



Invention of the Internet

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Space Race

1 On October 4, 1957, the Soviet Union launched Sputnik, the world's first man-made satellite, into orbit. To many Americans, the launch of Sputnik was startling. The United States and the Soviet Union were in a Cold War, and tensions between the two countries were high. Americans felt that the launch of Sputnik proved that the Soviet Union was more technologically advanced and was going to win the Cold War because of it. As a result, the "Space Race" started. The Space Race was a competition between the Soviet Union and the United States to become the first country to dominate space flight.

2 After Sputnik's launch, many things changed as Americans began to think more seriously about science and technology. Chemistry, physics, and calculus were added to school curriculums. The U.S. government gave money in grants to companies that specialized in scientific research and development. New agencies, such as the National Aeronautics and Space Administration (NASA) and the Department of Defense's Advanced Research Projects Agency (ARPA), were formed to develop space-age technologies such as rockets, weapons, and computers.

ARPAnet

3 A major priority of the Department of Defense's Advanced Research Projects Agency (ARPA) was to find a way to communicate if a Soviet attack wiped out the nation's telephone system. Scientists and researchers feared that one Soviet missile could destroy the whole network of lines and wires that made long-distance communication possible. In 1962, J.C.R. Licklider, a scientist from ARPA proposed a solution to this problem: a "galactic network" of computers that could talk to one another that would enable government leaders to communicate even if the Soviets destroyed the telephone system.

4 In 1965, another scientist developed "packet switching." Packet switching is a way of sending information from one computer to another. The idea is to break data down into blocks, or packets, before



sending it to its destination. In 1969, ARPAnet delivered its first short and simple message: "LOG IN." One computer was located in a research lab at the University of California, Los Angeles, and the second was at Stanford University. Each computer was the size of a small house. Unfortunately, the Stanford computer only received the first two letters before ARPAnet crashed. By the end of 1969, just four computers were connected to the ARPAnet, but the network grew steadily during the 1970s. As the computer networks multiplied, however, it became more difficult for them to integrate into a single worldwide "Internet."

Transmission Control Protocol

5 By the end of the 1970s, a computer scientist named Vinton Cerf had begun to solve this problem by inventing the "Transmission Control Protocol," or TCP. He developed a way for all of the computers on all of the world's mini-networks to communicate with one another. Later, he added an additional protocol, known as "Internet Protocol." Cerf's protocol has been described as "the 'handshake' that introduces distant and different computers to each other in a virtual space." Cerf's protocol transformed the Internet into a worldwide network. Throughout the 1980s, researchers and scientists used it to send files and data from one computer to another.

World Wide Web

6 In 1991 the Internet changed again. That year, a computer programmer named Tim Berners-Lee introduced the World Wide Web. The World Wide Web was a new Internet that was a "web" of information that anyone on the Internet could retrieve. It was more than just a way to send files from one place to another. Berners-Lee created the Internet that we know today.

7 Since then, the Internet has changed in many ways. It became more user-friendly so that the public could use it. In 1992, a group of students and researchers at the University of Illinois developed a sophisticated browser for searching the web. It allowed Internet users to see words and pictures on the same page for the first time and to navigate using scroll bars and clickable links. That same year, Congress decided that the Web could be used for business purposes. As a result, companies hurried to set up websites of their own. Other companies began to use the Internet to sell things directly to customers. More recently, social networking sites like Facebook and Instagram have become a popular way for people of all ages to stay connected.

"Invention of the Internet" written for educational purposes.



Internet Today

8 The Internet has no single inventor like the telephone or the light bulb. Instead, it has evolved with help from many scientists. The Internet got its start in the United States more than 50 years ago as a government weapon in the Cold War. For years, scientists and researchers used it to communicate and share data. Today, almost one-third of the world's 6.8 billion people use the Internet regularly. We use the Internet for almost everything, and for many people, it would be impossible to imagine life without it.

Email

9 Email is a method of communication over the Internet. Email works like a text message, where one user sends, and others receive. Picture files, links, and attachments can be added to emails. Email works in five steps:

1. You write up an email and click send.
2. Your email is first sent to your email service provider.
3. Your email service provider gets the destination address using a Domain Name System (DNS).
4. Your email service provider sends the email to your recipient's email service provider.
5. The recipient's email service provider sends the email to the recipient's inbox. You've got mail!



Entertainment

10 The Internet has made a big difference in entertainment. Now that individuals can access the Internet on the computers within their own homes, and on portable devices such as mobile phones and iPads, it has provided entertainment creators with another avenue for games, music, and videos.

11 Through the Internet, individuals worldwide can compete against one another or work cooperatively together as teams in a wide variety of games. Individuals no longer have to travel to their local music store or department store to purchase the latest CD that happens to have caught their interest. The Internet, with the help of MP3 technology, has allowed users to both distribute and gather music digitally from the comfort of their own home. Individuals can also stream and download videos to watch TV shows and movies online. Streaming services such as Netflix are competing against cable companies.

Social Media

12 The creation of the Internet has sparked a new phenomenon called social media. Social media facilitates the creation and sharing of information and ideas through virtual communities and networks.

Top Score Writing

Social media networks, such as Facebook and Instagram, use web-based technologies, desktop computers and mobile technologies to create highly interactive platforms through which individuals, communities, and organizations can share, co-create, discuss, and modify user-generated content or pre-made content posted online.

13 Users create service-specific profiles for the website or app that are designed and maintained by the social media organization. Social media works as users generate content as text posts, or comments, digital photos, or videos. Social media changes the way individuals and large organizations communicate. In America, a survey reported that 84% of adolescents in America have a Facebook account. Over 60% of 13 to 17-year-olds have at least one profile on social media, with many spending more than two hours a day on social networking sites.



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Dangers of the Internet

Social Media

14 With the growing popularity of social media sites such as Facebook and Instagram, teens are posting more and more content on the Internet. Some kids are often trying to catch the attention of and gain approval from their peers. Some teens tend to post content to appear popular or to gain a response from others in their online community. Teens post inappropriate pictures, brag about the previous weekend's adventures, and can easily use this digital space to humiliate others or post inappropriate language. What teens often do not realize is that no information is truly private on the Internet; an online "friend" can be anyone and can forward any information posted on a teen's social media site. When you post online, it is there forever, even after it is deleted. Future career choices can be ruined because of bad decisions online. Teens should be aware that public profiles on social media open them up to messages from strangers and harassment from peers. Know the risks of social media and keep your personal information private!



Online Predators

15 When children go online, they have direct and immediate access to friends, family, and strangers, which can put unsuspecting children at great risk. Children who meet and communicate with strangers online are easy prey for Internet predators. Predators have easy and anonymous access to children online where they can conceal their identity and roam without limit. For example, a 30-year-old man can use a picture of a child and pretend to be that age. Predators use the Internet to spark a friendship, and then try to get kids to meet in the real world. Know the warning signs of online predators and never communicate with strangers online!



Cyberbullying

16 Cyberbullying is willful and repeated harm (i.e., harassing, humiliating, or threatening text or images) inflicted through the Internet, interactive technologies, or mobile phones. In the past year, 43% of teens aged 13 to 17 reported that they have experienced cyberbullying. Kids are being bullied in their own homes on their own devices. Instant messaging, social media, e-mail, text messaging, and blogging are becoming more popular, but unfortunately, that means that kids can have a chance of being bullied online at any hour of the day. Cyberbullying is increasing

in frequency and can happen to anyone. Electronic bullies can remain anonymous by creating temporary e-mail accounts and fake names in chat rooms, instant messaging programs, and other Internet venues. If you are being bullied online, speak up and tell an adult!

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