

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.