

MARVELS OF TECHNOLOGY

ENTERTAINMENT & INFO TECH



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Entertainment Tech

At its most basic, technology is simple. It's the application of scientific knowledge to create products that solve problems and make our lives more convenient, efficient, and fun. But what technology can do is pretty amazing.

Meeting Our Needs

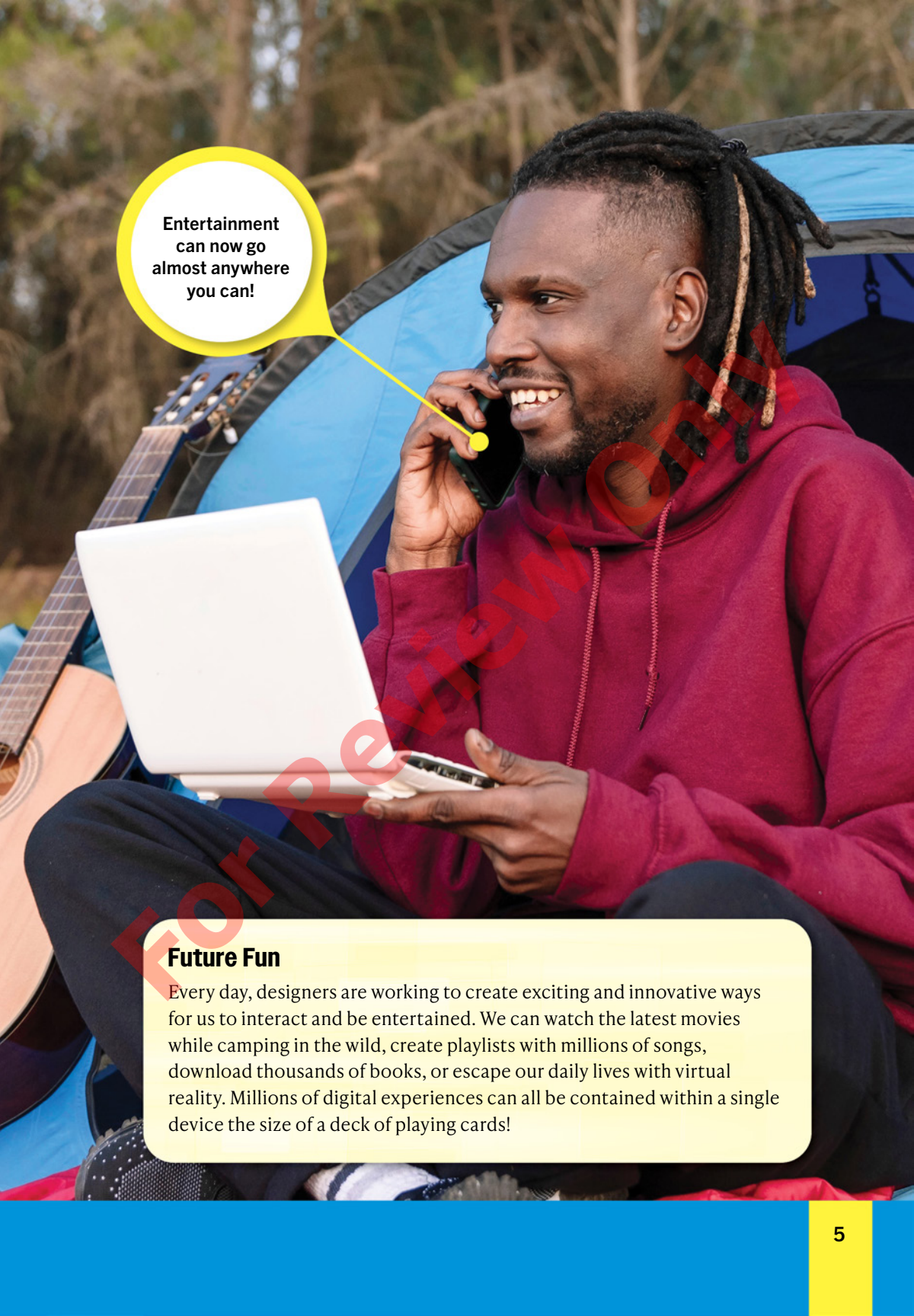
New technologies are developed to meet our ever-evolving needs. For example, as our school, work, and home lives became more driven by electronic communication and online data, we needed more ways to access this info on the go. Laptops, tablets, smartphones, and smartwatches were all created to meet this need.



Solving Problems

Technology changes as our needs change. Most of the media we consume—music, TV shows, movies, photos, and news—gets transmitted digitally. This data can quickly fill a device's storage space and slow down its functionality. So, engineers developed cloud storage, a way to store our files and data on secure remote servers. This saves space on our devices and allows them to operate at superfast speeds.





Entertainment
can now go
almost anywhere
you can!

Future Fun

Every day, designers are working to create exciting and innovative ways for us to interact and be entertained. We can watch the latest movies while camping in the wild, create playlists with millions of songs, download thousands of books, or escape our daily lives with virtual reality. Millions of digital experiences can all be contained within a single device the size of a deck of playing cards!

Printing Presses

Printing is old technology, but the way the printing press works has changed over time. Many printing presses use a process called offset lithography. First, the page to be printed is transferred photographically onto a thin metal plate. The image parts of the plate are coated with lacquer to attract ink, while the rest is covered with gum that attracts water. Then, the plate is curved around a cylinder and covered with water and ink. Only the lacquered parts of the plate pick up ink.

Usually, only four colors of ink are used in printing: cyan, magenta, yellow, and black. Other colors can be created using these four inks.

Web Offset Lithography

The inked printing cylinder presses against a blanket cylinder. This soft rubber cylinder transfers the image onto paper. Since the printing plate doesn't directly touch the paper, this method is called offsetting. Many high-speed presses are web-fed. The paper comes into the press from a giant roll called a web.

The printing cylinder presses against rollers that dampen it with water and brush it with ink.

The metal plates are curved around the printing cylinder.

The blanket cylinder transfers the image to the paper.

Paper feeds between the blanket and impression cylinders.

Impression cylinder

INVENTOR



Inventor: Johannes Gutenberg

Invention: Printing press

Date: 1450

The story: German blacksmith Johannes Gutenberg invented a form of movable type printing press on which individual letters could be moved around to form different words. A screw-type press stamped the inked metal letters onto the paper.

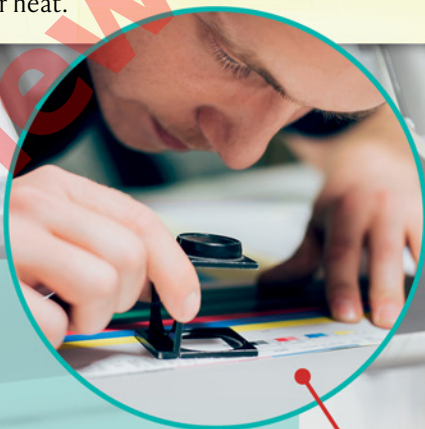


The different inks have to be aligned correctly to produce the perfect print.

A web-fed printing press can produce more than 12 miles (19 km) of printed material in an hour.

Computer-to-Plate

A lot of modern printing presses use desktop publishing software to determine where the text and images will go on each page. A digital image is transmitted directly from the computer to a printing plate, where it is coated with a light-sensitive chemical. Then, the image areas are burned onto the plate with lasers using ultraviolet light or heat.



Computer-to-plate technology produces higher quality printed material.

DID YOU KNOW? Printing was invented in China more than 1,000 years ago. Characters were carved onto wooden blocks that were dipped in ink and pressed onto parchment.

Cameras

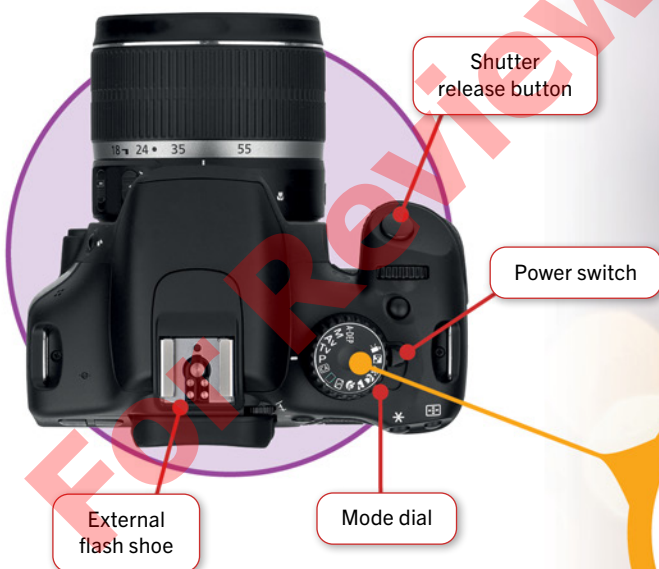
If a person presses the button on a digital camera, the aperture, or hole at the front of the camera, briefly opens and closes. The opening lets light enter through the lens. An electronic light sensor captures the image and breaks it into millions of tiny pieces called pixels. A sensor measures the color and brightness of each pixel and stores it as a number.



The shutter lets light through to the sensor.

Shutter

The shutter is the mechanism that opens and closes the aperture. A slow shutter speed lets in more light, resulting in a brighter image, but objects in motion will appear blurry.



Shutter release button

Power switch

Mode dial

External flash shoe

This dial sets the camera to different preset shutter and exposure options. These camera modes may include landscape, portrait, and sport.

Image Editing

Image editing programs are used to adjust digital photos. To make an image 10 percent brighter, the programs increase the brightness number of each pixel by 10 percent.



INVENTOR

Inventor: Steven Sasson

Invention: Digital camera

Date: 1976

The story: American electrical engineer Steven Sasson designed a prototype digital camera. His bosses at Kodak were not impressed. The company thought no one would want to look at their pictures on a screen.