Plug-in playtime
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Take one look at the complex system of blocks, motors and sensors controlled by a bright yellow hub and one thing is immediately clear: Lego has moved a long way from the stackable plastic bricks you knew as a child.

The Danish toymaker now markets scientifically designed, plug-and-play robots that navigate obstacles, follow paths and react to changes in light.

Challenging enough to stimulate engineers yet simple enough to engage the average 12-year-old, the Lego Mindstorms Robotics Invention System ($299) is the forerunner to a host of children's toys and gadgets that are marked by their innovative use of technology.

There are laptop-style devices that play music, personal digital assistants that operate as a drawing board, portable video players and electronic handheld games. Today's toys reflect the technological world our children are born into. Even the mobile phone and digital video camera have "kiddie" equivalents.

These toys and gadgets are not simply child's play. The word from the experts is that they are vital for developing minds, too.

"Children need exposure to a wide range of toys, including these technology-based toys. We have to move with the times and realise that children need to be able to discover these things to improve their critical, technical and creative skills," says Kathy Griffith, a lecturer at Macquarie University's Institute of Early Childhood.

"The more kids are exposed to toys, the more they're able to generalise this knowledge and create mastery across a wider area."

Educational benefits aside, Lego Mindstorms <http://mindstorms.lego.com> is one technology-based toy that adults may want to steal from their kids. The 700-piece system includes building blocks embedded with tiny computers, motors, sensors and infra-red transmitters. At the heart of it all is a Lego microcomputer known as an RCX, based on a programmable brick developed by scientists at the Massachusetts Institute of Technology Media Lab.

Users first construct their robot using the RCX and Lego building blocks, then create a program for their invention using RCX Code, a simple icon-based programming language. Next, the program is downloaded to the RCX using a PC and is stored inside the robot, waiting to be activated by the press of a button.

The programming environment is said to be robust enough to support exercises in artificial intelligence, and the system has spawned hundreds of websites containing advanced code and instructions for building complex creations such as optical scanners and robotic spiders.

If the Mindstorms system is out of your league, however, you can still satisfy your little robo-ophile with the Ultimate Robot Kit ($59.95 at www.australiangeographic.com.au <http://www.australiangeographic.com.au>), a do-it-yourself project package that makes not one, but four different types of robots. The kit comes with body parts, gears, power unit and guide book and, according to the manufacturer, enables kids to test the robot skills of mobility, manipulation, programming and intelligence.

Children more inclined towards creative pursuits can get in touch with their inner Spielberg via the Digital Blue Digital Movie Creator (US$99.99 [S$138] at www.amazon.com <http://www.amazon.com>), an easy-to-use handheld digital video camera and software package that lets children script and star in their own movies. Geared towards children aged eight and up, the camera fits easily into little hands and the operation is a cinch: just hold down the button and record. An LCD screen indicates how many scenes were created and how much space is left, while a timer mode allows budding directors to step into the shots.
The package includes a drag-and-drop interface for editing, mixing and adding special effects such as "eyeball bulge". The finished product can be viewed on a PC or emailed.

On the downside, the camera can record only four minutes of footage at a time and is not Mac-compatible, but older kids with lots of ideas can splice multiple takes to create longer films or take snapshots and record sounds using the built-in microphone.

On the lower end of the digital-imaging scale, the 300K Mini Digital Camera ($49.95 at www.jaycar.com.au <http://www.jaycar.com.au>) offers an easy way for kids to take lots of happy snaps without investing in expensive gear. While it's no topline Nikon, the tiny gadget is the size of a matchbox and includes a self-timer, can be used as a webcam and will even shoot up to one minute of video. Just remember to save your pictures before the batteries run out or the images will be deleted.

The iLife 04 software suite from Apple is another package that makes creating movies and editing digital images a snap for kids. Shipped standard with all new Macs, the software suite is used by students at St Ives North Primary School to create programs and videos for the school's Kids' News Network (KNN). Students as young as 10 are involved in creating news bulletins, from school sports results to current affairs.

Toddlers can also access the fun of high-tech play with the Fisher-Price Power Touch ($79.99 at Toys 'R' Us), an interactive learning device styled to look like a laptop computer. It features touch activation and auto page recognition and offers more than 60 learning activities to help children aged three to eight improve their reading, phonics, spelling, music and maths. The system includes two starter "storybooks" or cartridges that slot into the toy and then present words, stories and games to children as they touch the words and pictures on each page. Children can also choose from a menu at the top of the screen to hear words sounded out.

While toy laptops are great for improving your child's learning skills, an ergonomically designed product such as the KidzMouse ($US25.50 plus postage at www.ergocube.com <http://www.ergocube.com>) will give children a head start in learning how to use a real computer without the difficulty of managing an adult-sized mouse. These cute computer creatures are about half the size of a regular computer mouse and allow your child to squeeze rather than click their way through a program. The mouse is compatible with both Windows and Mac operating systems and can be installed via the USB slot or mouse port on your computer. Download the free software from KidzMouse <http://www.kidzmousoom.com> to map the right and left mouse buttons together.

Once they've mastered the mouse, a slew of software programs disguised as games can enhance your young Einstein's thinking and problem-solving skills.

You should look for software programs that challenge children and let them take control of their learning, says Marina Papic, lecturer in maths, science and technology at Macquarie University's Institute of Early Childhood.

Maths Circus ($104.50 at www.greygum.com.au <http://www.greygum.com.au>) is a program that combines the fun of a circus with the satisfaction of solving a wide range of mathematics problems. There are five Maths Circus packages or "Acts" that each offer 12 puzzles and varying degrees of difficulty for kindergarten through to year 6 students. The problems test skills such as spatial reasoning, perceiving patterns in size, order or time, and manipulating a number of variables in order to help the circus performers do tricks. The program is compatible with both Windows and Mac operating systems.

Other software programs include Kraken ($104.50 at www.greygum.com.au <http://www.greygum.com.au>), a fun program that challenges children to steer a ship in different directions and overcome obstacles in order to reach the treasure, and Kid Pix <http://www.kidpix.com>, a multimedia graphics tool that lets children create pictures and present them as a slide show.

Kid Pix slide shows can also be saved as QuickTime movies to post on the Internet.

You don't have to splurge on software to improve your child's skills and knowledge. Visit the ABC's Count Us In site <http://www.abc.net.au/countusin/games> for a series of free games that test basic mathematical skills.

While educational software is great for developing minds, let 'em go wild with the latest batch of interactive games designed purely for blowing off steam. The Play TV Snowboarder Interactive Game
($69.99 from Toys 'R' Us) is an actual snowboard that hooks up to your TV or VCR. Riders select one of four modes - half-pipe, slalom, big air or freestyle - and board their way down countless ski slopes without any bruising or broken bones. All selections are made while manoeuvring the actual snowboard and riders can see and hear their corresponding actions on the screen.

From snowboarding to samurais, young warriors can strap on high-tech fighting gear and take on an opponent in the Virtual Reality World Ninja Game ($79.95, Toys 'R' Us), an interactive 3D game played in another dimension. After selecting a ninja, samurai or shogun opponent, players have 99 seconds to prove their fighting prowess. Two ninja gloves and an ankle strap containing sensors detect the wearer's defensive and offensive manoeuvres, while fighting sounds accompany the match.

For the ultimate in high-tech gadgetry, the Eye-Link Communicators ($99.99, Toys 'R' Us) enable future James Bonds to beam a text message to an equally equipped spy through walls and to secret locations up to 60 metres away. Each package comes with a headset display and a mini arm-mounted keypad that allows the user to type, transmit and view messages up to 22 characters long.

Before you seek out the latest gadgets, however, remember that toys are just one part of the educational experience, says Griffith. "Toys should be used as part of a holistic program ... they're just one of the many play experiences children can get involved in."

Infofile

The development of inexpensive digital cameras and powerful home editing systems has opened up new opportunities for kids to express themselves. Whether you're a young moviemaker or know of one, log on to the Digital Blue site <http://www.playdigitalblue.com/home> for inspiration and to view the winning entries in the Digital Movie Creator Awards.

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