ELECTRICITY AND MAGNETISM TEST REVIEW Name: _____

Review Due Date: _____ Quiz Date: _____

This test will cover information about electricity and magnetism. It will consist of some multiple choice, fill-in-the-blank, diagrams, and short answer questions. You should review your DQs, labs, simulations, video notes, articles, and concepts from activities we've done. Be able to hit the following targets:

- *I can define and describe the key processes and particles involved in static electricity.*
- *I can define and apply the rules of charges to diagram how charged objects interact.*
- *I can interpret a scenario to determine the charge of an object.*
- *I can describe the key factors that affect the strength of electric and magnetic forces and fields.*
- *I can compare and contrast static electricity, current electricity, and magnetism and give examples of how they impact our lives.*

1. Objects with the same charge _____ each other.

A. repel C. magnetize

B. attract D. none of the above, depends on the objects

2. A material, like metal, that easily allows electrons to flow through it is known as a(n) _____.

A. insulator C. conductor

B. resistor D. sensor

3. When electrons "jump" from a charged object to another object, this is called _____.

A. charging C. static electricity

B. static discharge D. magnetism

4. If you're using the right materials, you can create static electricity easily using:

A. normal force C. friction

B. gravity D. applied force

5. Plastic is a good _____ when it comes to electric charge.

A. conductor C. resistor

B. inductor D. insulator

6. Current electricity is the constant flow of _____.

A. charges C. neutrons

B. protons D. electrons

7. When you use a wall outlet, you're using _____ current.

A. direct C. static

B. alternating D. discharge

8. A(n) _____ is the area around an electric charge that exerts a force on other charges.

A. resistor C. electric field

B. conductor D. generator

9. Electricity can only flow if it is in a closed path called an electrical _____.

A. conductor C. magnet

B. circuit D. voltage

10. The strength of an electric field is increased if you get _____ the charge.

A. further from C. less of

B. closer to D. none of the above

11. The electricity made with a battery only flows in one direction, so it is called _____ current.

A. alternating C. generated

B. true D. direct

12. Static electricity results from a(n) _____ of electric charges in an object.

13. The 3 particles in an atom are the _____, _____, and the _____. The _____ are the particles from the atom that move when an object is charged.

14. Charges and magnets both create an area of influence around them known as a(n) _____.

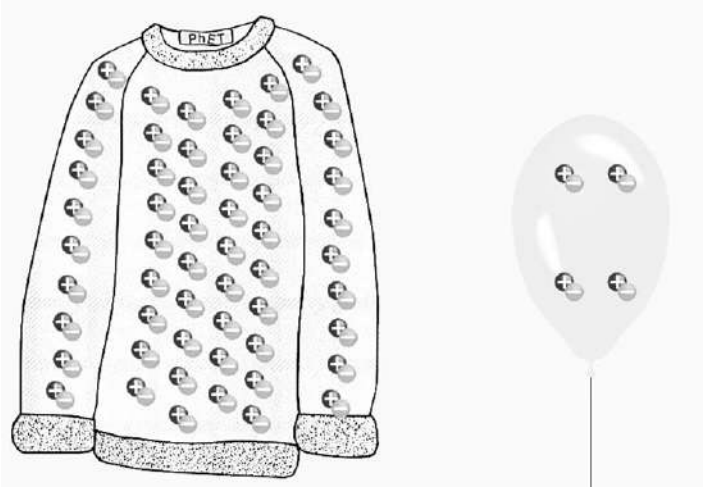
15. _____ electricity results from an imbalance of electric charges in an object.

16. These three elements are the main metals that have magnetic properties:_____ _____. Magnetism results from moving _____. Permanent magnets are able to create a persistent _____. Electromagnets, on the other hand, are only magnetic when _____.

17. The opposite ends of magnets are called _____.

18. Magnets and charges are similar because opposites _____.

19. The diagram below shows a balloon and a wool sweater. Draw a picture of what the balloon and sweater will look like (charges) after you rub the balloon on the sweater. What will this cause the balloon to do to the sweater?



In each scenario, identify each object as either: **Positive (+)** **Negative (-)** **Neutral (N)**
If there is no conclusive evidence, then select all the charges that could be true.

20. An object with more electrons than protons. _____

21. An object with more protons than electrons. _____

22. An object with an equal number of protons and electrons. _____

23. An object with more protons than neutrons. _____

24. A formerly neutral object that has just gained some electrons. _____

25. An object which attracts a positively charged cloth. _____

26. An object which attracts neutral paper pieces and attracts a negatively charged ruler. _____

27. An object which repels a positively charged cloth. _____

28. An object which attracts neutral paper pieces and attracts a positively charged cloth. _____

29. An object which attracts a negatively charged balloon and attracts a positively charged cloth. _____

30. A formerly neutral object that has just lost some electrons. _____

31. Electric and magnetic forces are invisible but very important for living things. Give a specific example of why electricity and magnetism are both needed for living things.

32. Little Billy is hoping to create a strong magnetic force. What are two things Billy could do to increase the magnetic force one permanent magnet has on a pile of paperclips?

33. Tanner has constructed an electromagnet using a battery, a nail, and some copper wire. What could they do to make their electromagnet more powerful? Why could an electromagnet be more useful than a permanent magnet?

34. Draw a simple electric field between a positive and negative charge. Describe what happens to the field's strength as you get further away from the charges.

35. What happens to the strength of the electric field if you **add more** positive and negative charges in the same locations as the original charges?

36. Create a simple flowchart of the steps/devices involved in a power plant generating electricity and sending it to your house.

Protons	Neutrons	Electrons	Static Electricity	Static/Electric Discharge	Electric Force	Rules of Charges (3)
Magnet	Magnetic field	Poles	Electromagnet	Generator	Motor	Circuit
Alternating current	Direct current	Permanent magnet	Current electricity	Neutral	Charge	Turbine
Repel	Attract	Friction	Conduction	Induction	Conductor	Insulator