

Name: _____ Block: _____ Date: _____

Benchmark III Study Guide

Study your notes from the following lessons:

1. How would one distinguish between mass and weight?
2. How do mass and distance influence the gravitational force between objects?
3. How is the motion of objects in the solar system affected by gravity?
4. What are the properties of magnets?
5. How are electricity and magnetism related?
6. How can you distinguish between the Earth's magnetic field, fields that surround a magnet, and an electromagnet?

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1. Define mass:
 2. Define weight:
 3. How are mass and weight different?
 4. List the correct units and tools of measure for mass and weight:
 5. What does the Law of Universal Gravitation state?
 6. If all objects have a gravitational pull, why do you not notice the pull of a pen or a pencil?
 7. What two properties affect the gravitational force of an object?
 8. Describe what would happen to the gravitational force in each of the following scenarios:
 - a. Increased mass:
 - b. Decreased mass:
 - c. Increased distance:
 - d. Decreased distance:
 9. Why does the moon orbit around the Earth instead of the other way around?
 10. What two forces must be present in order for an object to orbit?
 11. What would happen to an orbiting object if you removed gravity?
 12. What would happen to an orbiting object if you removed inertia?
 13. List the following in order from smallest to largest:
 - a. m, mm, km, cm:
 - b. g, kg, mg:
 14. Draw a diagram showing an object in orbit. Make sure to label gravity, inertia, and the path of orbit.
 15. Explain two ways that you could increase the amount of gravitational force between two objects. (This is assuming that the Law of Conservation of Mass does not exist. In this example you CAN create or destroy matter.)
 16. Define magnet: _____
 17. Define magnetism: _____
 18. List and describe the four types of magnets:
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 19. List five basic properties of magnets: _____

 20. List two ways to demagnetize a magnet: _____

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- 21. What do you end up with if you cut a magnet in half? _____
- 22. Define a domain: _____
- 23. Draw a picture that represents the domains of a substance that is magnetized, and one that is not.



- 24. What is the magnetic field of a magnet? _____
- 25. How can you make the magnetic field of a magnet visible? _____
- 26. What is the name of the Earth's magnetic field? _____
- 27. List two effects of the Earth's magnetic field: _____
- 28. The marked end of a compass always points _____. Is the needle of the compass pointing to Earth's geographic north? Explain why/why not. _____

- 29. What do electric currents, solenoids, bar magnets, and the Earth have in common? _____

- 30. Who discovered that wires containing electric current have magnetic fields? How did he/she discover this information? _____

- 31. Draw and label an electromagnet. (On the magnet, make sure the solenoid, battery, iron core, and magnetic field are labeled.)
- 32. Draw and label TWO versions of an electric generator. (Be sure to label all of the parts.)
- 33. A coil of wire with an electric current in it is called a(n) _____.
- 34. List two ways to strengthen the magnetic field of an electromagnet:
 - a. _____
 - b. _____
- 35. When a magnet (iron core) moves through a wire coil (solenoid) a(n) _____ is created.
- 36. When wires spin or alternate between two magnets _____ is created.