



Glue this side into your notebook.



FORCES FROM A DISTANCE

- CHECKLIST KEY**
- I could teach this.
 - I somewhat get it.
 - I've heard of it.
 - I need to learn this.

THE THINGS I SHOULD KNOW BEFORE 8th GRADE:

- Forces are pushes and pulls.
- Forces can change the motion of an object.
- The amount and object moves is based on its mass and the amount of force exerted on it.
- Motion can be described by its speed and direction.
- Mass and weight are different.

THE MOST BASIC IDEAS TO KNOW AFTER THE UNIT:

- Forces can act on objects with they are in direct contact or when they are not touching.
- Forces can have regions of influence called fields.
- The strength of an object's field depends on its distance from another object.
- Other factors, like mass, magnetic properties, and magnitude of charge, can affect a field's strength.

I KNOW...

- a.
- that objects can exert forces on each other from a distance
 - that a field describes the region of influence an object has on a certain objects
 - that fields are a representation of the influence an object's force has
 - how the fields for electrical force, magnetic force, and gravitational force change depending on the distance between two objects
 - how gravitational forces change depending on the mass of the object, and that this applies across the universe, even in space
 - how magnetic forces change depending on the magnetic properties of the objects involved
 - how weight relates to mass and how it is affected by gravity
- b.
- the relationship between electric currents and magnetic fields
 - how generators and motors convert electrical and mechanical energy and how they use relationship between electricity and magnetism to work

I CAN...

- a.
- use iron filings to show the magnetic field lines of an object
 - predict how the fields for electrical force, magnetic force, and gravitational force change depending on the **distance** between two objects
 - predict how electrical forces change depending on the **charges** involved and the **magnitude** of those charges
 - predict how magnetic forces change depending on the **magnetic properties** of the objects involved
 - predict how gravitational forces change depending on the **mass** of the object, and that this applies across the universe, even in space
- b.
- design and create an electromagnet to investigate magnetic properties and fields and explore how it relates to electricity

VOCABULARY

<input type="checkbox"/> force	<input type="checkbox"/> gravitational force	<input type="checkbox"/> mechanical energy
<input type="checkbox"/> field	<input type="checkbox"/> magnet	<input type="checkbox"/> pole (N/S)
<input type="checkbox"/> field model	<input type="checkbox"/> electrical/gravitational/magnetic field	<input type="checkbox"/> charge (+/-)
<input type="checkbox"/> electrical force	<input type="checkbox"/> electromagnet	<input type="checkbox"/> generator
<input type="checkbox"/> magnetic force	<input type="checkbox"/> electrical energy	<input type="checkbox"/> electric motor