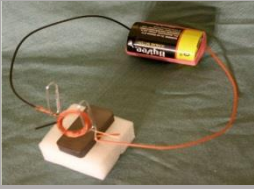





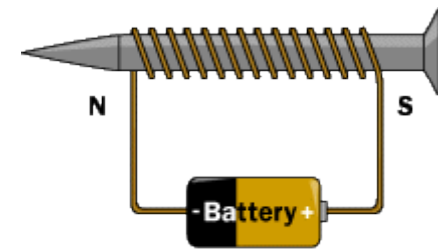
Glue this side into your notebook



1. What kind of energy is transferred in...

<p>an electric motor?</p> 	<p>a generator?</p> 
<p>_____ energy</p> <p>turns into to _____ energy</p>	<p>_____ energy</p> <p>turns into to _____ energy</p>
<p>Explain what these two <i>energy types</i> are (what happens with them?):</p> <p>1.</p> <p>2.</p>	

2. a. Draw the field model lines on the iron nail for this electromagnet:



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b. Now, draw a paperclip OUTSIDE of the field lines. Predict what would happen to that paperclip.

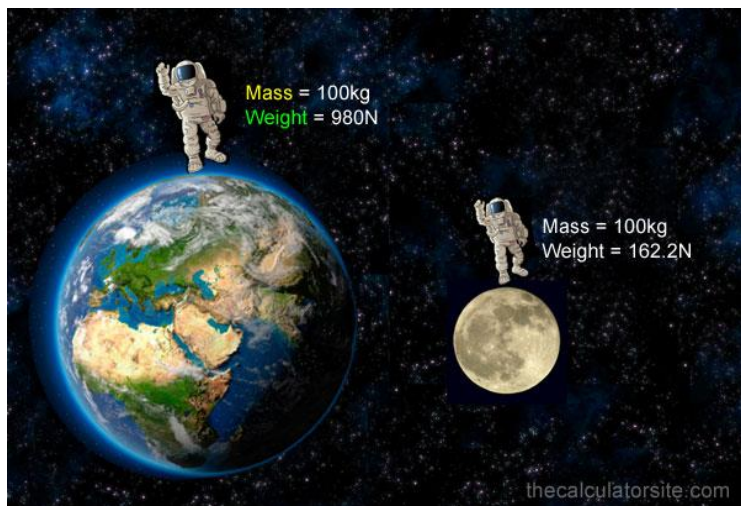
c. Explain why an electromagnet can pick up paperclips (how does it work?).

d. What is an electric current and how does it apply to an electromagnet?

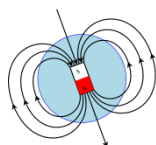
3. a. Complete the chart

Property of Matter	What is it?
mass	
volume	
weight	

b. Explain this picture below and why the weight changes but the mass stays the same.



4. a. If I have a magnet and there is no other metal nearby, does the field disappear or is it there all the time?



b. What about for gravitational fields and electrical fields?

5. Complete the chart (*THIS IS ALL VERY IMPORTANT TO UNDERSTAND!*).

Type of Force	What factors can change the amount of force?	What is the relationship to how it changes the amount of force?
Electrical field	1. 2. 3.	
Magnetic field	1. 2.	
Gravitational field	1. 2.	

6. Give an *example* of how distance affects magnetic, gravitational, and electrical forces:

magnetic:

gravitational:

electrical:

7. Draw a field model of two magnets that are **repelling** each other (*include the poles*).

b. Draw a field model of two magnets that are **attracting** each other (*include the poles*).

8. In an experiment, what is the independent variable (IV)? What is the dependent variable (DV)? (*make sure you can apply these in an experiment situation!*)