

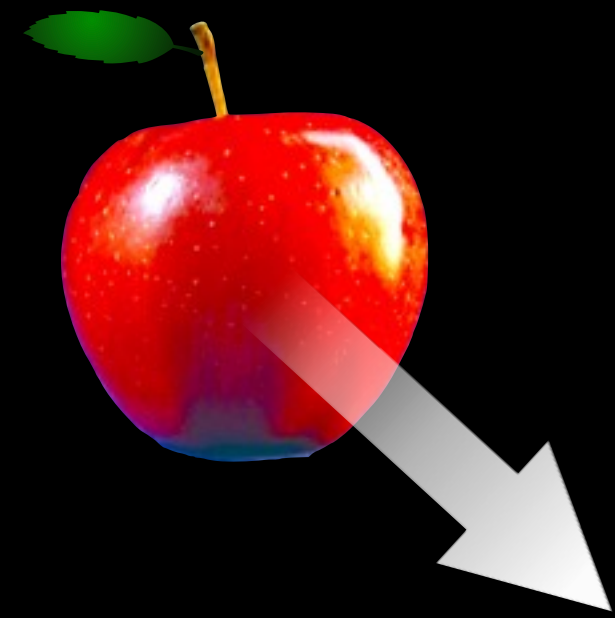
# 1905: SPECIAL RELATIVITY

- Maintain speed of light for all observers
- New rules for how distance and duration change between frames
- 3 spatial dimensions + 1 time dimension unified into "spacetime"
- Incompatible with instant action-at-a-distance





# GRAVITATIONAL FORCE PROBLEMS



$$F_g = m \frac{GM}{r^2}$$



- Newton's gravity doesn't fit this picture
- Action at a distance not compatible with finite speed of light
- Need a way to unify gravity & spacetime