

Electromagnetic Rail Gun Assignment (Teacher)

There are actually many challenges to using electromagnetic principles to create a railgun weapon.

In a 1-2 paragraph response, identify some of the benefits and problems with this technology. Is this technology of overall net benefit or detriment to society? Can you think of other applications for this technology?

Benefits

(mostly for weaponry and launching sturdy satellites into space)

- no gunpowder means the weapon is lighter and less volatile*
- projectiles can be launched faster*
- longer range projectiles*
- could launch satellites and space shuttles*
- could initiate fusion reactions for power (or bombs)*

Problems

- power supply – require a very large build-up of charge to produce a large enough current*
- the resistance in the rails cause them to get very hot. This may be hazardous in large railguns and may cause the rails to melt and become misshapen*
- the magnetic field between rails is repulsive (this is why the armature is repelled) and so the rails may start to break apart. The railgun may only be used a few times.*