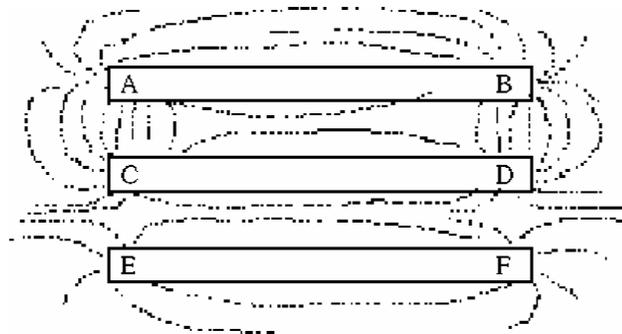


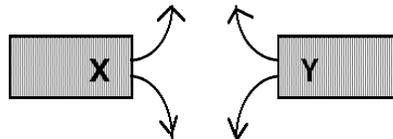
PracTest - Electromagnetism

- The first to show a connection between electricity and magnetism was high school physics teacher
 - Nikola Tesla
 - Michael Faraday
 - Henry Cavendish
 - Benjamin Franklin
 - Hans Christian Ørsted
 - Dean Baird
- Magnetism in rare-earth permanent magnets is due to
 - electron spin motion
 - proton spin motion
 - electron orbital motion
 - proton orbital motion
 - polarized magnetic charge
 - separation of magnetic monopoles
- Dropping a permanent magnet
 - strengthens its magnetic field
 - weakens its magnetic field
 - has no effect on its magnetic field
 - would feel good if it hit your toe
- Do NOT write on this sheet! Examine the diagram below. It depicts three permanent magnets lying side by side. Iron filings have been sprinkled near the magnets.



Pole B is the same as poles

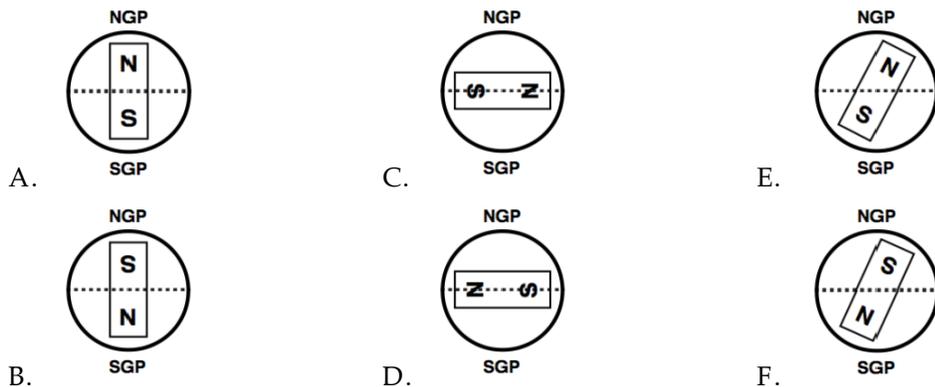
- C and E
 - D and F
 - C and F
 - D and E
 - B, C, and F
 - C, D and E
- Two magnets are shown below. The magnetic field between them is indicated by the arrows.



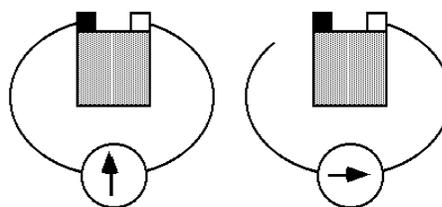
Identify the pole labeled "Y"

- North
- South
- could be either north or south
- is neither north nor south

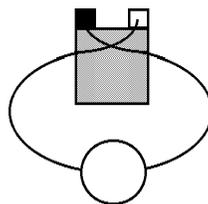
6. Which diagram below most accurately depicts the model for Earth's magnetism? [ngp = north geographic pole, sgp = south geographic pole]



Consider the arrangement shown. When a wire is connected to the terminals of a battery and passes beneath a compass, the needle of the compass points as shown in the first diagram. When the wire is disconnected, the needle of the compass points as shown in the second diagram.



7. If the arrangement were changed as shown to the right (so that the wire's connections to the battery are reversed), which way would the compass needle point? (Notice the compass is above the wire.)



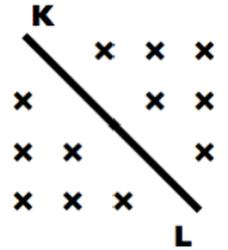
8. A proton accelerated through space is surrounded by its own

- | | | |
|------------------------|--------------------|---------------------|
| I. gravitational field | II. electric field | III. magnetic field |
| A. I only | C. I and II only | E. II and III only |
| B. II only | D. I and III only | F. I, II, and III |

9. If electric current flowed through a vertical wire from the bottom to the top of this page, the magnetic field to the right of the wire would be

- | | | |
|---------|----------|---------------|
| A. up | C. right | E. in/away |
| B. down | D. left | F. out/toward |

10. The magnetic field around a current-carrying wire is shown to the right. What is the direction of the current?



- A. From K to L
 B. From L to K
 C. Could be either K to L or L to K
 D. Neither K to L nor L to K
11. [The Backbone of Night] Not all worlds are spherical: you can have big departures from a sphere if _?_.
 A. you're far enough from the sun
 B. you're smaller than Mt. Everest
 C. your temperature is high
 D. if your gravity is low
12. [The Backbone of Night] Plato's followers succeeded in _?_ the light of science and experiment that had been kindled by the earlier Ionians.
 A. fueling
 B. broadcasting
 C. extinguishing
 D. maintaining
13. [Mechanical Universe-Magnetic Fields] Earth's magnetic field protects the surface from _?_ originating in the sun and outer space.
 A. charged particles
 B. cosmic radiation
 C. electric fields
 D. magnetic radiation
14. [Mechanical Universe-Magnetic Fields] If a solenoid is bent into a circle, the doughnut it forms is called a _?_.
 A. cardioid
 B. helix
 C. klothoid
 D. toroid
15. [Magnetic Storm] According to the geophysicist, the Earth's magnetic field will
 A. continue as long as the planet exists.
 B. last only into the next millennium.
 C. fluctuate with increasing intensity.
 D. become stronger, threatening life.
16. [Magnetic Storm] The impact regions of Heelis and Argyre provided evidence that the magnetic field of Mars _?_ four billion years ago.
 A. dramatically increased
 B. dramatically decreased
 C. reversed polarity
17. [Magnetic Storm] One effect Earth inhabitants might enjoy during a reversal is
 A. compass needles will spin like propellers.
 B. birds no longer migrate.
 C. auroras become visible in more places.
 D. fluorescent dyes will glow day and night

PracTest - Electromagnetism

Answer Section

MULTIPLE CHOICE

- | | | |
|------------|--------------------------------|---------------|
| 1. ANS: E | TOP: Magnetism People | NOT: PracTest |
| 2. ANS: C | TOP: Magnets | NOT: PracTest |
| 3. ANS: B | TOP: Magnets | NOT: PracTest |
| 4. ANS: A | TOP: Magnets | |
| 5. ANS: A | TOP: Magnets | |
| 6. ANS: F | TOP: Geomagnetism | NOT: PracTest |
| 7. ANS: D | TOP: Magnetic Field Directions | NOT: PracTest |
| 8. ANS: F | TOP: Magnetic Fields | NOT: PracTest |
| 9. ANS: E | TOP: Magnetic Field Directions | NOT: PracTest |
| 10. ANS: D | TOP: Magnetic Field Directions | |
| 11. ANS: D | TOP: The Backbone of Night | |
| 12. ANS: C | TOP: The Backbone of Night | |
| 13. ANS: A | TOP: MU-Magnetic Fields | |
| 14. ANS: D | TOP: MU-Magnetic Fields | |
| 15. ANS: B | TOP: Magnetic Storm | |
| 16. ANS: B | TOP: Magnetic Storm | |
| 17. ANS: C | TOP: Magnetic Storm | |