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Popular Mechanics

Create Our Stereo Entertainment Center With New Giant-Screen TV

NEW

PIGGYBACK JET LAUNCH FOR SPACE SHUTTLES

2,361,000-MILE REPORT

Chevy S-10 Pickup: Owners Praise Truck That 'Rides Like A Sports Car'

5 Simple Jigs Make Picture Framing A Snap

NEW TURBOS: Big Power Boost For Your Engine PLUS: Guide To '83 Turbo Cars

PLANS: 5 Woodworking Tools That Save Lots (Make On



Shuttle And Rocket Blast Away From 747 Jet Launcher





On the cover

Aerospace experts say an orbiting vehicle using Shuttle technology could be air-launched from a B-747 as early as 1988. Manned or unmanned, the military vehicle could carry intelligence gear or nuclear weapons. See how it's designed on page 120 in this issue.
—PM painting by Ed Valigursky

Popular Mechanics®

DECEMBER 1982

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POPULAR MECHANICS (ISSN 0032-4558) is published monthly by The Hearst Corporation, 224 West 57th Street, New York, N.Y. 10019, U.S.A. Subscription prices: United States and possessions, \$11.97 for one year; \$21.97 for two years. Canada and all other countries, add \$16.00 for each year. Second-class postage paid at New York, N.Y., and additional mailing offices. Authorized as second-class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Registered as second-class matter at the Post Office at Mexico D.F., Mexico, June 20, 1950, © 1982 by The Hearst Corporation. All rights reserved. Printed in U.S.A.

POSTMASTER: Please send address changes to Popular Mechanics, P.O. Box 10064, Des Moines, Iowa 50350.

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PM ELECTRONICS MONITOR



How to choose a new video game

One of the most popular gifts this year will be any of the home video game systems, which use the games we describe on page 92 (*New Video Games: More Flash and Dazzle!*). But how do you choose one of these machines? It's a complicated venture, and because they're expensive, you'll want to make certain you'll be satisfied with your choice.

Resolution

This has nothing to do with New Year's Eve: It's an engineering term that describes how much detail you can have on the screen. The more resolution, the finer and more colorful the games.

Magnavox's Odyssey 2 game has, at present, the least resolution. The figures it draws on the screen are blockier in appearance than those of the other units. For arcade-style gaming, this has its drawbacks. But some of the strategy games available from Magnavox for this unit, such as *Quest for the Rings*, are great fun to play. The Odyssey keyboard allows greater player manipulation of facts and figures than the other games.

The Atari Video Computer System (VCS) has very good graphic resolution. By the time you read this, the new Atari 5200 machine will probably be available. I haven't seen the 5200, but I understand it will accept today's Atari-style cartridges—and that resolution on newer cartridges will be improved. The current Atari offers respectable graphics and speed. In addition, cartridges from other manufacturers, made for the Atari, have been enlivening this market. The Atari system has, by far, the widest choice of games.

The Mattel Intellivision features superb graphics. Here, too, the secondary manufacturers are entering the market, so you can expect a big choice in cartridges soon. Right now, the strategy and sports games seem better than the arcade entries, but that may change.

The new Colecovision's graphics can only be described by one word—"fannnnntastic!" Coleco has licensed various arcade games, such as *Don-*

key Kong and *Cosmic Avenger*, from the coin-op people. And there's almost no difference between the home cartridge and the arcade game.

Controls

The device each system provides to move your little man or spaceship around the screen is more important than most people realize.

The Odyssey system features two built-in joystick controls. The "stick" is light and easy to move and hold onto. And, of course, the Odyssey 2 has a touch-sensitive keyboard, as well.

The Atari system features its famous—or infamous—plug-in joystick. These sticks take some getting used to, since they don't have much tactile response. If you never do feel comfortable with them you can buy various styles of replacement joysticks and controls.

The Intellivision and Colecovision both feature rectangular, handheld controls with small keyboards. On the thin Mattel unit, you tilt a disc in the direction of move-

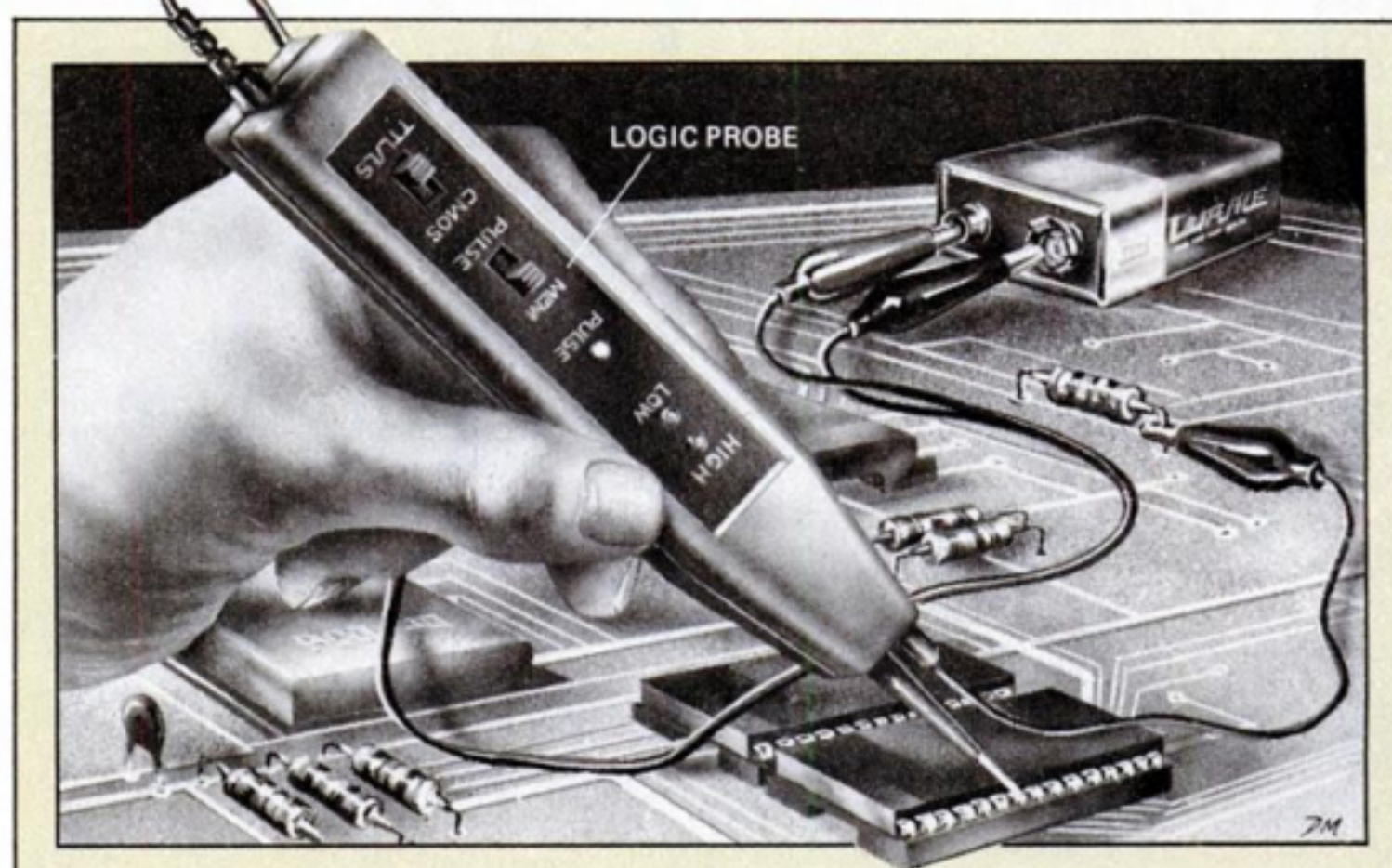
ment. The thicker Coleco unit sports a small joystick instead of a disc. The Mattel unit requires practice, but is easy to use for long periods of time. The Coleco controls, however, were found by most of our informal testing group (a few wild parties) to cause hand discomfort after a few hours—they're too thick for most people to hold comfortably for an evening of sipping, zapping and zipping.

Other features

Both the Odyssey and the Intellivision now have the power of speech using plug-in speech synthesizers. We found the Mattel version to be great fun, since the voice contributed directly to the games we were playing. And though we haven't heard the Odyssey's synthesizer yet, we have high hopes.

And Coleco has a great idea for its new machine—a device that will allow the system to accept just about any cartridge. Yes, with this add-on, you'll be able to use your old Atari or Mattel games in your Coleco machine.

So have fun—and don't shoot when you should have ducked! **PM**



Finding bad chips

You can troubleshoot digital electronic circuits with a logic probe. The probe, which is connected to a power source and the circuit ground, is touched to

pins on an integrated circuit (IC). You can interpret probe lights to tell if voltage is high or low. Instructions with most probes detail popular ICs.

VIDEO GAMES

MORE FLASH AND DAZZLE!

New cartridges really put these machines through their video paces. The video arcade is closer to home than ever.

BY NEIL SHAPIRO ELECTRONICS EDITOR

This is the age of video games. The clear, glassy playing fields and coruscating colors of imaginary foes are as familiar to today's video athletes as the dirt and grass baseball diamond was to yesterday's sandlotters.

There are so many of the most popular machines—the Atari Video Computer System, Mattel's Intellivision, Magnavox's Odyssey 2 and the new Coleco entry, Colecovision—that many companies are springing up that do nothing but design and market games on cartridges that fit one or more of these four systems. And some of these companies are getting more action out of their cartridges than the people who invented the video games themselves. Right now, the market is booming for cartridges that fit the Atari system. We took a look at some new games from companies like Activision, Parker Brothers, Data Age and Imagic that all make the Atari system a wild machine.

Star Master, from Activision, is the most strategically sophisticated of all. Pictured at right, it uses two screen views.

Atlantis, from Imagic, takes the Atari system to new heights of fast, high-resolution animation.

And the market has a new twist: Mattel will soon be supplying cartridges for Atari and Coleco systems, as well as for their own. Coleco, in turn, plans the same. (See this month's *PM Electronics Monitor* for more hints on choosing one of these systems.)

One thing is certain. If you own a video game, you ain't seen nothin' yet!

PM

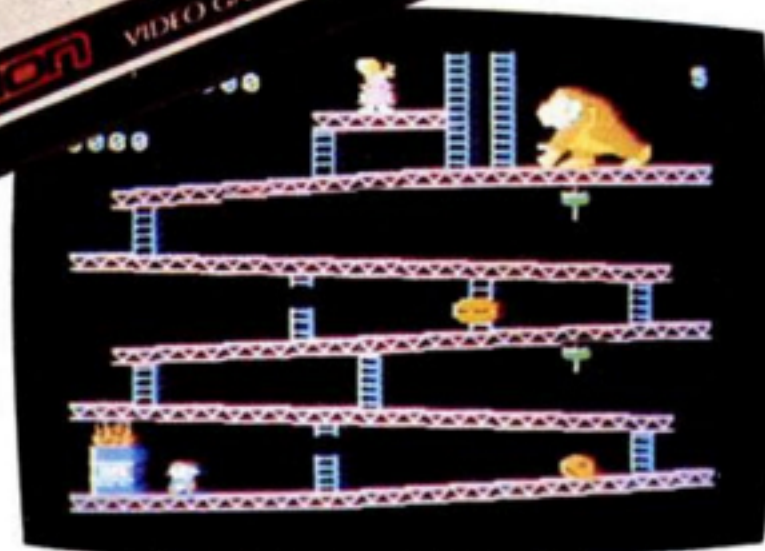


Atlantis from Imagic is made for various systems. This one is the Atari version.

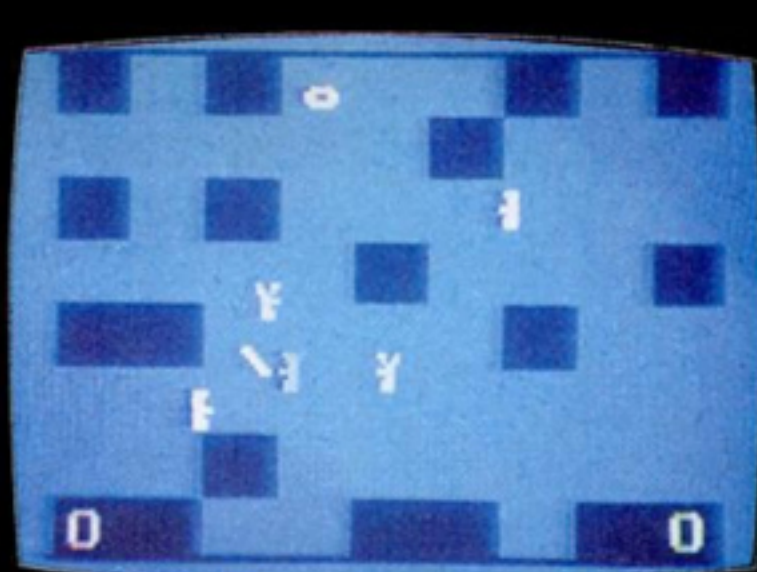
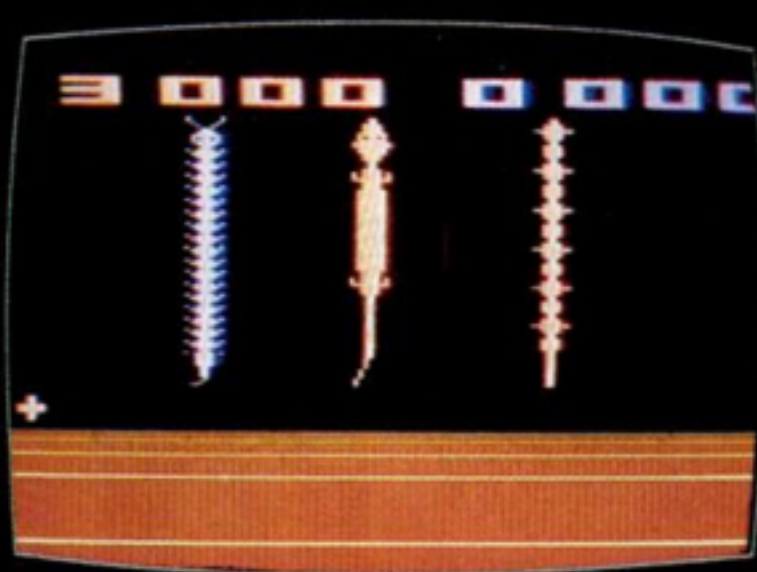
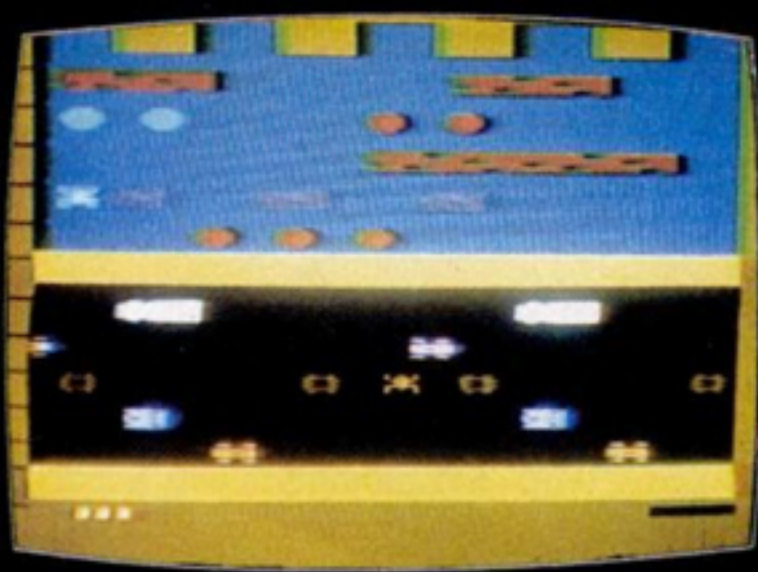


Star Master is Activision's combo of good arcade action and strategic planning.

COLECO COLECOVISION



Donkey Kong from Coleco is indistinguishable from the real arcade version.



Frogger is Parker Brothers' hilarious entry into the market; it runs on the Atari.

Bugs from Data Age is fast-playing game with unusual graphics for Atari system.

Quest for the Rings from Magnavox has game board and pieces for Odyssey 2.

Odyssey 2 system from Magnavox (right) doesn't have as sophisticated graphics as others, but keyboard adds interest. The Atari VCS (below) is market leader. While graphics aren't as breathtaking as on Mattel or Coleco, many new companies supply cartridges that make it come close.

ATARI VIDEO COMPUTER SYSTEM

MAGNAVOX ODYSSEY 2

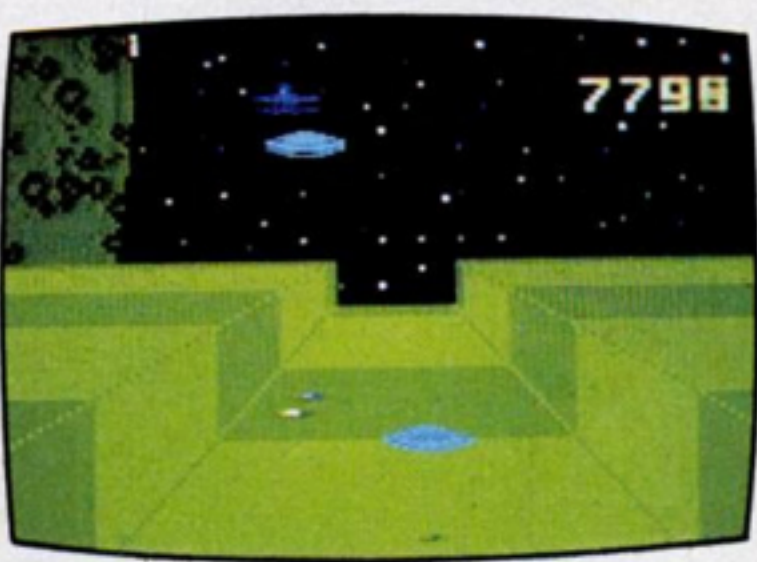


MATTEL INTELLIVISION



Colecovision (left) is a new system that features astonishing graphics that are as good as arcade. Intellivision from Mattel (above) has excellent graphics, now surpassed only by Coleco.

PM photos: Frank Lusk



Berzerk from Atari is faithful to the coin-op version. Fans of Evil Otto, rejoice!

Astromash from Mattel for Intellivision features very colorful, quick animation.

Star Strike for Intellivision is Mattel's way of letting you be a world-saver.