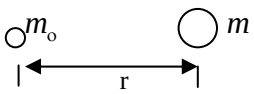
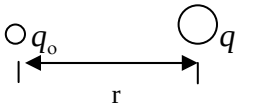
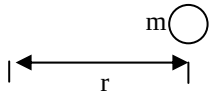
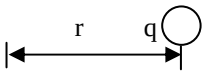
Table of Electrical & Gravitational Analogies

** let m_o = small test mass and q_o = small, positive test charge

	q_o or m_o **MUST BE at the position where the quantity below is measured**	q_o or m_o **DO NOT NEED to be at the position where the quantity below is measured**
Gravity	$F_G = \frac{Gmm_o}{r^2}$ (Grav. Force) 	
Electricity	$F_E = \frac{k\lvert q\rvert\lvert q_o\rvert}{r^2}$ (Electric Force) 	
Gravity	$\vec{F}_G = m_o\vec{g}$ (Grav. Force) • $\vec{g}$ is not set up by m_o	$\left[\frac{Gmm_o}{r^2} = m_o g\right] \Rightarrow g = \frac{Gm}{r^2}$  (Gravitational Field) (*g* is the gravitational field set up by *m*, a distance *r* from *m*'s center)
Electricity	$\vec{F}_E = q_o\vec{E}$ • Useful to relate the electric force on a test charge, q_o, to the electric field in which q_o lies. • $\vec{E}$ is not set up by q_o	$\left[\frac{k\lvert q\rvert\lvert q_o\rvert}{r^2} = \lvert q_o\rvert E\right] \Rightarrow E = \frac{k\lvert q\rvert}{r^2}$  [ABOVE : *E* is the electric field set up by *q*, a distance *r* from *q*'s center, where q can be a point charge or a charge distribution with spherical symmetry (as long as the point of interest is OUTSIDE the charge dist.).] $dE = \frac{k\lvert dq\rvert}{r^2}$ (differential form for charge distributions)
Gravity		
Electricity		
Gravity		
Electricity		