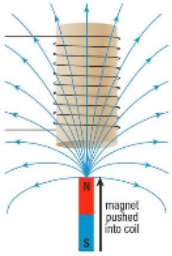
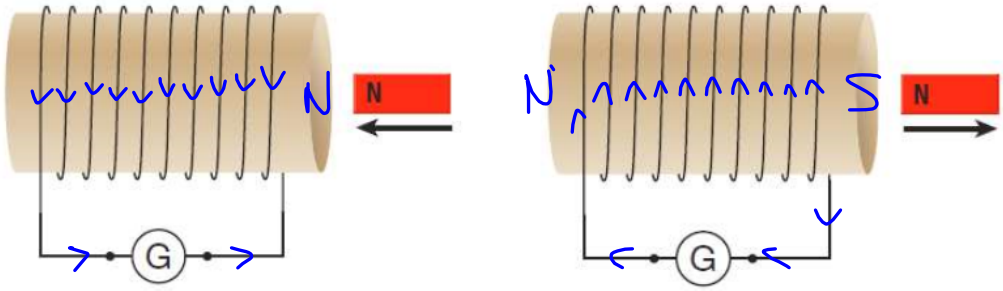
SPH3U 13.2 Lenz's Law



1. Direction of induced current

Lenz's question:	which direction is the induced current? (1834)

Newton's 3rd law:	action and reaction forces, opposite directions.
applied to induced currents	if the magnet pushes the electrons, the electrons must push the magnet back in the opposite direction.
Lenz's Law:	an induced current will produce a magnetic field opposite to the magnetic field change that induced it.



2. Drop-tower rides

Drop-tower rides:	free-fall from over 70 m up.
brakes	need to be reliable and not wear out
solution	Lenz's Law! large permanent magnets under the seats, and long strips of copper vertically along the bottom 1/3 of the tower. The magnets induce current in the copper, giving their kinetic energy to be converted into electrical energy.

Homework: page 594: #1-3