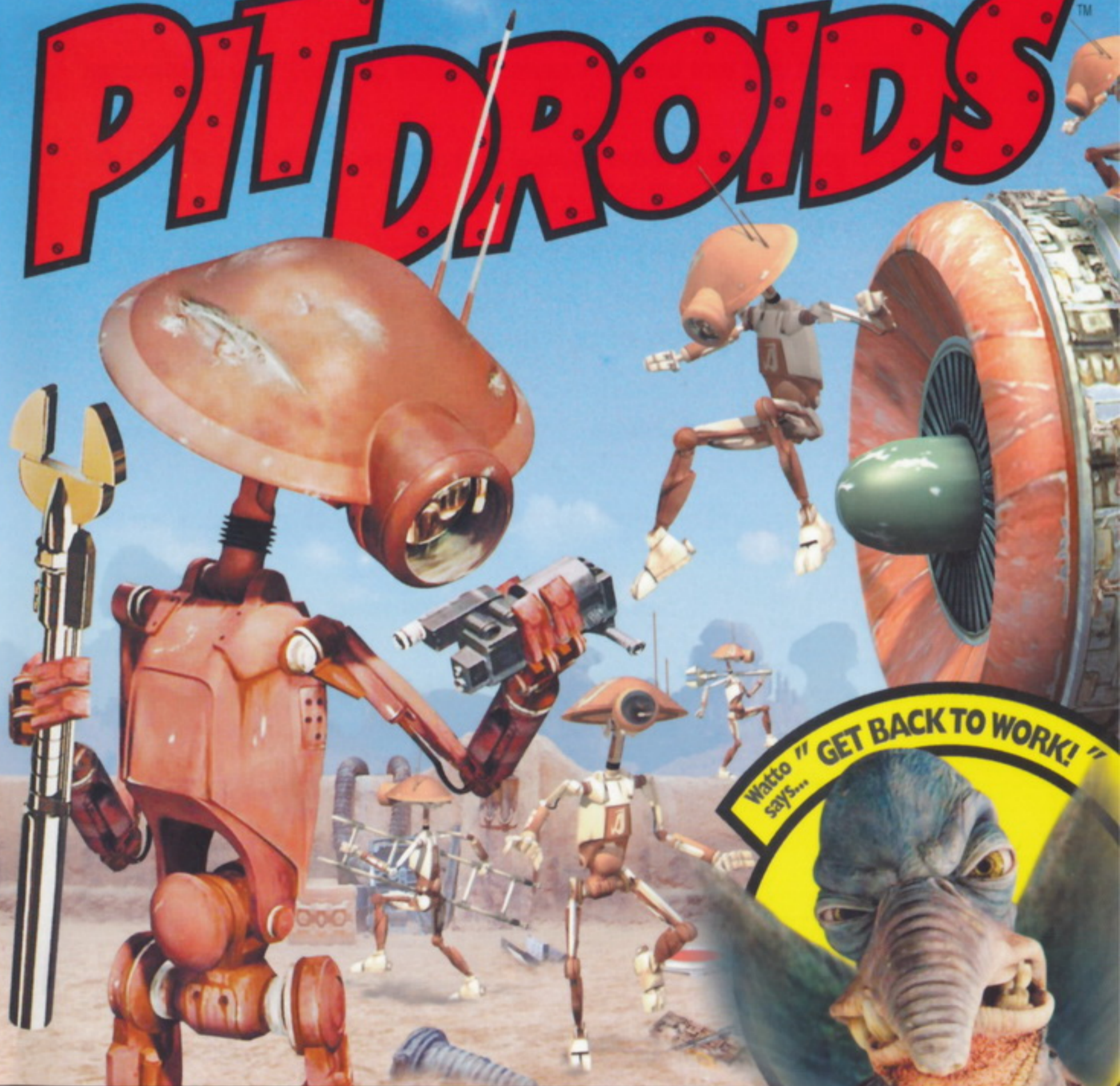


# Owner's Manual

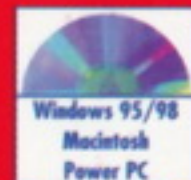


# STAR WARS

# PIT DROIDS



*300+ Puzzles to Drive You Nuts!*



# A Message from George Lucas, Creative Director of Lucas Learning Ltd.

*Many years ago as a filmmaker I developed an interest in interactive technologies. As I began to work with them, I realised that they had great potential for opening up new kinds of learning experiences for young people. They offered an alternative to some of the traditional approaches to education that did not work for me as a youth. As a result, for over 15 years I've been committed to finding ways to capture kids' natural interest in learning and engage them more actively and productively in the learning process. Lucas Learning reflects my own passion for learning as it creates products like **Pit Droids**. I hope you enjoy the experience and that it will contribute to your own lifetime of learning.*



George Lucas



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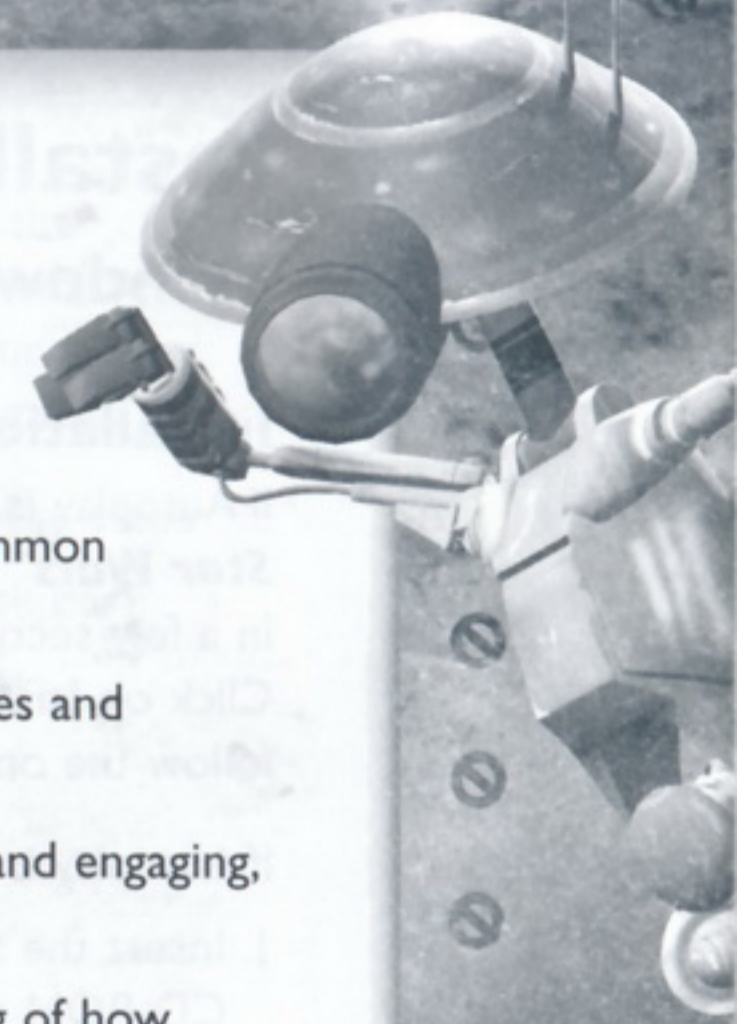
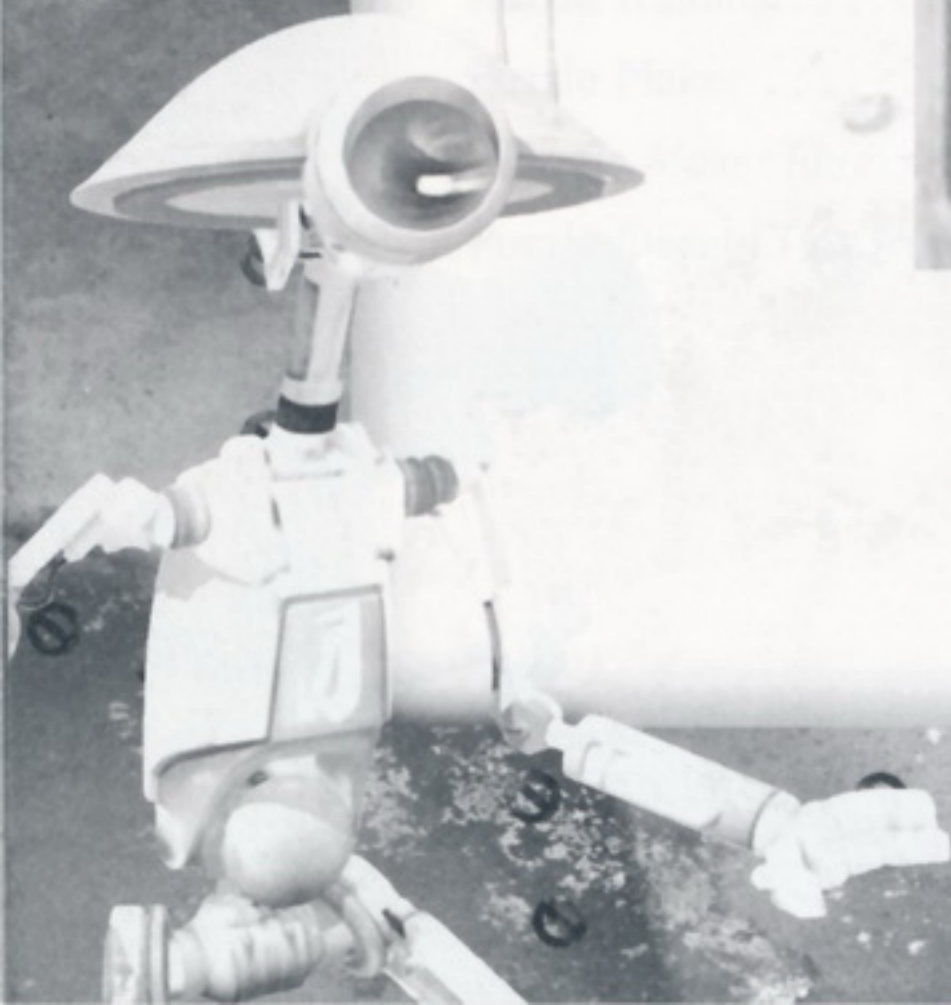
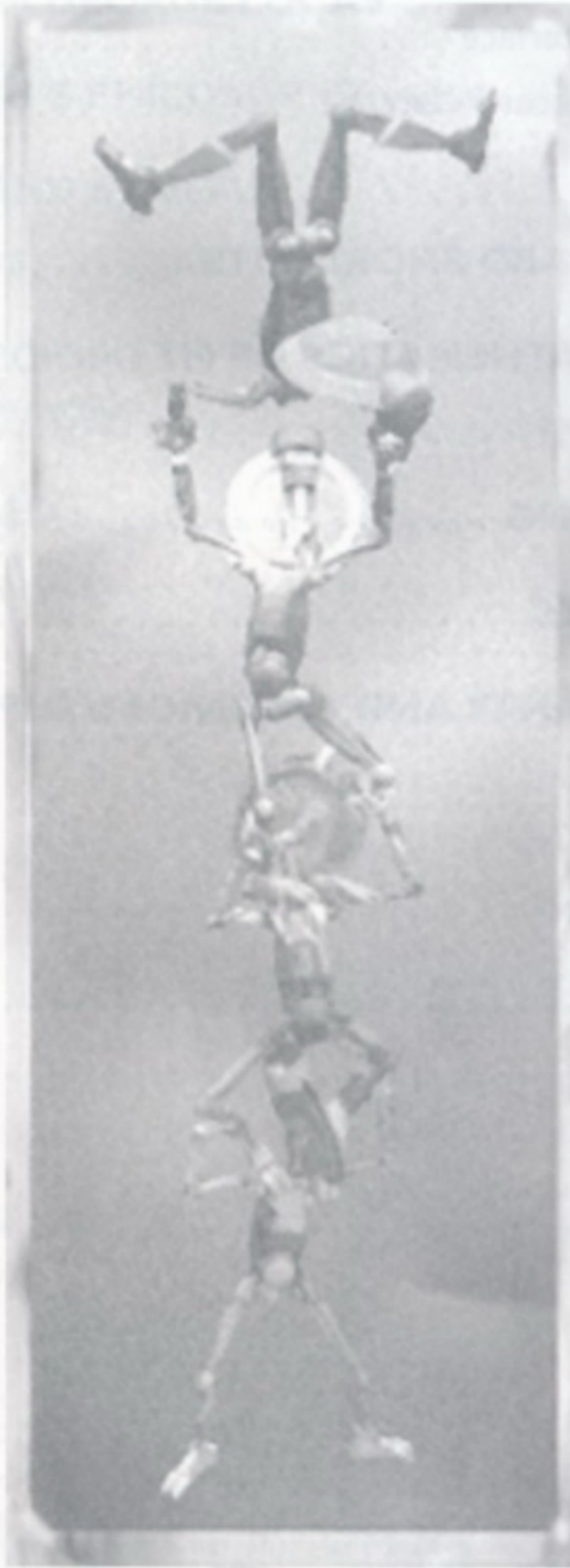
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## Welcome To Lucas Learning Ltd.

Lucas Learning Ltd. is committed to creating uncommon learning opportunities through software that inspires and entertains. Our games are imaginative, challenging, and engaging, yet grounded in solid content and an understanding of how people actually learn. Our philosophy is based on a fundamental respect for people's natural desire to direct their own learning through exploration and discovery. Our goal is to provide you with an entertaining, enduring, and substantial learning experience set in the familiar worlds of the *Star Wars* galaxy.

A FORCE FOR YOUNG MINDS™



# Installation and Start-Up

## Windows 95/98 Users

### Installation

If Autoplay is enabled on your system, simply insert the **Star Wars™ Pit Droids™** disc into your CD-ROM drive. In a few seconds, the launcher should appear on your screen. Click on **Install Star Wars Pit Droids** on the launcher, then follow the on-screen prompts to complete the installation.

If Autoplay is not enabled on your system, follow these steps:

1. Insert the **Star Wars Pit Droids** CD into your CD-ROM drive.
2. Double-click on the **My Computer** icon on your desktop.
3. Double-click on your **CD-ROM** drive (typically drive D:).
4. Double-click on the **Launch.exe** icon.
5. Click on **Install Star Wars Pit Droids**.

Follow the on-screen prompts to finish installing **Star Wars Pit Droids**. Note that in order to play **Star Wars Pit Droids**, you must have DirectX 6.1 and QuickTime 4.0.2 installed on your system. During installation you will be prompted to install these programs if they are not already installed on your system.

Please see the Readme for last-minute changes and information. To access the Readme file after installing, follow these steps:

1. Click on the **Start** button (on your Windows Task Bar).
2. Select **Programs**.
3. Select **Lucas Learning**.
4. Select **Star Wars Pit Droids**.
5. Click on **Readme**.

### Starting the Game

If Autoplay is enabled on your system, simply insert the **Star Wars Pit Droids** CD into your CD-ROM drive. In a few seconds, the launcher should appear on your screen. Click on **Play Star Wars Pit Droids** to start the game.

If Autoplay is not enabled on your system, follow these steps:

1. Click on the **Start** button (on your Windows Task Bar).
2. Select **Programs**.
3. Select **Lucas Learning**.
4. Select **Star Wars Pit Droids**.
5. Click on **Play Star Wars Pit Droids**.





## Macintosh Users

### Installation

To install **Star Wars Pit Droids**, follow these steps:

1. Insert the **Star Wars Pit Droids** disc into your CD-ROM drive.
2. Double-click on the **Star Wars Pit Droids** CD icon on your desktop.
3. Double-click on **Install Star Wars Pit Droids**.

Follow the on-screen prompts to finish installing **Star Wars Pit Droids**. Note that in order to play **Pit Droids**, you must have QuickTime 4.0.2 installed on your system. During installation you will be prompted to install this program if it is not already installed on your system.

Please see the Readme file for last-minute changes and information. To access the Readme file after installing, follow these steps:

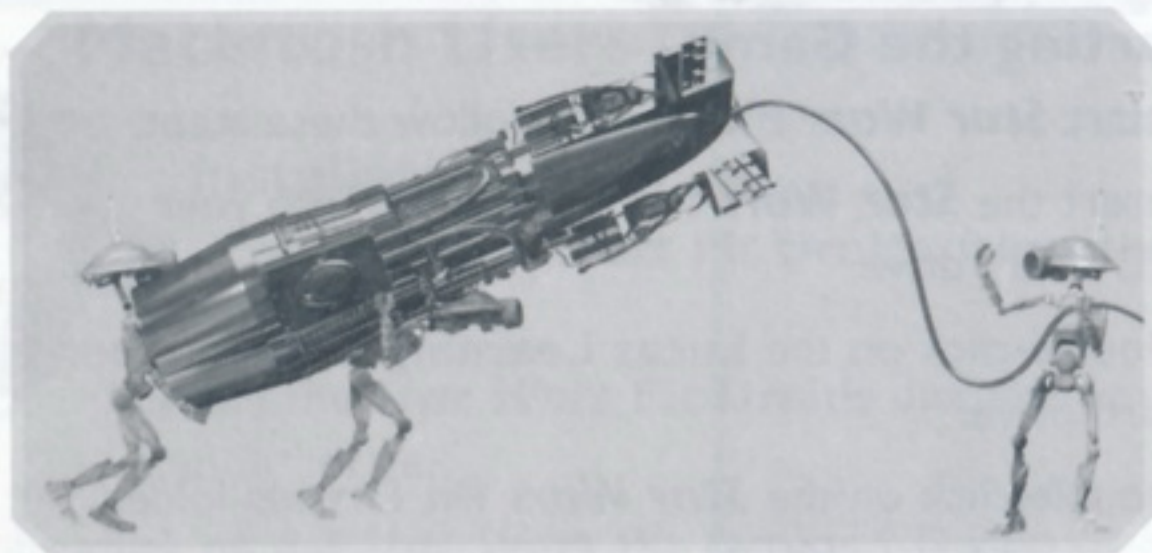
1. Insert the **Star Wars Pit Droids** disc into your CD-ROM drive.
2. Double-click on the **Star Wars Pit Droids** CD icon on your desktop.
3. Double-click on **Readme**.

### Starting the Game

To start **Star Wars Pit Droids**, follow these steps:

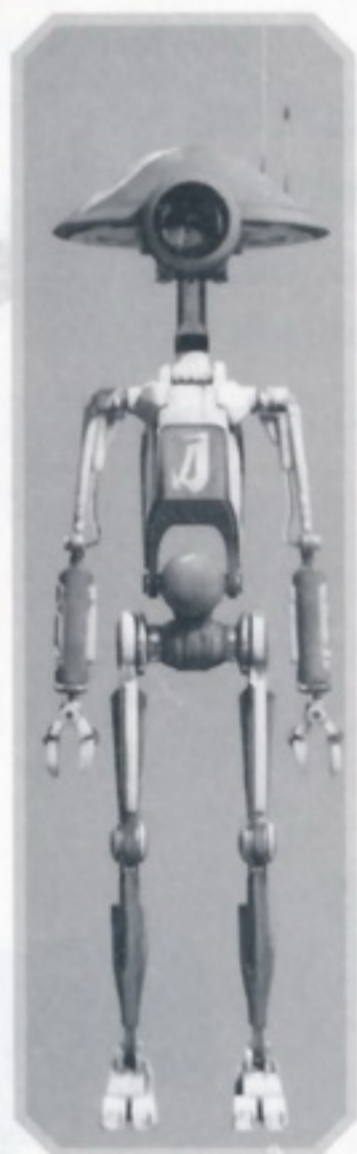
1. Insert the **Star Wars Pit Droids** CD into your CD-ROM drive.
2. Double-click on the **Lucas Learning** folder on your hard drive.
3. Double-click on the **Star Wars Pit Droids** folder.
4. Double-click on the **Pit Droids** icon to launch the game.





## Pit Droids™ Overview

Repairing Podracers can be dangerous. DUM units, commonly called pit droids, are cheap and expendable droids which work in the Podracer pit crews, frantically fixing the temperamental Podracers when they roar into the pit areas for repairs.



Pit droids are mass-produced on the manufacturing planet Cyrillia. These droids measure just over a metre tall and come in a variety of colours. Capable of lifting many times their own weight and programmed to approach their work with a permanent sense of urgency, pit droids are crucial members of any Podracer's team. However, because of their low-grade programming and overzealous work ethic, they can cause a considerable amount of damage in a short period of time unless they are supervised.

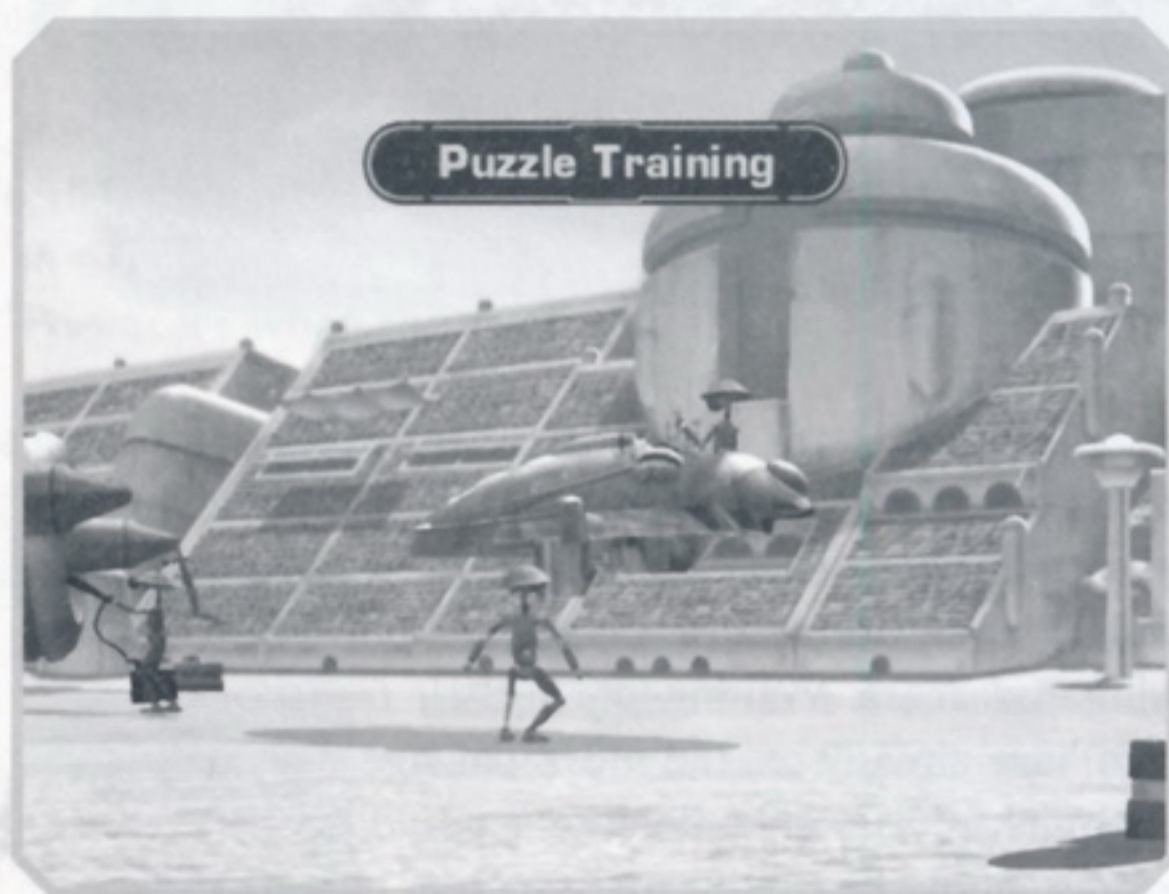


Looming over Tatooine is the largest shipment of these pit droids that Watto has ever purchased. Watto, a Toydarian junk dealer, was hoping to sell these droids for various uses on Tatooine. Unfortunately, it turns out that pit droids are only good at one thing — fixing Podracers. Waiting idly in their transport ship, the pit droids have already caused more damage than even Watto's star mechanic, Anakin Skywalker, could possibly repair. Desperate, Watto now begs your assistance in moving these mindless mechanicals from their transport ship above Tatooine to the Podrace Arena where their energies can be put to good use.

In **Star Wars Pit Droids**, pit droids are constantly underfoot, and constantly moving. Without your guidance, these overly earnest droids will keep marching straight ahead. It is up to you to direct them to their goals. However, you do not control the pit droids themselves — you alter their movements by placing various arrows in their paths. If successful, you direct the pit droids around obstacles, prevent them from crashing into each other, or divide them into sets to get them to appropriate goals.

## Getting Started

After the Lucas Learning logo, the opening movie plays. When the movie is finished, the Main Menu appears. In the Main Menu, move your mouse left or right to view animations of the various gameplay options. Click on one of the animations on the Main Menu to select a mode of play. (The first time you play *Star Wars Pit Droids*, you will be asked if you would like C-3PO to show you how the game works. It is highly recommended that you listen to C-3PO's brief tour).



### Puzzle Training

Puzzle Training allows you to solve puzzles with C-3PO as your guide. To enter Puzzle Training, click on **the animation of the pit droids looking around the Podracer cockpit**. This will bring up the Puzzle Training Menu. From the Puzzle Training Menu, you may choose to take C-3PO's guided tour, or to begin your training directly.

C-3PO's tour will explain all the interface and a few tiles used throughout the game to get you started. This is a good place to begin if you have never played *Pit Droids* before. Click on the **C-3PO's Tour** button to choose this option.

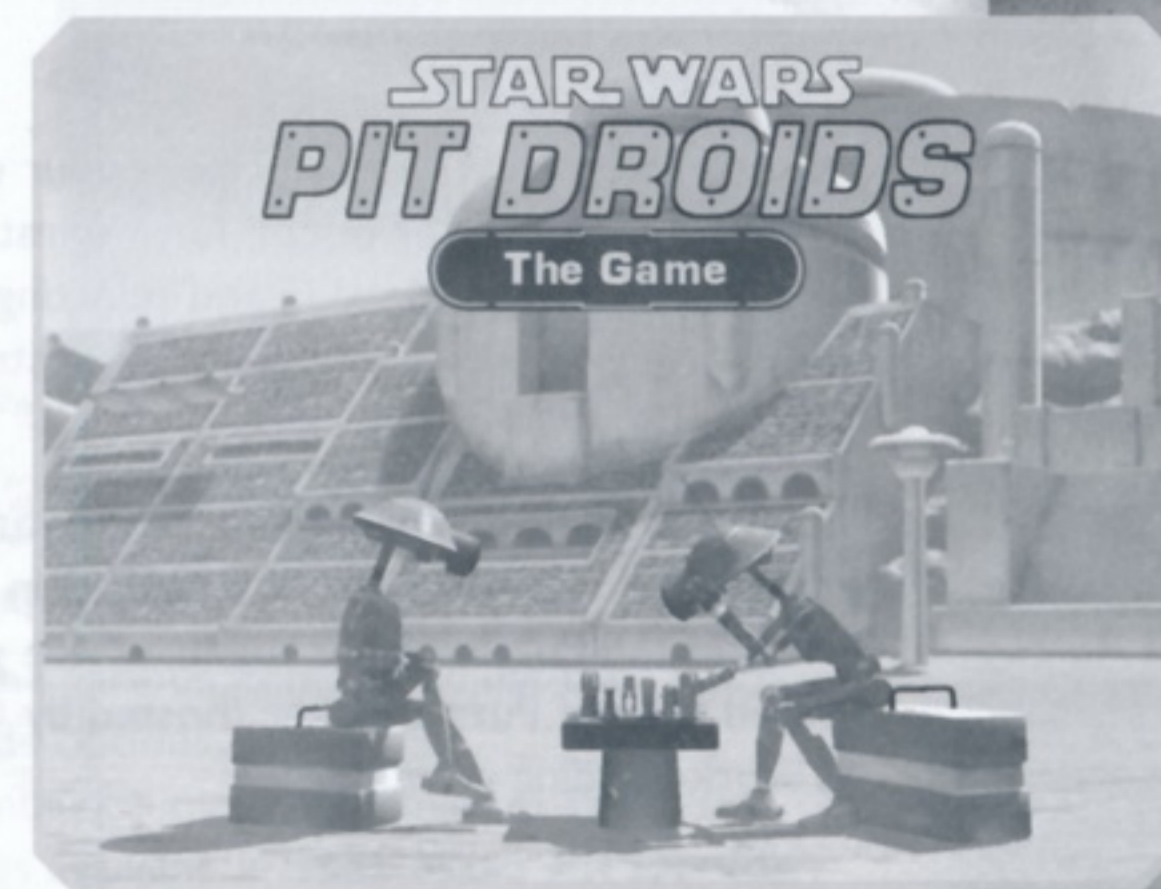
Click the **Training Area button** to begin your training directly. Clicking this button will bring up a screen of twenty numbered squares. Each square represents a different level that is based on a specific tile or puzzle type used in the game. Click on a button, and C-3PO will begin your training. While in the Training Area, remember to click on C-3PO's picture if you get stuck. He can provide hints and even puzzle solutions to help you learn your way around. By the time you've completed all twenty training levels, you should know everything you need to play the game.

### Game Mode

In Game mode you work to bring groups of pit droids to the Podrace Arena. The puzzles in Game mode get harder and harder as you succeed. You receive a score based on how many pit droids you are able to move through each specific puzzle, as well as bonus points for directing 100% of the pit droids to their goals in any puzzle. *Star Wars Pit Droids* keeps track of the 10 highest game scores.

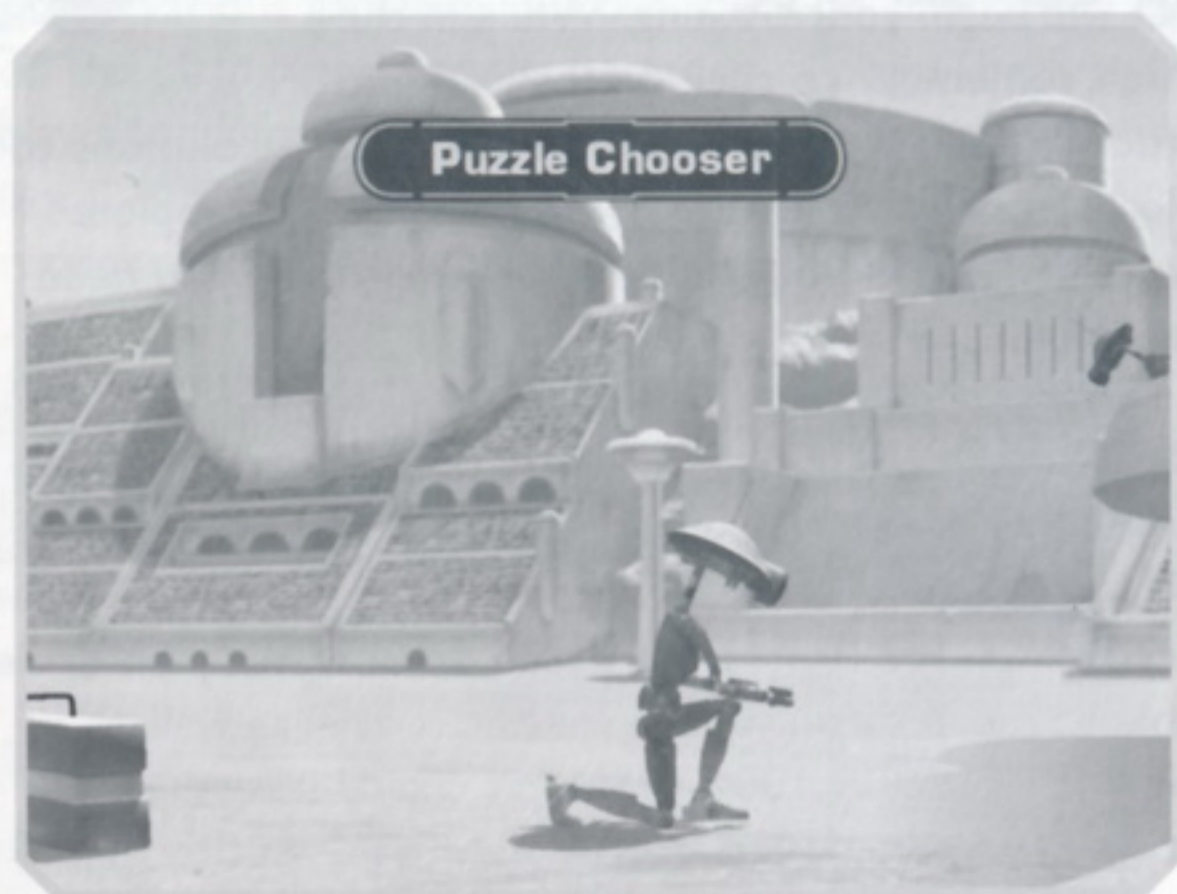
Click on **the animation of the pit droids playing at the game board** on the Main Menu to enter Game mode. This will bring up the Game menu. To begin a new game, click on the **New Game button** on the Game menu, and then select the difficulty level (Easy, Medium or Difficult) of the game you wish to play.

For more information on Game mode, see *Game Specifics* on page 18.



## Puzzle Chooser

Puzzle Chooser allows you to play **Pit Droids** puzzles one at a time, including new puzzles you receive from friends or download from the Internet.

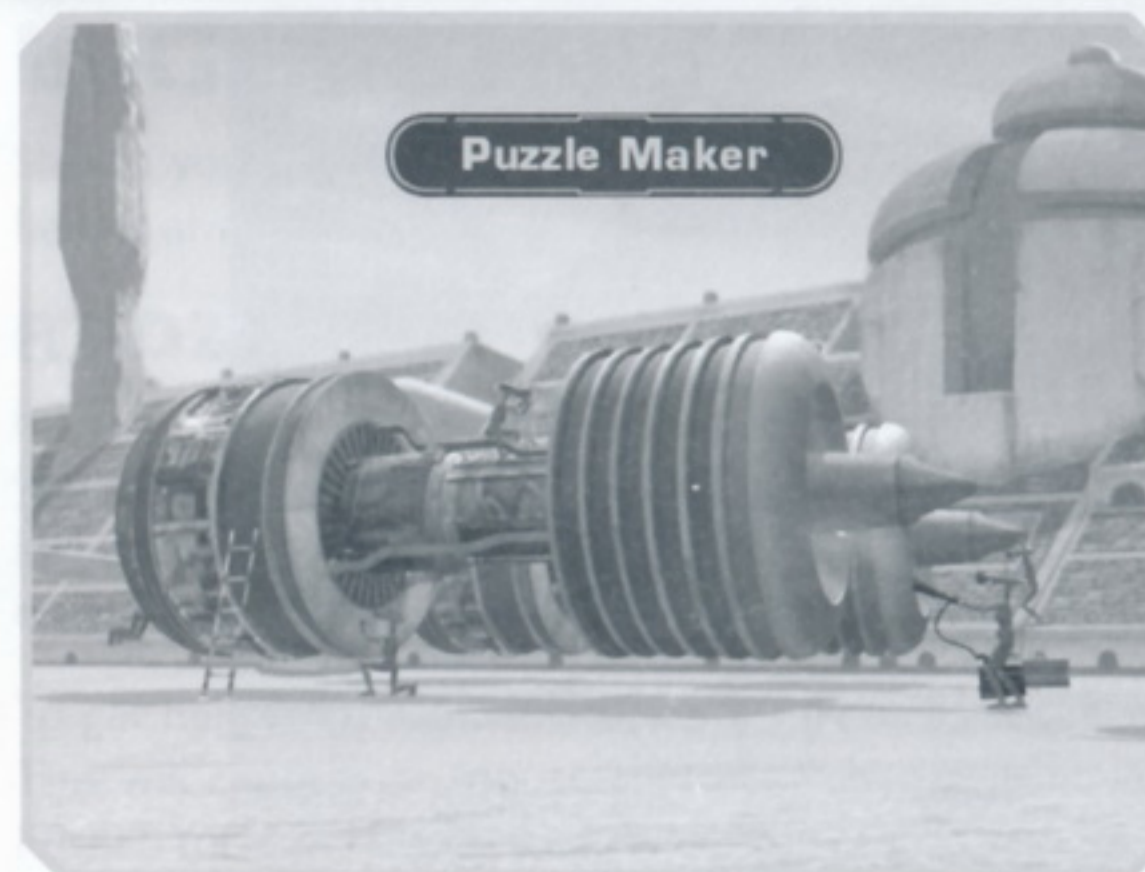


To play puzzles one at a time, click on **the animation of the pit droid throwing the chance cubes** on the Main Menu. This will bring up the Puzzle Chooser menu. Here you may select a specific puzzle to load and play, or let the program pick a puzzle for you at random.

## Puzzle Maker

Puzzle Maker allows you to create your own puzzles. You can load a starter puzzle for inspiration, or start from scratch, choosing a location and selecting from among a wide variety of tiles, arrows, walls and structures to create your own puzzle masterpieces.

Enter Puzzle Maker by clicking on **the animation of the droids working on the Podracer engines** in the Main Menu. This will bring up the Puzzle Maker menu, where you can choose to take a guided tour of Puzzle Maker (hosted by C-3PO), or to get right to work building puzzles.



C-3PO's tour is a good place to start if you have never used Puzzle Maker. Click on the **Tutorial button** on the Puzzle Maker menu and C-3PO will explain how to use Puzzle Maker.

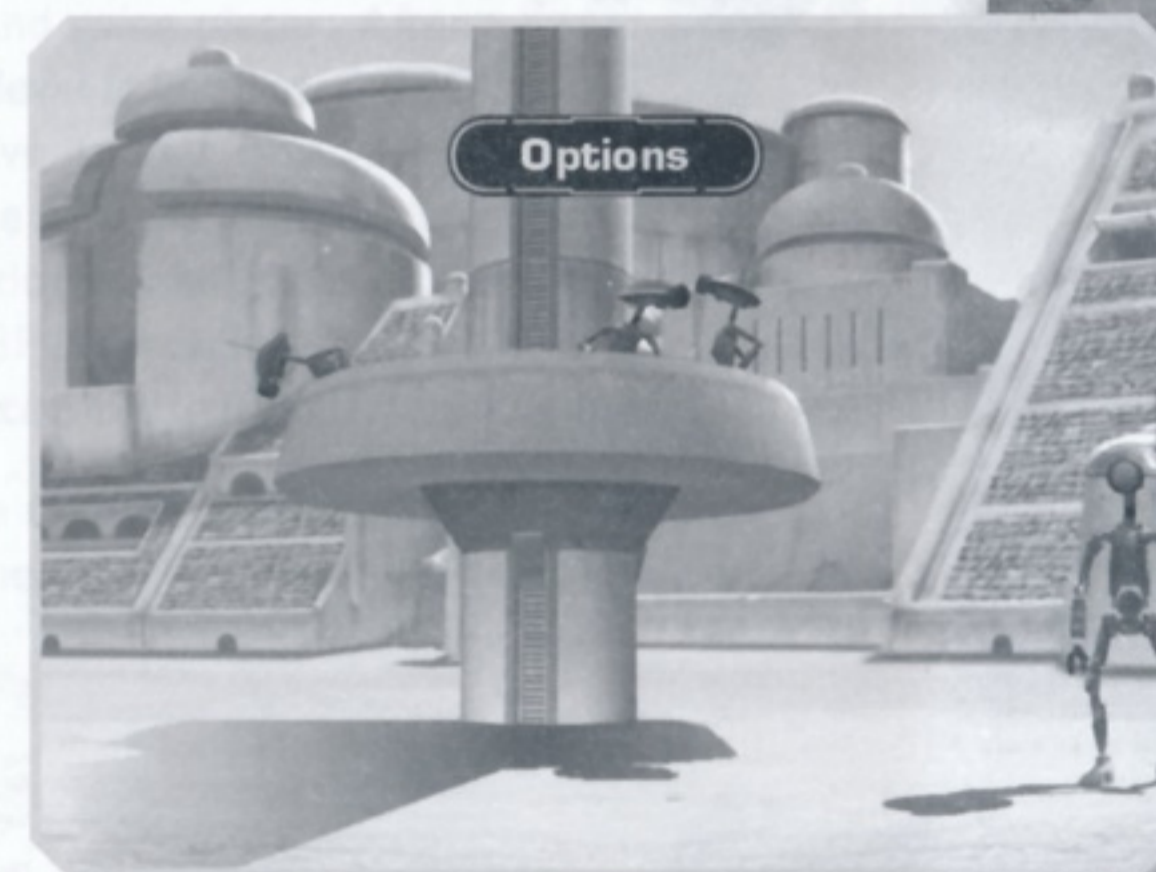
To begin creating your own puzzles, click on **Make New Puzzle** on the Puzzle Maker menu then choose a location and start building.

## Options

This is where you can set global options for **Star Wars Pit Droids**, such as sound volume and movie quality.

Click on **the observation tower animation** on the Main Menu to bring up the Options screen, then click the check boxes next to the various items to adjust the **Star Wars Pit Droids** options.

See *Options* in this manual for more information about the various options settings available in **Star Wars Pit Droids**.





## Exit

Click on **the animation of the frantic pit droid** on the Main Menu to exit *Star Wars Pit Droids*.

## In-Game Help

Should you get stuck while playing *Pit Droids*, help is always available:

### R2-D2

R2-D2, a faithful astromech droid, is available to help you whenever you see his icon on the game screen. His databanks contain information on just about everything in *Star Wars Pit Droids*.



To get help from R2-D2, click on his picture on the game screen. This will cause your mouse cursor to change to an image of R2-D2. You can then point this cursor at anything on the screen, and R2-D2 will display information about that item. Click anywhere to turn R2-D2 off and get back to playing.

### C-3PO

C-3PO is available to help you in both Puzzle Training and Puzzle Maker modes.



In Puzzle Training, C-3PO will explain individual puzzle types and game pieces. After his explanation of each level is finished, C-3PO is available to help you solve it. Click on **C-3PO** again, and he will provide a helpful hint. Click on him yet again, and he will show you a solution to the current puzzle. You can get additional help from C-3PO by clicking on the **C-3PO's Tour button** on the Puzzle Training menu.

In Puzzle Maker, click on the **Tutorial button** on the Puzzle Maker menu to hear C-3PO explain how to create your own puzzles.

# Game Specifics

## Game Mode

To enter Game mode click on the **pit droids you see sitting and playing at the game board** in the Main Menu. You may start a new game, load a previously saved game, or review C-3PO's Tour. Clicking on **New Game** will prompt you to select the difficulty level of your game (Easy, Medium or Difficult). You can not change the difficulty level of a game in progress, so choose wisely!



In an Easy game, you have an unlimited number of pit droids in the Transport Ship to work with. In terms of your score, each pit droid is worth 1 point.



In a Medium game, you have only 480 pit droids in the Transport Ship. Each pit droid is worth 2 points. The puzzles you start out with are harder than those you start with in an Easy game.

In a Difficult game, you have only 240 pit droids in the Transport Ship, but each pit droid is worth 5 points. The puzzles you start out with are harder than those you start with in a Medium game.



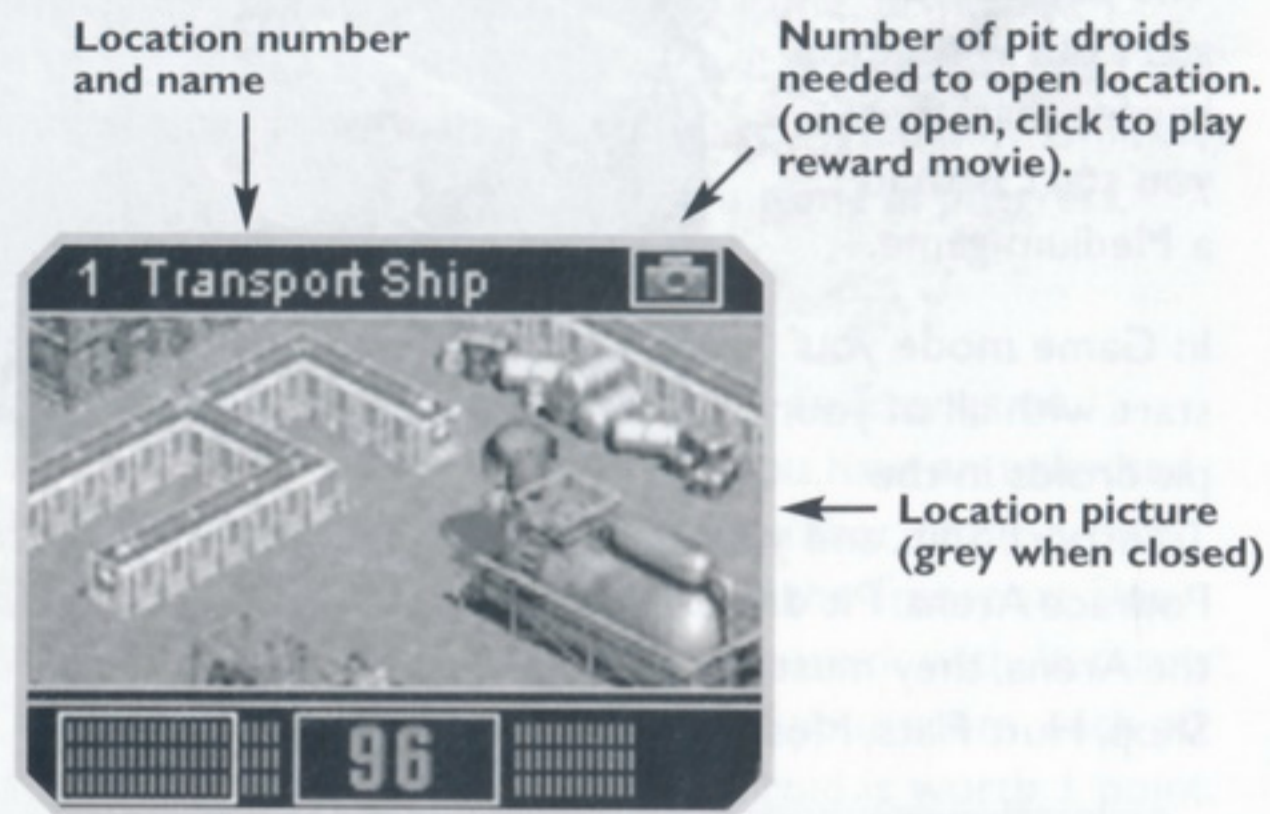
In Game mode you start with all of your pit droids in the Transport Ship, and your goal is to bring the pit droids to the Podrace Arena. Pit droids always travel in groups of 48. To get to the Arena, they must get through 8 locations, including Watto's Shop, Hutt Flats, Mos Espa and the Arena Hangar.



The Game Map shows you where all of your pit droids are at any given time (pit droids are represented by tick marks in each location). You can see the number of pit droids at each location, what locations are available for playing, and how many pit droids have made it to the Arena. You can also save and load games from the Game Map, see your current score, and review the opening movie and any reward movies you have earned so far.

In the Game Map, locations are represented as small pictures. Until you have accumulated enough pit droids to enter a location, its picture will appear greyed out.

The number which appears under each picture shows you how many pit droids are in that particular location.



Indicators show number of pit droids at this location

Number of pit droids currently at this location.

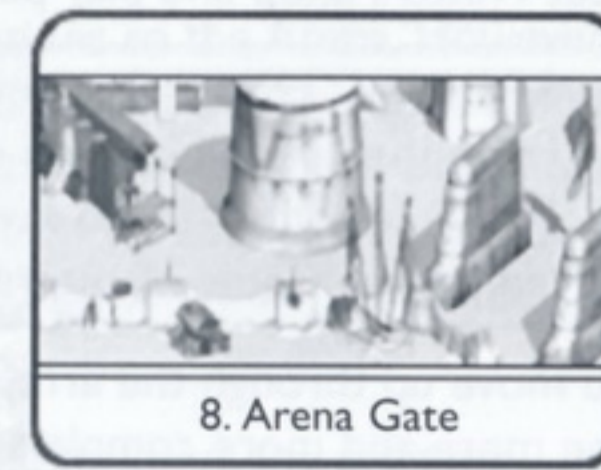
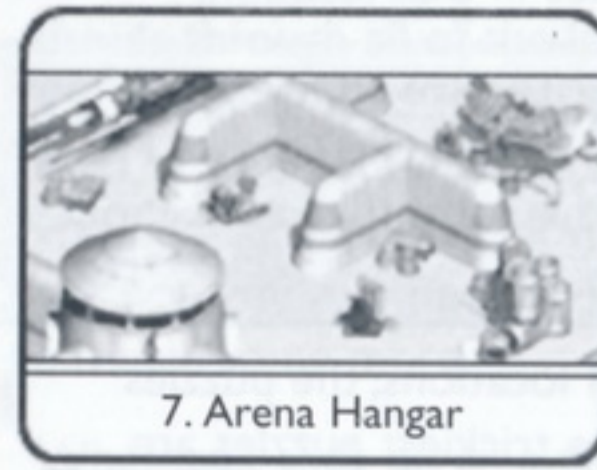
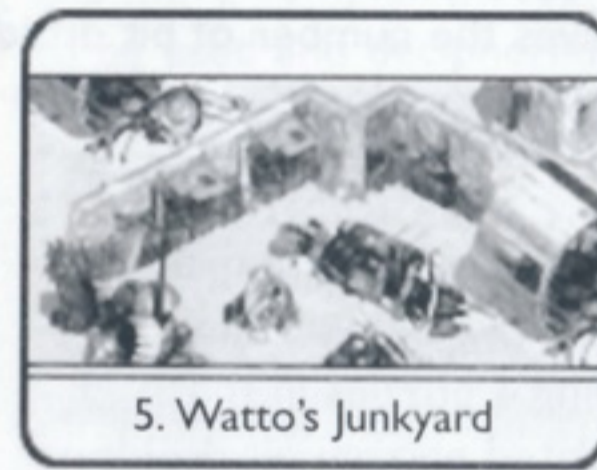
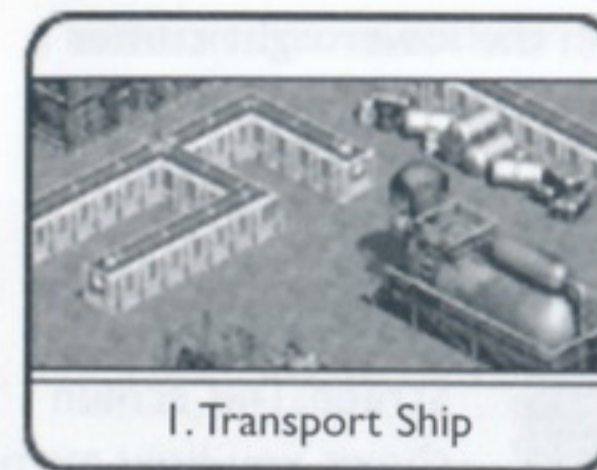
Remember, you always need 48 pit droids to play any puzzle.

Each location has a short reward movie. These movies show off the pit droids in all of their glory. You will see pit droids attempting acrobatic stunts and causing all kinds of havoc and mayhem. A new movie will play each time you open a new



location. Once you have opened a location, you can review its movie by clicking on the small camera icon above the location's picture in the Game Map.

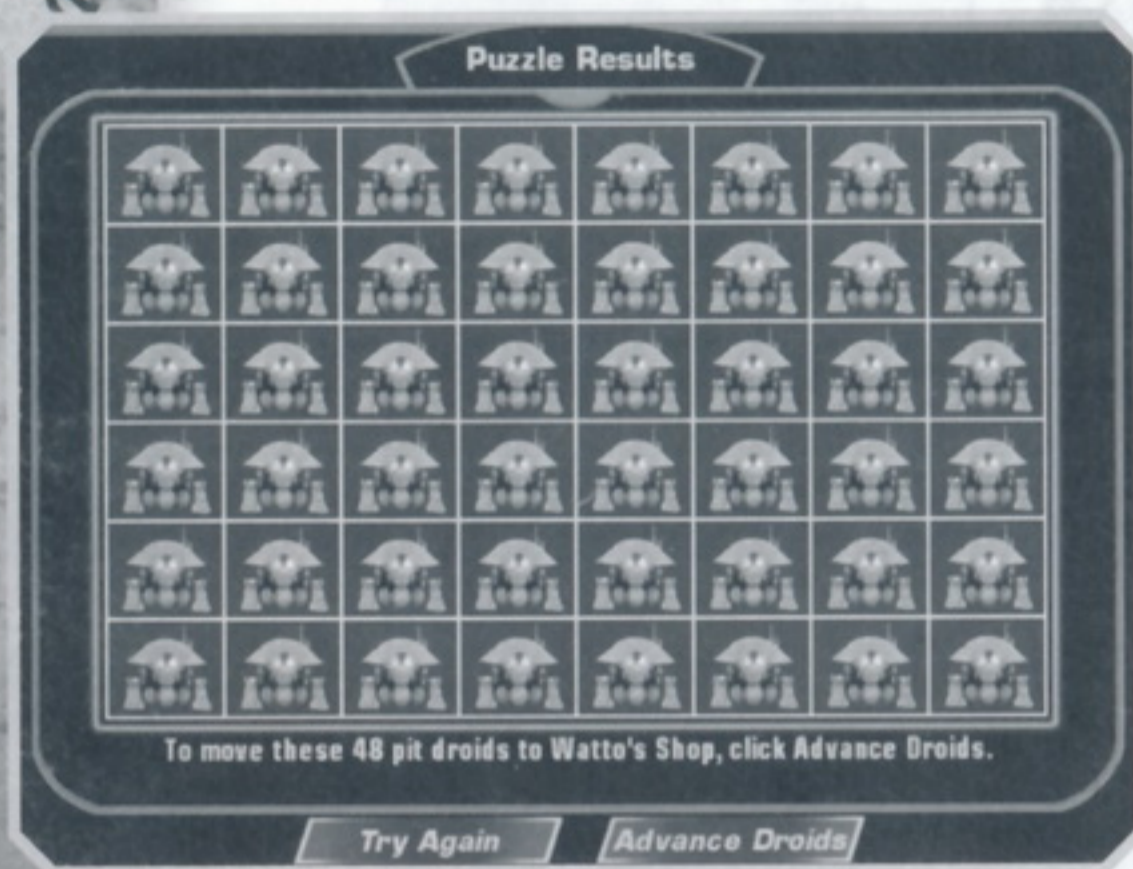
The eight locations from Tatooine which appear in Game mode are (in order of appearance):



You choose which location to play next by clicking on its picture on the Game Map. If you have enough pit droids to play a puzzle in that location, off you go. If not, a dialogue box will appear telling you how many more pit droids are needed.



Clicking on an available location's picture will start a puzzle in that location. You play the puzzle until either all 48 pit droids are directed to appropriate goals, or you decide to leave the puzzle by clicking on the "X" button in the lower right corner of the screen.



Either way, each puzzle is followed by the Results Screen. This screen shows you how many of the 48 pit droids in the puzzle were directed to goals, and are waiting to be advanced to the next location. If less than 48 droids were directed to goals, you may decide to try

the puzzle again. Advancing droids moves the number of pit droids that made it to goals in the puzzle to the next location and adds points to your overall score.

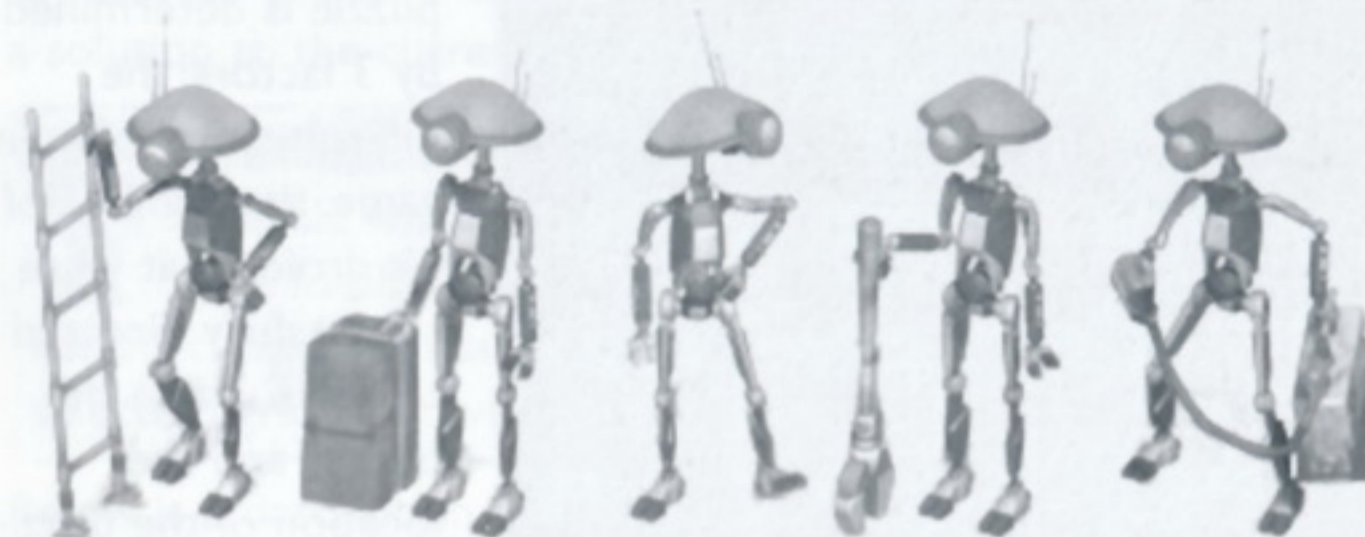
Once you have moved 144 droids to the next location, that location opens, the reward movie is shown, and you can play puzzles there. For example, after playing 4 puzzles in the Transport Ship, you may have accumulated enough pit droids to select Watto's Shop and play puzzles in that location.



**SPECIAL HINT:** Remember to save your game often! From the Game Map, you can hit + (on the PC) or + (on the Mac) to save the current game without leaving the Game Map screen.

As you move up through the array of locations, the puzzles become more and more complex. The trickiest puzzles are found in the Arena Gate location.

As pit droids move up through locations, they gain attributes such as colours or tools. At the beginning of a game, all pit droids are basic pit droids - they are of a uniform colour, and carry no tools. Once pit droids make it to Watto's Shop, they gain an attribute - body colour. When Watto's Junkyard is reached, the pit droids are equipped with tools - a ladder, a fire extinguisher, a wrench or a crate. These additional attributes add complexity to the puzzles, as they effect which droids can go where.



As you move up through the 8 locations, you will also see more and more complex pieces within the puzzles themselves that need to be used and deciphered.



**SPECIAL HINT:** If you are having trouble with a particular piece, remember to check out the Puzzle Training area. Click on R2-D2 to get the name of the piece, exit your Game and go to the Puzzle Training area to check things out!

The ultimate goal of Game mode is to bring a total of 144 pit droids through all of the locations to the Arena. However, you start with at least 240 pit droids (depending on the difficulty level of your game), so you can lose a few pit droids along the way and still succeed. However, if you do lose pit droids along the way, you may need to go back to an earlier location to advance some more.

When you click on an available location, the program automatically selects an appropriate puzzle for you. The Game tracks overall progress of the pit droids and assigns a score to every completed puzzle.

In an Easy game, you can always go back to the Transport Ship, since you have an unlimited number of pit droids there. Medium and Difficult games will end if you no longer have 48 pit droids available to play a puzzle in any location. If this happens, a Game Over message will be displayed, and you will need to start a new game.

## The Game Scoring System



Your score on each puzzle is determined by 3 factors: the difficulty level of your game, the number of pit droids that were successfully directed to goals within the puzzle, and the location of the puzzle. Additionally, a bonus score is achieved anytime 100% of the pit droids are brought through a puzzle.

Each time you exit a game, you will see the High Score screen, which displays the 10 highest overall game scores. Scores from Difficult games are displayed in Red, Medium games in Blue, and Easy games in Yellow. You can also view the High Score screen from the Options screen.

## Saving Your Progress

You can save your progress in Game mode at any time from the Game Map. You can then keep playing, or exit and reload your game at a later time. Note that you can not save your game from within a puzzle. You can only save your game from the Game Map.

## Getting Help

R2-D2 is always there to help you keep track of everything on the Game Map. Just click on him and point the cursor to anything on the screen, and he will beep in with an explanation.

## Puzzle Training

The Puzzle Training area is made up of 20 numbered levels designed to teach you about the different tiles and puzzle types used throughout **Star Wars Pit Droids**. In this area C-3PO will explain the basic structure of each puzzle and then set the pit droids in motion, leaving you to solve each puzzle and direct the droids to their appropriate goals. If you would like a hint about how to solve a particular puzzle, click on C-3PO. Click on him again, and he will offer to show you a solution to the current puzzle.



**SPECIAL HINT:** Three puzzles of the same type are available within each numbered level in the Puzzle Training area. To play another puzzle of a type you have already solved, click on the same square on the numbered level selection grid from which you selected the original puzzle.

Below is a description of each of the levels in the Puzzle Training area.

### #1 Basic Arrow

You will learn how to use an Arrow tile from your inventory to direct the pit droids to a goal.

### #2 Number Arrow

You will learn to use a Number Arrow that only turns a certain number of pit droids.

### #3 Key and Locks

Direct pit droids over the Key in order to bring down the Locks so the pit droids can reach their goal.

### #4 Avoid the Fan

Avoid the dreaded Fan to get pit droids safely to their goal.

### #5 Blending Lines

Blend the two lines of pit droids, or else they will collide and be recycled.

### #6 Over the Fan

In this puzzle there is no avoiding the Fan. You must use arrows from your inventory to time the pit droids so they march over the Fan while it is closed, or else it's certain recycling for your pit droids.

### #7 Colour Arrow

Learn to use a special Colour Arrow which only turns pit droids of a particular colour. Sort out the right pit droids so that each one can reach an appropriate goal.

### #8 Two Lines

Two lines of pit droids must be directed to two separate goals without crossing each other.

### #9 Colour Transformer

Direct the pit droids over the Colour Transformer to change them to the colour they need to be to get past the Barriers and into the goal.

### #10 Ratio Arrow

Use the Ratio Arrow you will find in the inventory to redirect pit droids in a certain ratio or pattern. If the Ratio Arrow is used correctly, every pit droid in this puzzle will be directed to a goal.

### #11 Two Paths

Sort the randomly coloured pit droids into two paths so that every droid can reach a goal.

### #12 Locked Arrows

The Arrows you find already on your screen are locked, and can not be moved. Use Arrows from your inventory to direct the pit droids across the stream of Locked Arrows so they can reach the goal on the other side.

### #13 Mystery Arrows

Some of the Arrows in your inventory will appear with question marks on them. These function like other Arrow types you have used, but you must try them out to discover what kind of Arrows they are.

### #14 Repeating Pattern

The pit droids come out of their Launcher in a specific pattern. Figure out the patterns, and then use the Arrows you find in the inventory to redirect them to appropriate goals.

### #15 Tool Arrow

The pit droids appear equipped with tools - a ladder, a fire extinguisher, a wrench, or a crate. New Barriers and new Arrows also appear, which work or don't work on the pit droids depending on their tools. You must sort out the droids based on their tools to direct them to appropriate goals.

### #16 Barrier Maze

You must direct pit droids of different attributes through a maze to their respective goals on the outside of the maze.

### #17 Tool Transformer

All the pit droids must have certain tools and be a certain colour to get past the Barriers and enter the goal. You will find both Colour Transformers and Tool Transformers. Direct the pit droids through the right sequence of transformers, so that they are all able to enter the goal.

### #18 Three Lines

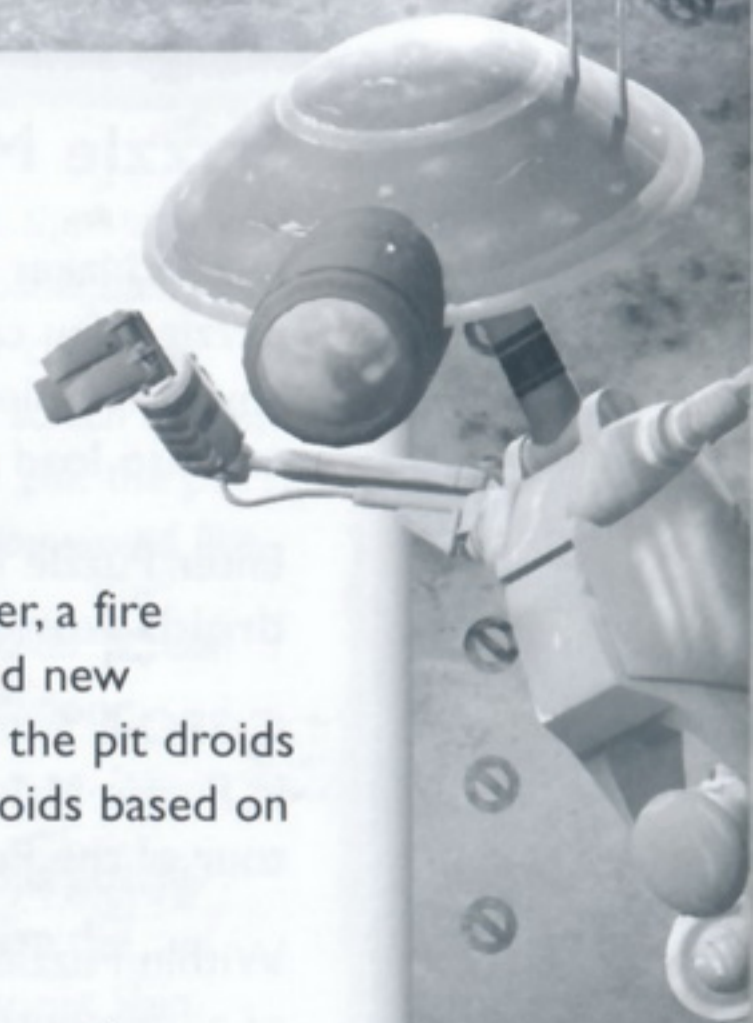
There are three lines of pit droids, and each line has a separate goal that it needs to reach. However, if the lines cross each other, pit droids will be recycled. Find a way to route all three lines to the right goals without crossing paths.

### #19 Sorting

In this puzzle, you will find pit droids with various colours and tools. You must sort them out, based on their colours or tool, to direct them to appropriate goals.

### #20 Many Keys

This puzzle has several Keys in it. All of the Keys must be triggered to bring the Locks down so that the pit droids can enter their goal. Remember - not all pit droids need to march over every Key - it is enough if one pit droid marches over each Key to bring the Locks down.



## Puzzle Maker

Puzzle Maker offers you the opportunity to make your own puzzles. You can start from scratch, choose a location, and use any of the pieces in the game to create your own puzzles. You can also load a puzzle to help you come up with puzzle ideas.

Enter Puzzle Maker by clicking on the **animation of the pit droids working on the Podracer engines** in the Main Menu.

C-3PO is available to explain all of the new buttons you will find in Puzzle Maker. Click on the **Tutorial button** to hear C-3PO's tour of the Puzzle Maker buttons.

Within Puzzle Maker, R2-D2 is available to provide descriptions of all the buttons and pieces on your screen.

### Making Your Own Puzzles

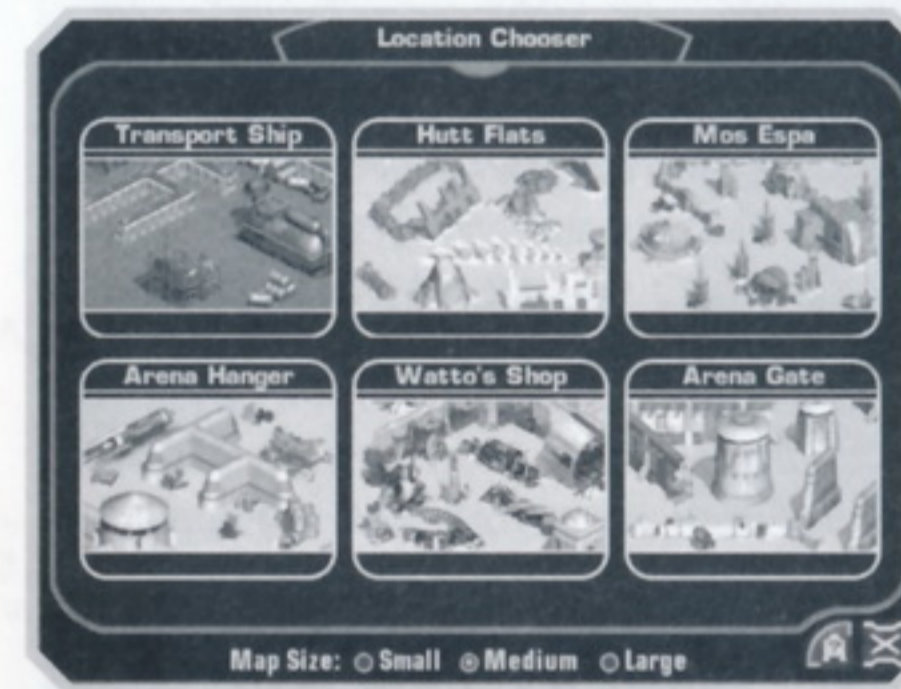
In Puzzle Maker, you can make any kind of puzzle you find in **Pit Droids**, and possibly some new kinds as well. Experimenting is key - try things out, see what works and what doesn't. Make sure you visit <http://www.starwars.com/pitdroids> where you can exchange the puzzles you make with other **Pit Droids** players, download new puzzles to play, learn about puzzle design, and participate in puzzle-making contests.

Another good way to get started is to begin with an existing puzzle and make changes to it. You can copy puzzles from the Puzzles folder on the **Pit Droids** CD-ROM to the My Puzzles folder on your hard drive, and then Load them through the Puzzle Maker.

## Puzzle Maker Tutorial

The following section of this manual walks you through the steps you must take to make a certain type of puzzle. You can follow along by reading the steps here, then carrying them out on your computer. Make sure that what you see on your screen matches the screen images shown here. Once you've finished this tutorial, you can edit the puzzle, and make it easier or harder or wackier or whatever you would like.

First, click on **Make New Puzzle** from the Puzzle Maker screen on the Main Menu. You will be presented with the Location Chooser Screen.



For this puzzle, click on the Transport Ship.

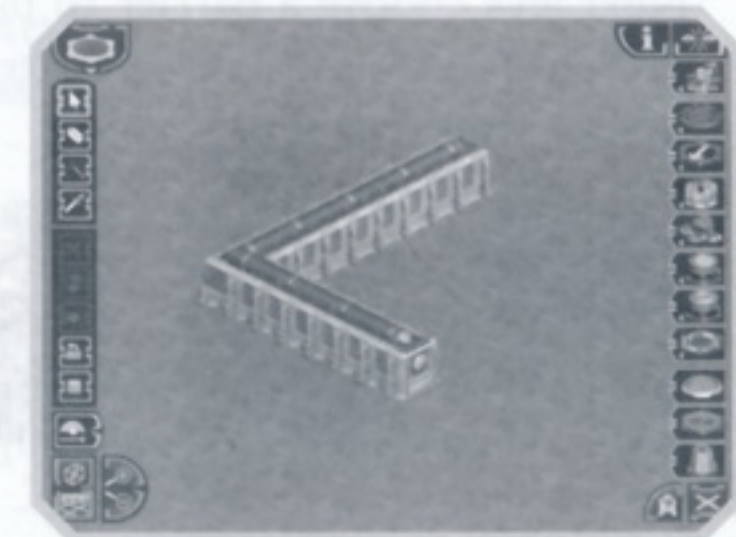
You are now in the transport ship location.

Click on the **Wall button**



and click and drag with a wall piece as seen here.

When a piece of wall is selected, clicking and dragging engages SmartWalls, which puts the right pieces of walls together to create a continuous wall.



If you make a mistake, click on the **Eraser**

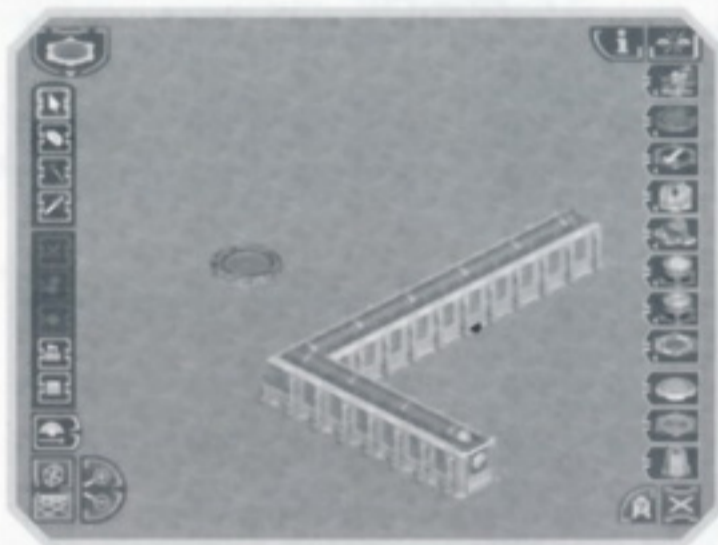


and use it to remove pieces from your puzzle.

Next let's put a Goal into the puzzle. Click on the **Goal button**



and a goal will be attached to your cursor. Place the goal above the wall, as shown here:



Let's save our work before going any further.

Click on the **Save button**

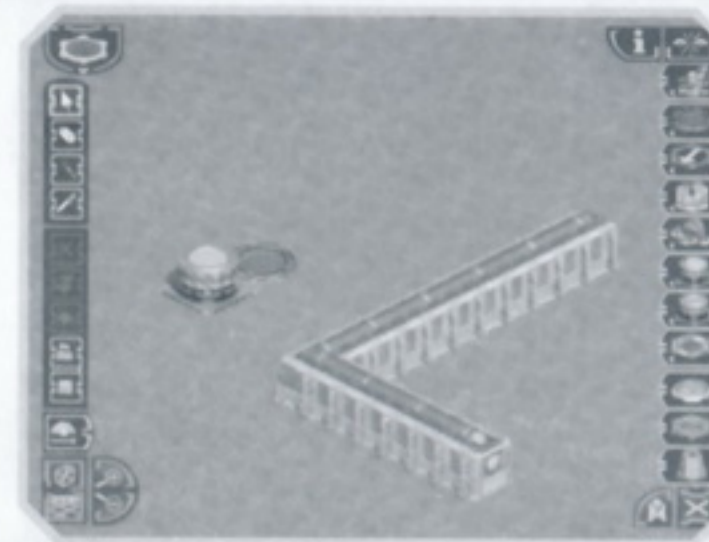


on the toolbar to bring up the Save dialogue box. Enter a name for the puzzle, and click on the **Save button**.

Next let's choose a Barrier to place next to the Goal. Barriers prevent pit droids of certain attributes from passing. Click on the **Barrier button**



and place the Barrier to the left of the Goal. The default Barrier is the Yellow Barrier - it will only allow Yellow pit droids to pass.

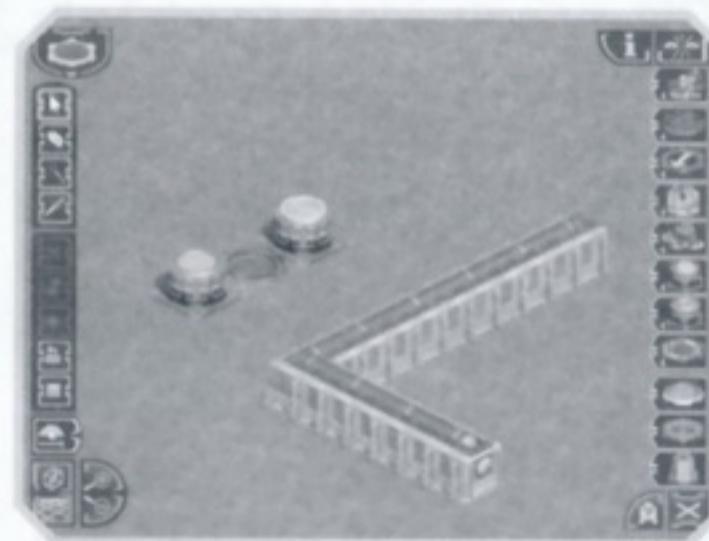


**SPECIAL HINT:** Don't forget that R2-D2 is loaded with information about all of the pieces and tools. Just click on him whenever you would like some more information.

Next let's choose a Not Barrier - these pieces allow all pit droids that do NOT have a certain attribute to pass. The default selection will be a Yellow Not Barrier. Click on the **Not Barrier button**



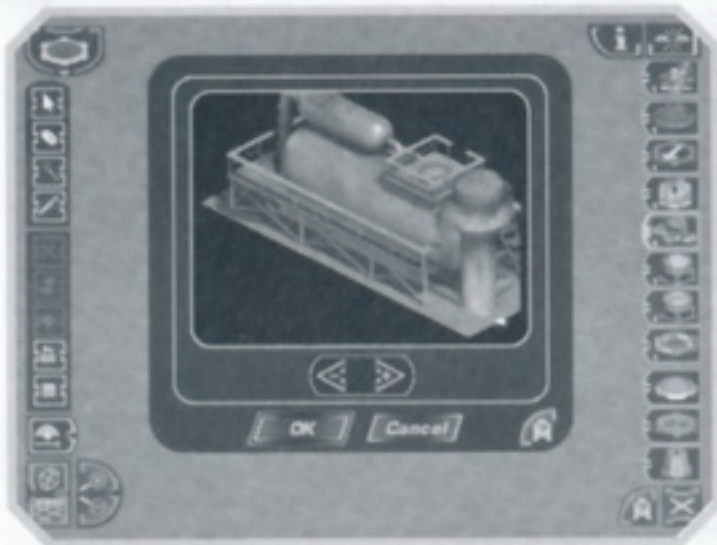
and place the Not Barrier to the right of the Goal.



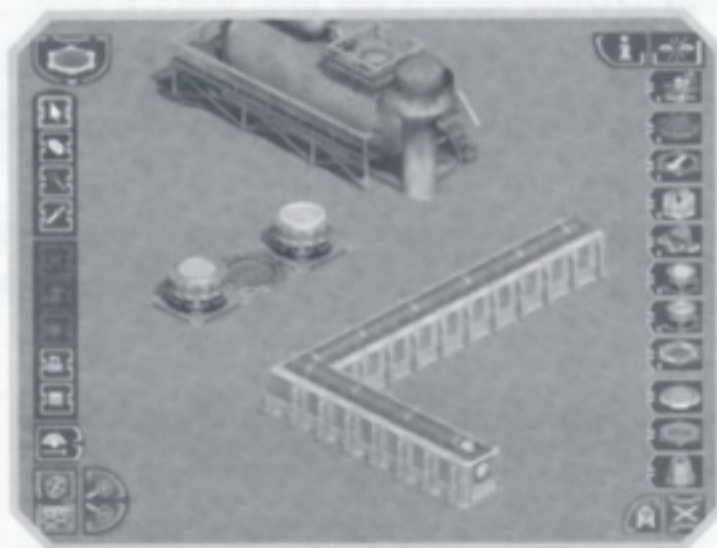
Next let's place some more obstacles in the puzzle. Double-click on the **Structures button**



on the toolbar and a window will come up which will allow you to choose from all of Transport Ship Structures.



Click the Arrows to cycle through your choices until you see this structure - the Storage Tank:



Click on **OK** and then place the Storage Tank into your puzzle like so:

Next double-click on the **Walls button**



and choose some pieces to place above and below the Goal, as follows:



Next let's place a Launcher. Click on a **Launcher button**



and place the Launcher in the puzzle:



**SPECIAL HINT:** Double-click on the Launcher to bring up the Launcher Edit Window. This is where you can determine what pit droids (what tools, what colours, what colour helmets, how many, what order, etc.) come out of the Launcher. Click on R2-D2 for more information about the choices in this window.

Now we have a puzzle - the player will need to sort out the Yellow pit droids and direct them one way to the Goal, and direct all of the pit droids that are NOT yellow to the Goal by another path. However, one thing is missing - how the player will be able to solve the puzzle. We need to provide some arrows!

Click on the **Arrow button**



and place some Arrows in the puzzle. You can click and drag to place multiple Arrows, or hold the Shift Key down to keep the Arrow attached to your cursor. The Shift key is very handy for painting lots of one kind of piece into your puzzle. Make sure to put at least 5 or 6 Arrows into your puzzle.





Next double-click on the **Arrow button** to bring up the Edit Window. In the Edit Window, scroll through the Colour Arrow choices until you find the Yellow Arrow. You will notice that you can choose from all the different types of Arrows within this window.



When you click OK you are ready to paint with the Yellow Arrow. Place a couple of Yellow Arrows into your puzzle.

Now we have all of the elements of a complete puzzle. It is a good idea to test out your puzzle to make sure that it is solvable. Click on the **Test button**



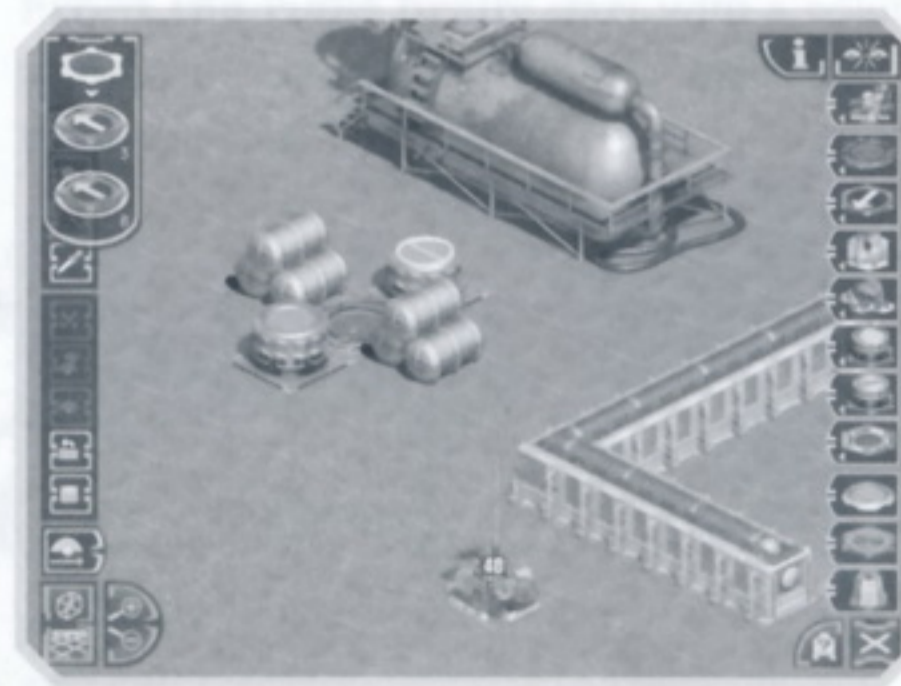
on the toolbar. This will make the building tools disappear and make the playing tools appear. Click on the **Arrows** in the Puzzle to try to find a solution. Here is one possible solution:



Click on the **Test button** to get back to building. There are just a couple more steps to complete the puzzle. One is to put the Arrows you want the player to use in the Inventory. You can drag individual Arrows into the inventory. There is also an easier way to get all of the Arrows from a puzzle into the Inventory. Click on the **Wand tool**:



The Wand is a powerful tool. It allows you to select all of the pieces that are the same within a puzzle. For example, you can select a whole section of walls. Normally, the Wand selects all of the same kinds of pieces which are touching each other. However, if you hold down the **Ctrl** key and click on a piece with the Wand, it selects all of the same kinds of pieces in the whole puzzle. Give this a try with the Arrows:




Now you can drag all of these Arrows into the Inventory.

If you would like, you can add some text to the Puzzle file by clicking on the **Information button**



and typing in your message. You can enter a name for your puzzle, special instructions or even a secret message. This text will appear when the Puzzle File is loaded from the Puzzle Chooser.

Let's save our puzzle again. You can either click on the **Save button** again, or hit  + S to save your puzzle.

And that's all there is to it! Have fun creating your own puzzles in all of the different locations on Tatooine.



**SPECIAL HINT:** Try hitting the F9 key while building a puzzle - this will SmartWalls (automatically align) all the wall pieces that appear on the screen. This can be very useful in straightening up your puzzles.

## Puzzle Design Tips from Scott Kim, Puzzle Master

Like any other creative endeavour, inventing puzzles is hardest when there are no constraints. Nothing is more intimidating than a blank page. So give yourself some constraints. Here are some suggestions:

### Draw On Your Passions

Puzzles are like songs. At their most trivial they are merely catchy jingles, but at their best are passionate personal works that express deep feelings about being human. Lofty stuff, huh? But that's what makes it worth doing.

Look into your soul for what passionately interests you, and see if you can express it in a puzzle. Some of the passions I draw on are the importance of being able to change how you think about a situation, and the beauty of mathematics. Puzzles that express fear, love, sorrow, yearning? Why not? I try to make puzzles that are meaningful, memorable experiences, not merely time wasters. Some are more successful than others. But in any case I always try to give each puzzle a clear distinct identity and reason for being, rather than just throwing together characteristics at random.

### Where To Start

**Top down:** start from categories of puzzles.

**Bottom up:** throw pieces onto the board at random.

**From the left brain:** start with a picture that the pieces form.

**From the right brain:** start with a solution strategy, a tricky unexpected move, the "aha" that you want the player to experience.

## Where To Go Next

**Imitate** existing puzzles, possibly from other games, including non computer games.

**Go for variety.** Look at everything you've done. What's missing? Are there holes that need to be filled in? What haven't you tried?

**Imagine how someone else would do it.** Or perhaps a famous fictional character. Try designing in their style. What types of puzzles would they invent?

**Pretend you are designing something else.** Forget puzzles and pretend that you are writing a book, building a house, cooking a meal, or doing any other creative task. How would you approach that task? How can you apply that approach to puzzles?

**Personify it.** Imagine that the puzzles you have designed are people. Describe their personalities, their likes and dislikes. How do they dress? Are they male or female? Loud or quiet? Boisterous or shy? Imagine some other sorts of people. What sorts of puzzles would they become?

**Learning sequence.** First design a hard puzzle. Then back up and design the puzzles that precede it, that build up the skills you need to solve the harder puzzle. I find it easier to design puzzles in learning sequences than in isolation.

**Simplify.** Take an existing puzzle and see how simple you can make it. Can you remove pieces? Can you make the board smaller?

**Complicate.** Take a simple puzzle and make it more complex. How can you hide the solution by adding distractions?

**Develop a theme.** Choose a theme. Like mazes. Explore every possible variation.

**Break the pattern.** Compose a series of puzzles that lead the player down one line of thinking. Follow it with a puzzle that tempts the player to use the same reasoning, but instead uses a completely different line of thinking.

## Categories

There are several different kinds of puzzles that can be created within the **Pit Droids** universe. Some of the kinds include:

**Sorting by attribute.** Make a puzzle that requires the pit droids to be sorted by their colour or tool.

**Arithmetic.** Use Limited Goals and Limited Direction Arrows to pose arithmetic challenges.

**Mazes.** Get from here to there using the fewest Arrows.

**Routing.** Crossing lines of pit droids without allowing them to collide.

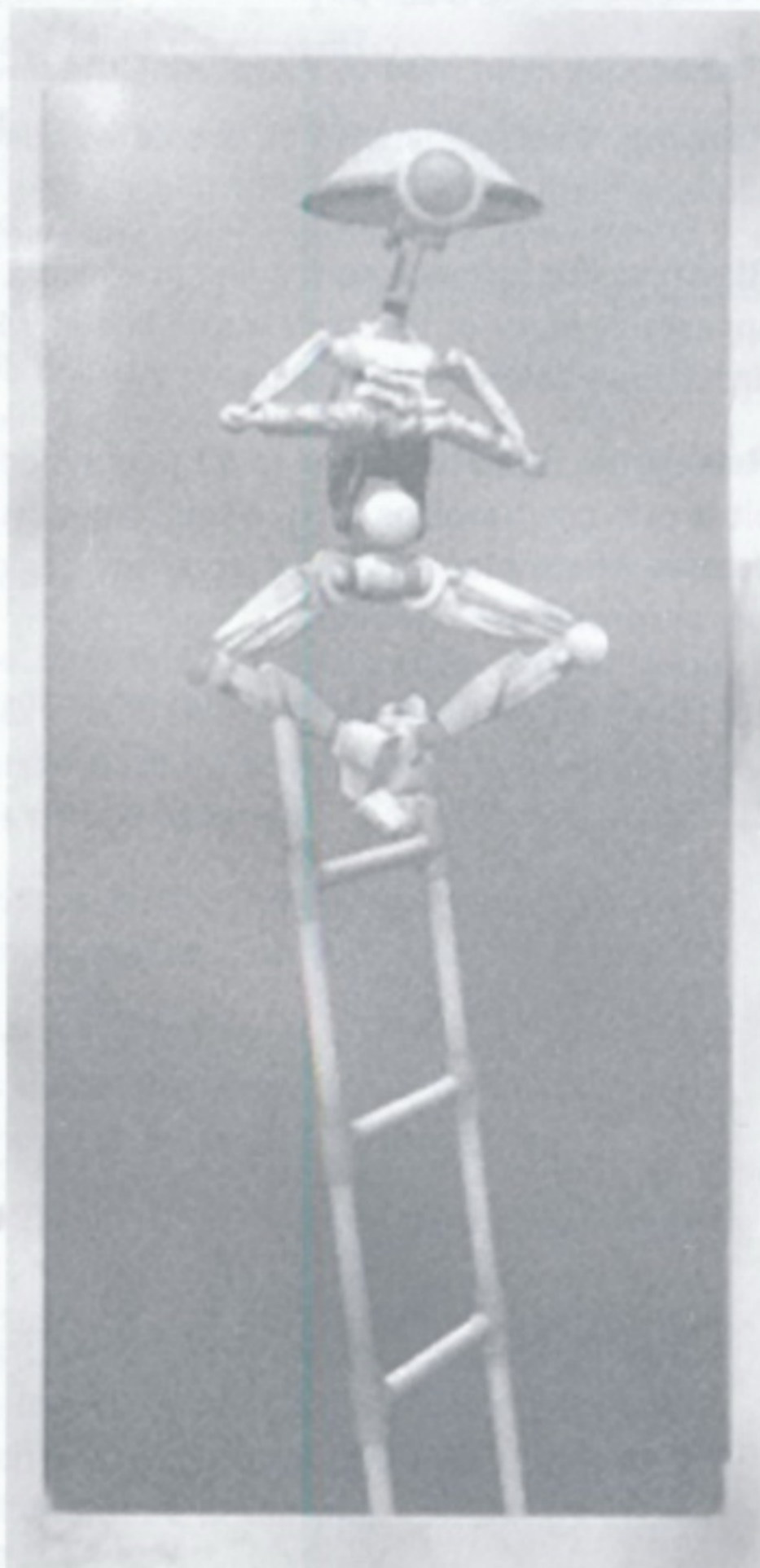
**Rhythm.** For instance, turn a line in which a droid appears in every other space into a line in which a droid appears every third space.

**Real-time.** Require actions to be performed while the pit droids are travelling around the screen, as opposed to puzzles where tiles can be set up at the beginning before any pit droids are released.

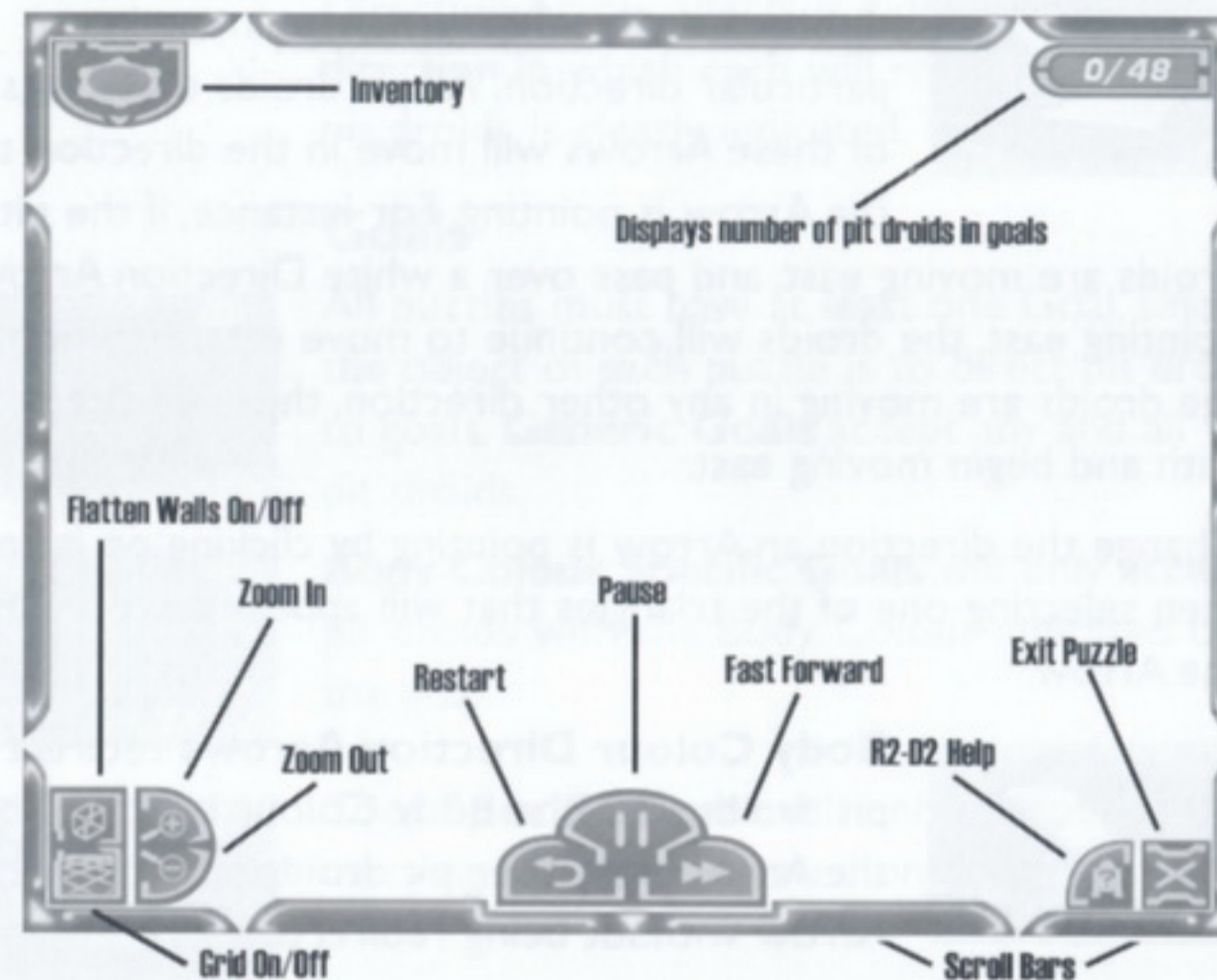
There are certainly more...have fun exploring!

# Pit Droids On The World Wide Web

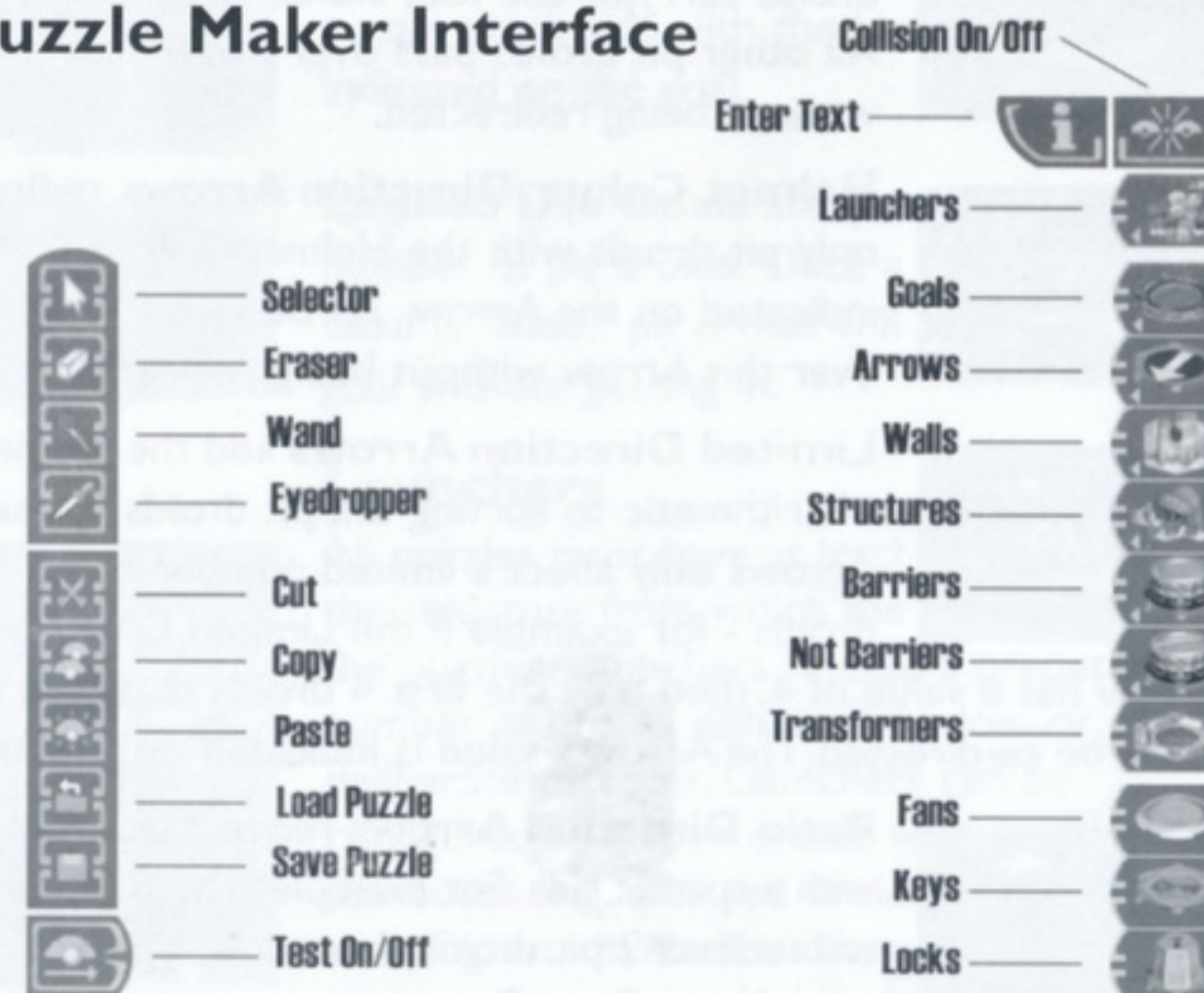
Point your browser to [www.starwars.com/pitdroids](http://www.starwars.com/pitdroids) to visit the **Pit Droids** web site. Make sure to check frequently for new puzzles, puzzle design contests and tips, puzzle exchange and special promotions.



# Quick Reference Game Interface



# Puzzle Maker Interface



## Puzzle Pieces Reference

### Direction Arrows



**White Direction Arrows** are those that display a single white arrow pointing in a particular direction. All pit droids that cross one of these Arrows will move in the direction that the Arrow is pointing. For instance, if the pit droids are moving east, and pass over a white Direction Arrow pointing east, the droids will continue to move east. However if the droids are moving in any other direction, they will alter their path and begin moving east.

Change the direction an Arrow is pointing by clicking on it and then selecting one of the triangles that will appear surrounding the Arrow.



**Body Colour Direction Arrows** redirect only pit droids with the Body Colour indicated on the Arrow. All other pit droids pass over this Arrow without being redirected.



**Tool Direction Arrows** redirect only pit droids carrying the Tool indicated on the Arrow. All other pit droids pass over this Arrow without being redirected.



**Helmet Colour Direction Arrows** redirect only pit droids with the Helmet Colour indicated on the Arrow. All other pit droids pass over this Arrow without being redirected.



**Limited Direction Arrows** add the element of arithmetic to sorting the pit droids. These Arrows only affect a limited number of pit droids - for example if the Limited Direction Arrow has a value of 4, then only the first 4 droids that pass over it will be re-directed. The Arrow's value is indicated on the Arrow.



**Ratio Direction Arrows** redirect pit droids with a specific rule. For example a 2:1 Ratio Arrow will redirect 2 pit droids, then allow 1 pit droid to pass, then redirect 2 more, etc.



**Mystery Arrows** are Direction Arrows with their function masked. The only way to figure out what a Mystery Arrow does is to use it. Note that the only attribute that the Mystery Direction Arrow affects is hidden - the direction in which each will redirect crossing pit droids is clearly indicated.



### Goals

All puzzles must have at least one Goal, since the object of each puzzle is to direct pit droids to goals. **Generic Goals** accept any and all pit droids.



**Body Colour Specific Goals** will only accept pit droids with the Body Colour indicated on the goal.



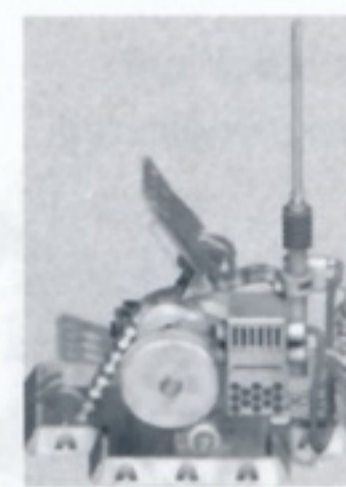
**Tool Specific Goals** will only accept pit droids carrying the Tool indicated on the goal.



**Helmet Colour Specific Goals** will only accept pit droids with the Helmet Colour indicated on the goal.



**Limited Use Goals** accept only a specific number of pit droids. Once a Limited Use Goal is "filled," pit droids will pass over the goal without getting in.



### Launchers

All puzzles must have at least one **Launcher**, the structure from which the pit droids enter the puzzles. Launchers release a predetermined number of droids, either at random or in deliberate patterns. Launchers can be configured to launch droids with specific attributes (e.g. only red droids, only ladder-carrying droids, etc.), and even in specific patterns (e.g. green droid w/crate, red droid w/crate, green droid w/ladder, etc.)

## Barriers



**Body Colour Barriers** allow only pit droids with the Body Colour indicated to pass. All other pit droids are blocked.



**Tool Barriers** allow only pit droids carrying the Tool indicated to pass. All other pit droids are blocked.



**Helmet Colour Barriers** allow only pit droids with the Helmet Colour indicated to pass. All other pit droids are blocked.



## Not Barriers

**Body Colour Not Barriers** block only pit droids with the Body Colour indicated. All other pit droids pass over the barrier.



**Tool Not Barriers** block only pit droids carrying the Tool indicated. All other pit droids pass over the barrier.

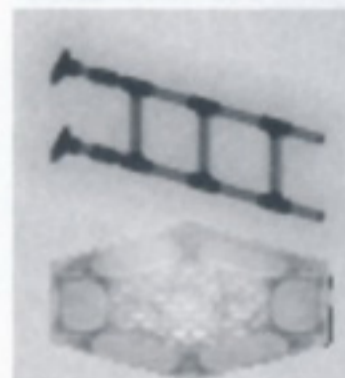


**Helmet Colour Not Barriers** block only pit droids with the Helmet Colour indicated. All other pit droids pass over the barrier.

## Transformer Pieces



**Body Colour Transformers** change the Body Colour of pit droids who walk over them to the Body Colour indicated on the piece. For example, a red Body Colour Transformer changes the Body Colour of all pit droids who walk over it to red.



**Tool Transformers** change the tool of pit droids who walk over them to the tool indicated on the piece. For example, a Ladder Tool Transformer changes the tool of all pit droids who walk over it to ladders.



**Helmet Colour Transformers** change the Helmet Colour of pit droids who walk over them to the helmet colour indicated on the piece. For example, a red Helmet Colour Transformer changes the helmet color of all pit droids who walk over it to red.

## Keys and Locks



**Keys and Locks** go hand-in-hand: when a Key is marched over by a pit droid, a Lock opens in another part of the puzzle. A puzzle may have multiple Keys, and/or multiple Locks which need to be opened. When all of the Keys are marched over, all of the Locks will be opened.

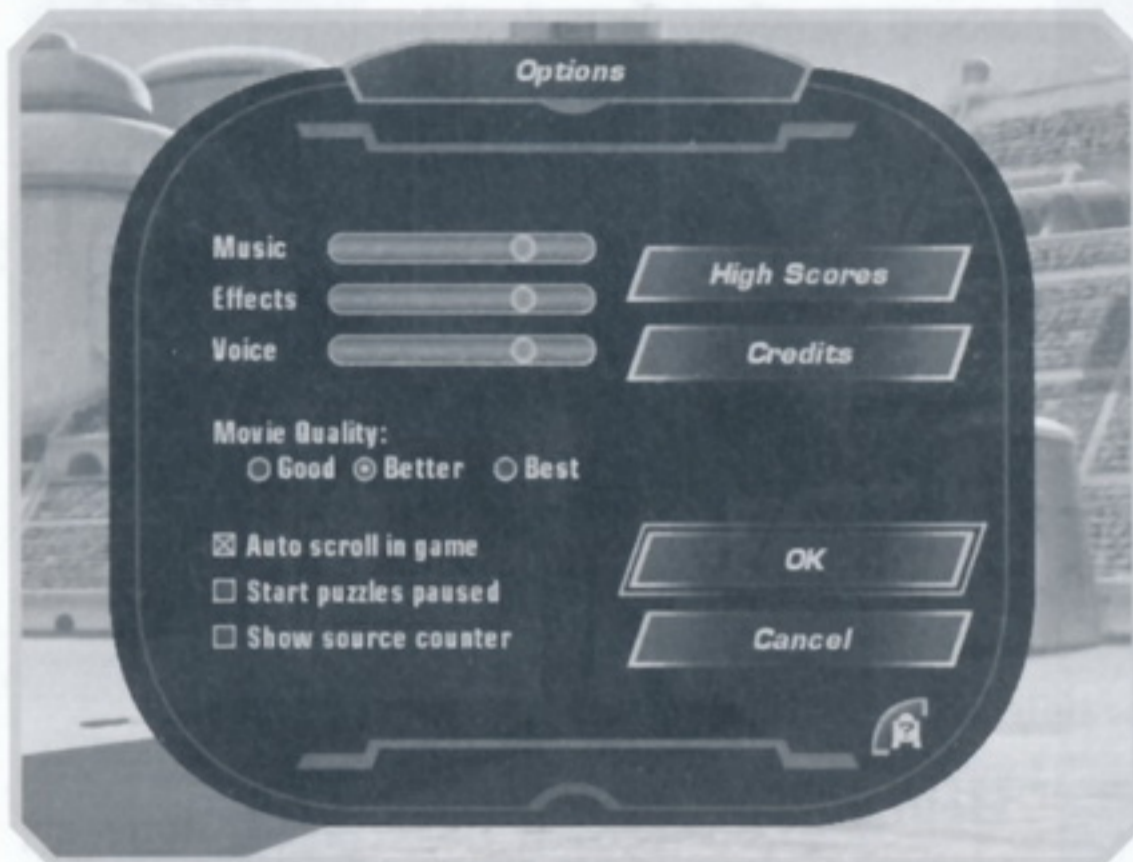
## Fans



**Fans** introduce a timing element into puzzles. Fans vacillate on and off. When on, they eliminate pit droids that pass over them. When off, they allow pit droids to march over them unscathed.

## Options

The Options screen allows you to customise your game play.



### Music

This slider allows you to adjust the volume of the music in **Star Wars Pit Droids**. This slider also controls the in-game sounds, like Fans, Barriers, etc in **Pit Droids**.

### Effects

This slider allows you to adjust the volume of the interface sound effects in **Star Wars Pit Droids**.

### Voice

This slider allows you to adjust the volume of the voices in **Star Wars Pit Droids**.

### Movie Quality: Good

Toggle this switch to view 'good' quality movies. This will display normal resolution movies in a half screen. Use this option if your machine is having trouble displaying the 'better' quality movies.

### Movie Quality: Better

Toggle this switch to view 'better' quality movies. This will display full screen, normal resolution movies.

### Movie Quality: Best

Toggle this switch to view 'best' quality movies. This will display full screen, high resolution movies. Use this option if you have a very fast machine (400 Mhz or faster processor).

### Auto Scroll in Game

This toggle button allows you to determine whether or not the world will automatically scroll when you drag your mouse to the edge of the screen within the puzzles. The default setting for this toggle is ON.

### Start Puzzles Paused

This toggle button allows you to determine whether or not the puzzles that you play in **Star Wars Pit Droids** will start paused or un-paused. The default setting is to start un-paused.

### Show Source Counter

This toggle button allows you to determine whether or not the Launchers will display a counter which shows how many more pit droids are left to be released. The default setting for this toggle is OFF.

### High Scores



Click on this button to view the High Score Screen.






































### Credits

Click on this button to see the names of all the people who worked hard to create **Star Wars Pit Droids**.







# Keyboard Shortcuts




Keyboard Shortcuts listed here as “ +” are for PCs running Windows 95 or 98; on Macintosh computers, use the “” key.

-  ..... Turn on R2-D2 Help
-  ..... Bring up the Options Screen
-  ..... Place a picture file of the current screen in the **Pit Droids** folder
-  or  ..... Accept default
-  ..... Cancel
-  ..... Toggle Interface On/Off
-  ..... Scroll Left
-  ..... Scroll Right
-  ..... Scroll Up
-  ..... Scroll Down
-  +     ..... Precision scrolling
-  ..... Zoom Level 1
-  ..... Zoom Level 2
-  ..... Zoom Level 3
-  +  ..... Quit
-  +  ..... Save
-  +  ..... New
-  +  ..... Open
-  ..... Pause On/Off
-  ..... Restart droids
-  ..... Fast forward
-  ..... Toggle Grid On/Off
-  ..... Toggle Flatten Walls On/Off
-  ..... Exit puzzle
-  ..... Return selected arrows to inventory
-  ..... Next arrow from inventory
-  ..... Previous arrow from inventory
-  ..... Rotate selected arrow counterclockwise
-  ..... Rotate selected arrow clockwise

















## Puzzle Maker Only:

Second mouse button: The second mouse button ( + click on the Mac) allows you to delete the currently selected item from the cursor, and to cycle through other available attributes of the selected piece once placed.

: Holding down  allows you to extend your selection with the Select and Wand Tools. Holding down the  key also allows you to paint multiple copies of a piece.

 + Wand Tool: Pressing the  key ( on the Mac) and using the Wand tool allows you to select all pieces of the same type in a puzzle, regardless of whether they are touching or not. This is very useful for dragging all of the Arrows from your puzzle to the inventory.

-  ..... Toggle Test Mode On/Off
-  ..... SmartWall All Walls
-  ..... Cycle through available soundtracks
-  ..... Toggle Collision On/Off
-  ..... Clear All Pieces
- Backspace () ..... Delete Selected Tiles
-  ..... Choose Location
-  ..... Display Puzzle Information Text
-  ..... Select Tool
-  ..... Erase Tool
-  ..... Eyedropper Tool
-  ..... Wand Tool
-  +  ..... Cut selected pieces to clipboard
-  +  ..... Copy selected pieces to clipboard
-  +  ..... Paste selected pieces from clipboard
-  ..... Toggle Mystery Status On Selected Piece
-  ..... Set paint to current Launcher
-  ..... Set paint to current Goal
-  ..... Set paint to current Arrow
-  ..... Set paint to current Wall
-  ..... Set paint to current Structure
-  ..... Set paint to current Barrier
-  ..... Set paint to current Not Barrier
-  ..... Set paint to current Transformer
-  ..... Set paint to Fan
-  ..... Set paint to Key
-  ..... Set paint to Lock

-  +  ..... Bring up the edit window for Launchers
-  +  ..... Bring up the edit window for Goals
-  +  ..... Bring up the edit window for Arrows
-  +  ..... Bring up the edit window for Walls
-  +  ..... Bring up the edit window for Structures
-  +  ..... Bring up the edit window for Barriers
-  +  ..... Bring up the edit window for Not Barriers
-  +  ..... Bring up the edit window for Transformers

# The Mathematics of *Pit Droids*

The pedagogical premise underlying *Star Wars Pit Droids* is that people learn best when they are engaged, excited and having fun. **Pit Droids** is built upon the mathematics of the information age, not arithmetic and basic maths skills, but rather the maths that underlies computers, networks, and the digital age. The underlying methods needed to solve the puzzles in **Pit Droids** require logical reasoning and mathematical thinking skills.

In **Pit Droids**, you will draw upon your best logical and mathematical thinking to successfully solve each puzzle. To encourage thoughtful problem solving, the game gives you the ability to pause and restart each puzzle. Most of the puzzles can be solved in more than one way and provide an opportunity for you to hone your problem-solving skills by trying out many different strategies, each with unique advantages and disadvantages. The puzzles require you to look for patterns, generalise from the patterns you've seen, and break complex problems into simpler parts. Some of the mathematical concepts you'll find in the game include set theory, geometric and spatial relationships, ratios, and functions. Who would have thought that learning mathematics and logical thinking could be this much fun!

## Set Theory

Several puzzles explore the mathematics of sets. For example, in Travelling Salesperson B puzzles, you will discover that pit droids are members of sets (all green pit droids are a set); that there are pit droids who are nonmembers of sets (a blue pit droid is not a member of the green pit droid set); that every pit droid is a member of subset (red pit droids with wrenches are a subset of red pit droids); and that some sets intersect (all pit droids with wrenches belong to the set of red pit droids and the set of yellow pit droids). As you sort your pit droids by set, this information will be very useful.

The puzzle types that use set theory include:

- Threading
- Simple Sort
- One Attribute Maze
- Simple Patterns
- Sort by Two Attributes
- Two Attribute Maze
- Ratio/Patterns
- Ratio Thread
- Travelling Salesperson A
- Travelling Salesperson B
- Travelling Salesperson C
- Chasm
- Chasm B
- Sort by Three Attributes
- Three Attribute Maze

## Geometric and Spatial Relationships

The shape of the tiles, the placement of objects, and the need to avoid collisions of lines of pit droids will provide opportunities to explore geometric and spatial relationships. For example, in Threading puzzles, you will need to measure distance, determine the length of lines, and understand vertical angles as you direct your pit droids to their goals.

The puzzle types that deal with Geometric and Spatial Relationships include:

- Basic Maze
- Travelling Salesperson A
- Threading
- Timing
- Simple Sort
- Routing A
- Transformer Maze
- One Attribute Maze
- Two Attribute Maze
- Two Attribute Transformer Maze
- Travelling Salesperson B
- Travelling Salesperson C
- Chasm
- Chasm B
- Ratio Thread
- Routing B
- Three Attribute Maze
- Three Attribute Transformer Maze

## Ratios

Ratios are explored in a number of puzzles and special Ratio Arrows will help you direct your pit droids. For example, in Ratio/Patterns puzzles, you will need to identify a pattern and then use Ratio Arrows to sort your pit droids into sets in order to help them reach their goals.

The puzzle types that deal with ratios include:

- Numbers with Ratio Arrows
- Ratio/Patterns
- Ratio Thread

## Functions

In Transformer Maze puzzles you will explore functions as the body colour transformers take on the role of a function machine (each input into the machine gives one output—a pit droid (more spacing needed) of a different colour, for example). You must determine which functions (transformers) to use to solve the puzzle.

The puzzle types that deal with functions include:

- Transformer Maze
- Two Attribute Transformer Maze
- Three Attribute Transformer Maze

So you have some idea of what puzzle types appear where in the game, here is a matrix of puzzle types by location.

Also, remember that you can select Game Puzzles from the Puzzle Chooser area and play any type of puzzle you would like to explore.

## The Game Puzzle Matrix

#	Setting	Pit Droid Attributes	Puzzle Types
1	Transport Ship	n/a	Basic Maze; Numbers A; Travelling Salesperson A; TravLimit
2	Watto's Shop	1 (body colour)	Simple Sort; Routing A; Transformer Maze
3	Mos Espa	1 (body colour)	Routing B; Timing; Threading
4	Hutt Flats	1 (body colour)	Numbers B; Cross the Chasm; 1 Attribute Maze (GetMeOut)
5	Watto's Junkyard	2 (body colour; tool)	Sort by 2 Attributes; 2 Attribute Maze; Two Attribute Transformer Maze
6	Mos Espa Market	2 (body colour; tool)	Ratio/Patterns; Chasm B; Travelling Salesperson B
7	Arena Hangar	3 (body colour; tool; helmet colour)	Sort by 3 Attributes; 3 Attribute Maze; 3 Attribute Transformer Maze
8	Arena Gate	3 (body colour; tool; helmet colour)	RatioThread; Combination Puzzles; Travelling Salesperson C



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A groundbreaking book on the art of solving problems.

de Bono, Edward. *Teach Your Child How to Think*. © 1992, *The McQuaig Group*. An educational program for teaching and developing thinking skills in children and adults.

<http://www.terc.edu> The home page for TERC, an organization committed to hands on math and science learning.

<http://www.cs.uidaho.edu/~casey931/mega-math>

The Mega-mathematics site, a project of the Los Alamos National Laboratory.

<http://www.aimsedu.org> The home page for the AIMS foundation, working for the integration of Math and Science curriculum.

<http://www.scottkim.com> The web site of Scott Kim, Puzzle Master. A place to learn about puzzles and puzzle culture, and to view articles on puzzle design.

## Printing

*Star Wars Pit Droids* does not directly support printing.

However, if you would like to print a picture of the screen at any time simply hit the **F12** button on your keyboard. This will save a file with the name of the puzzle you are currently playing called “Filename.bmp” (Filename.pict on the Mac) in the folder where *Pit Droids* is installed. You may then load the saved picture into your favourite graphics program for editing or printing.

## Credits

For a complete list of credits, select **Credits** from the **Options** screen in *Star Wars Pit Droids*

### The *Pit Droids* Team

Ian Berry: Lead Artist

Sara Brown: Associate Production Manager

Nick Craven: Animator

Anthony Evans: 3D Artist

Mick Foley: Sr. Programmer

Matt Intrieri: 3D Artist

Yumiko Konishi: Animator

Suma McGourty: Associate Production Manager

Ed Nanale: Lead Programmer

Karl Raade: 3D Artist

Patrick Shaw: Art Tech

Matthew Tateishi: 3D Modeler, Puzzle Designer

Daisuke Tsutsumi: 2D Artist

Josh Damon Williams: Art Tech

Michael Wyman: Project Leader

### Additional Help

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Kurt Kaufman: Concept Artist

Todd Reamon: Artist

Steve Splinter: Programmer

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Julie Hayden

Sharralyn Smith

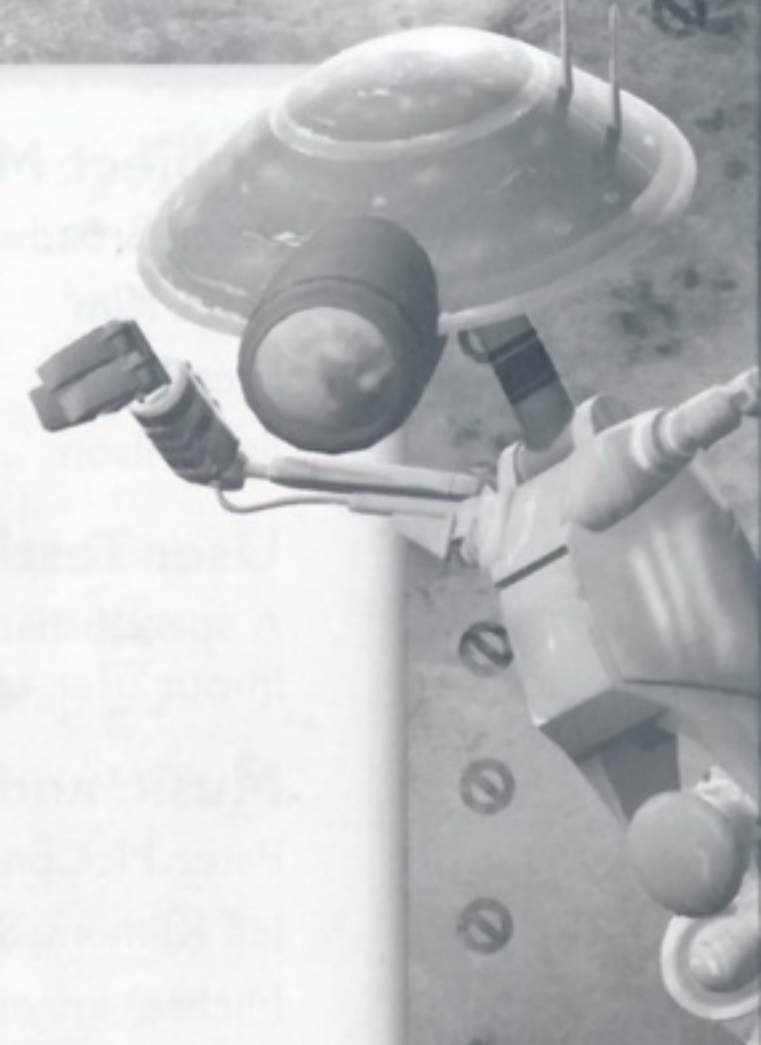
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Katy Evans: Content & Research Assistant

Melanie Lamoureux: Design Research Analyst

Kitty O’Neil: Content Specialist



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Scott Kim	Eric Muller	Karen Morelli
Scot Tumlin	Dr. Alan Weber	Dr. Arthur Weibe
Jim Wilson	Barbara Young	

## User Testing

A special thanks to all the kids and their families who participated in our user testing process.

## Music and Sound

Peter McConnell: Music Editing

Jeff Kliment: Sound Design

Michael Frayne: Sound Assistant

Jory K. Prum: Sound Assistant

Michael Land: Sound Department Manager

Kristen Becht: Sound Department Coordinator

*Star Wars* music composed by John Williams.

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Original **Pit Droids** Music by Peter McConnell & Michael Land

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### Voice Staff:

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Darragh O'Farrell: Producer/Director - Voice

Coya Elliott: Voice Editor

Cindy Wong: Assistant Voice Editor

Will Beckman: Voice Editor

Peggy Bartlett: Voice Production Coordinator

### Voice Cast

Anthony Daniels: C-3PO

Andy Secombe: Watto

### Voices Recorded at:

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The Sound Company, London, U.K.

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Stephen Hancock: Assistant Lead Tester

Dana Fong: Consulting Macintosh Tester

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------------	-------------	-------------

Jeff Day	Elton Dean	Erik Ellicock
----------	------------	---------------

John Feil	Catherine Haigler	Ricardo Liu
-----------	-------------------	-------------

Troy Mashburn	Orion D. Nemeth	Johnny Szary
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Brian Watson

## Compatibility

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## Compatibility Technicians

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Jim Davison	Marcus Gaines
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Jason Lauborough	Dan Mihoerck
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Dan Pettit: Quality Assurance Supervisor

Chip Hinnenberg: Compatibility Supervisor

Wendy Kaplan: CD Burning Goddess

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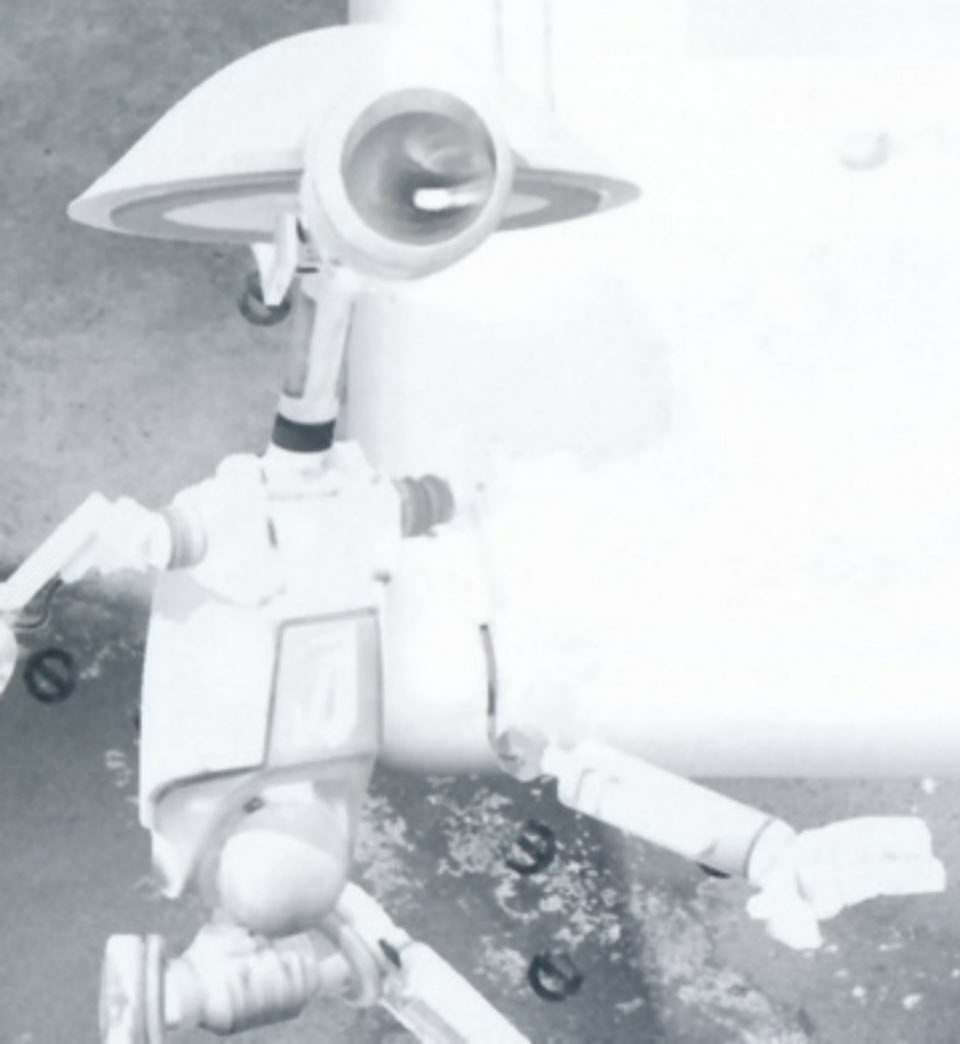
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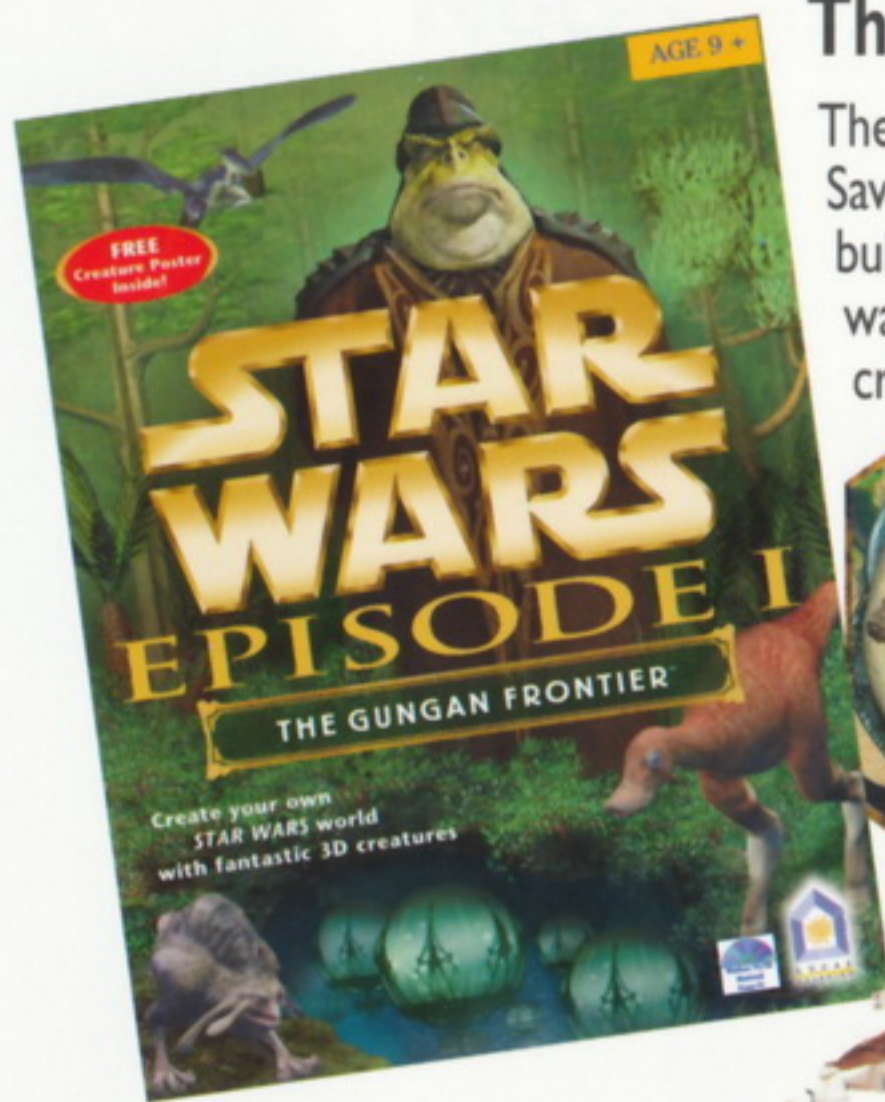
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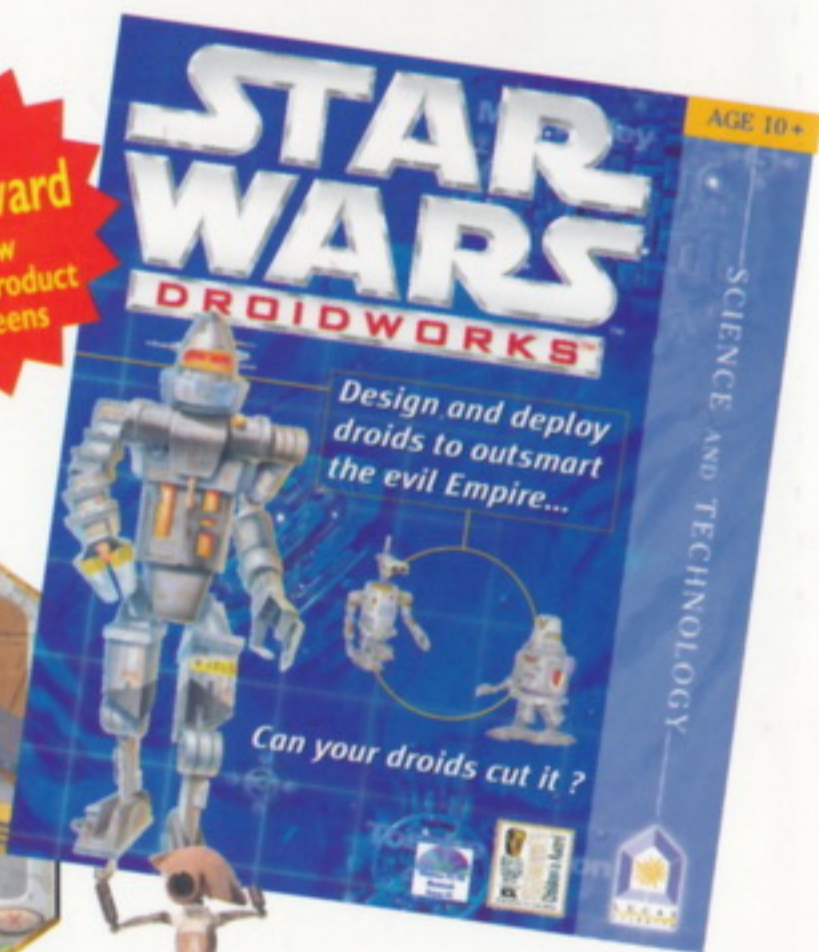
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