



Science

## **PHY 101: INTRODUCTORY PHYSICS OF TIME TRAVEL** **Class 1. The Perception of Time**

### **Notes**

- The experience of time is one directional.
- The idea of time moving in one direction, forward and not backward, can be demonstrated by mixing milk into coffee. It can mix, but never un-mix.
- Newtonian Concept of Time: time is absolute and universal. It is the same for everyone, everywhere.
- In 1905 Einstein published his Special Theory of Relativity that says duration of time is relative to the movement of the observer.
- We can get to the future faster by traveling quickly through space.
- Speed of Light: 186,000 miles per second
- The distance you travel through space is different depending on the path you take, such as a straight line from one destination to another vs. a curved trajectory from one destination to another. The straight line experiences the shortest distance.
- The amount of time experienced when traveling through space and time is also dependent on the path taken. An example would be to either sit still and wait for an event to happen or to move around to get to the event. The movement will allow you to experience less time.



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- Gravity can affect time. Time moves more slowly the deeper you are in a gravitational field.
- In 1915 Einstein came up with his Theory of General Relativity that says gravity has the ability to bend or warp space and time.
- A clock on earth compared to a clock in space always shows that the clock in space moves faster than the one on earth.
- Spacetime is the idea of space and time combined into one concept.
- Spacetime is like a landscape of events that stretch off into the future and into the past.