

## Theory of Relativity and Time **1. What is the Theory of Relativity?**

Einstein's theory has two parts:

- Special Relativity – deals with objects moving at constant high speed.
- General Relativity – deals with gravity and acceleration.

## **2. Key Ideas**

- Speed of light is constant.
- Time is not fixed; it changes with speed and gravity.
- Gravity bends space and time (spacetime).

## **3. Time Dilation (Speed)**

When you move very fast, time slows down for you. Example: At 99% speed of light, 1 year for you may equal 7 years on Earth.

## **4. Time Dilation (Gravity)**

Stronger gravity slows time. Example: Time on Earth's surface moves slightly slower than on GPS satellites.

## **5. Summary**

- Time changes with speed and gravity.
- Fast motion = slower time.
- Strong gravity = slower time.
- Time is relative, not absolute.