# Simultaneity, length measurement and velocity transformation

GRE Subject Test · GRE Physics · Vocabulary in context

| Word | Example |
|---|---|
| **Lorentz transformation** /ˈlɒrents trænsfɔːˈmeɪʃn/ | The **Lorentz transformation** links times and positions in two frames. |
| **simultaneity** /ˌsɪməltəˈneɪɪti/ | **Simultaneity** depends on the observer's frame. |
| **spacetime interval** /ˈspeɪstaɪm ˈɪntəvl/ | Both observers calculate the same **spacetime interval** between the events. |
| **proper length** /ˈprɒpə leŋθ/ | Measure **proper length** in the object's rest frame. |
| **proper time** /ˈprɒpə taɪm/ | **Proper time** is measured by a clock moving with the object. |
| **spacelike** /ˈspeɪslaɪk/ | **Spacelike** events are too far apart for light to connect them. |