Relativity

The Theory of Special Relativity is a branch of physics dealing with the behavior of inertial frames of reference moving at very different speeds. It does not cover the behavior of non-inertial frames of reference which are instead covered by General Relativity. It is an axiomatic theory, derived from two main axioms: (1) The laws of physics are the same in all inertial frames (the principle of relativity) and (2) The speed of light is determined by the laws of physics. From these it can be concluded that in all inertial frames the speed of light must be measured to be the same constant value. In order to accommodate these several assumptions which seem commonsense must be thrown away. All the derivations can be performed purely through thought experiments combined with calculation.
Book: Special Relativity (Crowell)

Book: General Relativity (Crowell)