

The thrill of time travel

By Ellen Seiden, Dig Magazine, adapted by Newsela staff on 12.12.17

Word Count **904**

Level **MAX**



Image 1: People are fascinated by the idea of traveling through time. Many movies, books and TV shows have explored what it might be like to do so. This poster was made for a movie that came out in 1960 based on the book "The Time Machine" by H.G. Wells which was published in 1895. Photo from: Movie Poster Image Art/Getty Images

What if, instead of moving from the past to the present to the future, we could manipulate time, so that we could jump, loop and travel through it in a machine, wherever and whenever we pleased?

What if we could witness historic wonders, change decisions and see people from our past? What if we could right wrongs, stop wars and bring back future cures for illnesses?

The mysterious puzzle about time's boundaries has kept philosophers debating its nature for centuries. Science fiction writers such as H.G. Wells, who wrote the 1895 novel "The Time Machine," have plotted it backwards and forwards into wildly imaginative stories. And some physicists have even attempted mathematical equations to make the dream of time travel a reality.

Time Travel Speculation

The 20th-century physicist Albert Einstein said that time and space are one. He called it "spacetime." According to Einstein, there are three dimensions in space — height, depth and breadth. A fellow scientist, Hermann Minkowski, added time as a fourth.

Einstein introduced two ideas upon which speculation about the possibility of the theory of time travel is based. The first involves relativity. Here, travel, aided by gravity, involves curved space, which causes time to twist. The second focuses on special relativity. Gravity is not involved in this theory. Rather, a traveler goes super-fast through flat spacetime into the future. A clock is onboard while the traveler is in motion, and it slows time down. Einstein considered time "relative" because, as it passes, it is measured mathematically according to wherever we are positioned on Earth or in space.

What You Can And Can't Do With Time Travel

American science fiction writer Ray Cummings wrote in his 1921 novel titled "The Time Professor" that "time is nature's way of keeping everything from happening at once." Other science-fiction writers have addressed the concept of time, and there appears to be a consensus among them about the following:

No known rules of physics prevent time travel.

You cannot change or alter the past; you can only discuss it.

You cannot go faster than the speed of light (186,000 miles per second) and survive.

A rocket ship or time machine (mass) with a human inside would take tons of energy (force) to plunge through time.

You cannot travel back to a time before the time machine was created.

To time travel, you must change your position in time and space or the machine will run into itself.

Every rule has exceptions!

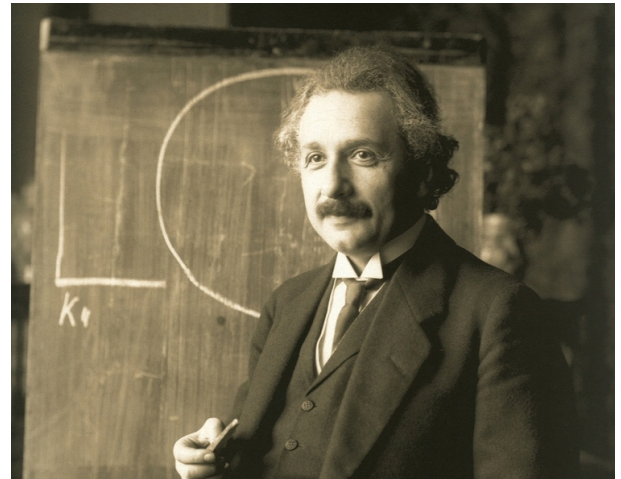
The Paradoxes

According to renowned English physicist Stephen Hawking, a time machine will never be built. He affirms his belief with the statement: If such a creation were possible, then "why haven't we been invaded by hordes of travelers from the future?"

Just think: If you could go back in time, your presence in the past could cause events to go out of whack, creating questions and chaos. Suppose that while traveling back, you accidentally kill an ancestor. Does that mean you will not be born? According to people who believe in "multi-dimensional worlds," this and other time travel-related paradoxes can be avoided. These people say that when a person travels to the past, the universe immediately splits into other worlds, which are similar, but not exactly the same. They argue that nothing will change for those who travel back to the past and do not touch or alter anything.

With Science Fiction, No Limits

The first known science fiction story with this theme, "The Clock That Went Backward," by Edward P. Mitchell, was published in 1881. Since then, thousands of tales, books, films, comic



strips, television shows, songs and commercials have delighted the imaginations of countless readers and viewers with their depictions of time travel. Since the concept is portrayed as tricky and unpredictable, the consequences often involve mad scientists, monsters, faulty time machines and people stuck in the wrong time period.

Other mechanisms take travelers backward and forward. Devices include phones, gadgets, watches, photographs, willpower and an old book. Time machine devices include a police telephone booth in the British science fiction television program "Doctor Who." It allows the main character to move through time to stop evil. In the 1985 movie "Back to the Future," the lead character, a teenager named Marty McFly, travels from the 1980s to 1955 in a car rigged as a time machine. Marty's hope is to change his family's past in order to create a better future. In the television episodes of "Star Trek," crew members reach other ages with a built-in, warp-speed drive that breaks the time-light barrier. In one episode of "Superman," a comic book, TV and film character created in the 1930s, the hero flies backward around Earth as a human time machine. This reverses events and brings his friend Lois Lane back to life.

Will time travel ever happen? Who knows? Most important is to keep an open mind and a sense of wonder.



Quiz

- 1 Which selection from the article shows the MAIN problem with the idea that time travel could happen?
- (A) And some physicists have even attempted mathematical equations to make the dream of time travel a reality.
 - (B) Einstein introduced two ideas upon which speculation about the possibility of the theory of time travel is based.
 - (C) A rocket ship or time machine (mass) with a human inside would take tons of energy (force) to plunge through time.
 - (D) If such a creation were possible, then "why haven't we been invaded by hordes of travelers from the future?"
- 2 Read the section "With Science Fiction, No Limits."
- Select the sentence from the article that suggests people are interested in the idea of time travel.
- (A) Since then, thousands of tales, books, films, comic strips, television shows, songs and commercials have delighted the imaginations of countless readers and viewers with their depictions of time travel.
 - (B) Since the concept is portrayed as tricky and unpredictable, the consequences often involve mad scientists, monsters, faulty time machines and people stuck in the wrong time period.
 - (C) In the 1985 movie "Back to the Future," the lead character, a teenager named Marty McFly, travels from the 1980s to 1955 in a car rigged as a time machine.
 - (D) In one episode of "Superman," a comic book, TV and film character created in the 1930s, the hero flies backward around Earth as a human time machine.
- 3 Read the section "The Paradoxes."
- What does this section show that other sections do not?
- (A) It shows the problems that could be caused if time travel happened.
 - (B) It shows the opinions of people who do not believe time travel is possible.
 - (C) It shows information about how scientists have studied time travel.
 - (D) It shows ideas about how people could travel between different times.
- 4 Read the introduction of the article [paragraphs 1-3].
- How does the introduction develop the main idea?
- (A) It draws readers in with a series of questions that will later be answered in the article.
 - (B) It explains why many people believe that time travel is something that is not possible.
 - (C) It shows that both writers and scientists have been interested in the idea of time travel.
 - (D) It highlights the opinions of many scientists who believe that time travel could happen.

Answer Key

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 - (C) A rocket ship or time machine (mass) with a human inside would take tons of energy (force) to plunge through time.
 - (D) **If such a creation were possible, then “why haven’t we been invaded by hordes of travelers from the future?”**
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 - (C) In the 1985 movie "Back to the Future," the lead character, a teenager named Marty McFly, travels from the 1980s to 1955 in a car rigged as a time machine.
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