PHET ONLINE FARADAY & GENERATOR LAB name _____hr___

PART 1 FARADAY'S LAW SIMULATOR: (search PHET Faraday's law on google)

https://phet.colorado.edu/sims/html/faradays-law/latest/faradays-law_en.html

1. Move the magnet inside the coil of wire. When the magnet is motionless, what happens with the light?

_____

2. Now move the magnet in and out of the wire continuously. What happens with the light?

_____

3. Attach a voltmeter by clicking the box. Experiment with the speed that you move the magnet. What claim can you make about the magnet speed as it enters the coil?

_____

4. Now click the double coil icon. Try to move the magnet at the same speed through each coil. What is the voltage like in the double loop coil? What is the voltage like in the quadruple loop coil?

_____

5. To confirm your answer above, do the following: Put the magnet in the middle of the double coil, then flip the magnet field while watching the voltage. Do the same for the quadruple loop. Which coil generates the most voltage?

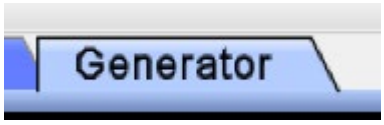
_____

6. Click on the field lines box. Move the magnet such that there are only a couple of field lines passing through the coil. Now move the magnet so that there is a great density of field lines passing through the coil. Make a claim about field lines and voltage.

_____

PART 2 FARADAY'S ELECTROMAGNETIC LAB: (Search PHET Faraday electromagnetic lab on google)

https://phet.colorado.edu/sims/cheerpj/faraday/latest/faraday.html?simulation=generator

MAKE SURE YOU ARE ON THE GENERATOR TAB 

7. Turn on the faucet and observe what happens. Record below.

_____

8. Set the water flow so that the RPM (revolutions per minute) is 20. Then set the RPM to 100. What is different with the lightbulb?

_____

9. Notice the compass just to the right of the faucet. What is it doing?

_____

10. What does the red color on the compass mean?

_____

11. What color does red want to match with?

_____

12. If you put a north pole next to a north pole what will happen? (repel or attract?)

_____

13. Turn off the flow. What is the brown thing coiled under the light bulb?

_____

14. What are the blue dots in the brown coil?

_____

15. What are they doing at 0 RPM?

_____

16. What are the blue dots doing at 50 RPM?

_____

17. Complete the statement: When electricity flows through a wire, the electrons in the wire _____.
    a. Move from the beginning of the wire until they hit the end
    b. Move continuously until they hit the light bulb then stop
    c. Move back and forth, but never really go to a new location

18. More ***magnet movement*** leads to more _____ _____ in the wire.

19. Now replace the lightbulb with the voltage meter (click on it). Change the loops down to one and observe the meter. Now change the loops to 3. How was it different?

_____

20. More loops lead to more _____.

21. When the water is off, (but high up in the pipe just waiting to move), this is called _____ energy.

22. The spinning of the wheel is called _____ energy.

23. The movement of electrons in the wire is called _____ energy.

24. The light bulb flashing is called _____ energy.