

WebLab: Magnetic People, Places, and Things

PERIOD	1.		
	2.		
GROUP	3.		
	4.		

• Instructions •

1. Identify and answer your lab group's questions below. If a question prompt includes your group's letter, research the answer using the web.
2. Once you have answered your group's questions, obtain the answers to all other questions from the groups responsible for those questions.

• People •

G. a. What is the name of the 1200's French crusader who shaved a magnet into a sphere and observed magnetic poles? His letter on magnetism is considered a major scientific work for the era (Middle Ages). The European Geosciences Union awards a medal each year in his name.

b. What southern Italian city did his forces lay siege to during The Crusades?

B. a. Rearrange the letters in the phrase "I'M LARGE WIT BILL" to spell the name of an important early investigator of magnetism. He was also Queen Elizabeth I's doctor. (Hint: this is an "anagram.")

b. What is the name of the book in which he published his findings on magnetism?

A. a. Rearrange the letters in the phrase "THE SATANIC HORRIDNESS" to spell the full name of the Danish high school physics teacher who made an important discovery about magnetism in 1820.

b. What was the finding? (The finding itself has nothing to do with wires or compass needles; identify it in terms of general principles.)

D. In 1831, it was shown that changing magnetic fields produced electric fields. In other words, magnetism could be used to induce electricity.

a. Who established this finding?

b. What unit of measure is named in his honor (and what quantity does it measure)

c. What is the name of his mentor (who tried to take credit for this finding)?

H. Who is the physicist whose "electrodynamics" linked electricity with magnetism. The unit of electric current is named in his honor. Write his first, middle, and last name, *si'l vous plait*.

F. a. What do Maxwell's Equations establish in strict, mathematical terms?

b. What are Maxwell's first and middle names?

c. What was his nationality?

C. The unit of magnetic field strength is named in honor of the physicist/inventor who defeated Thomas Edison in The War of the Currents.

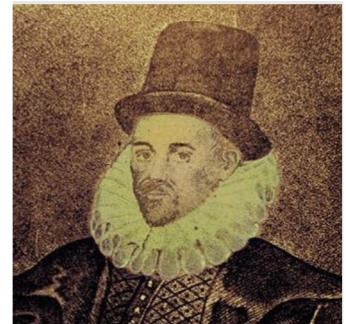
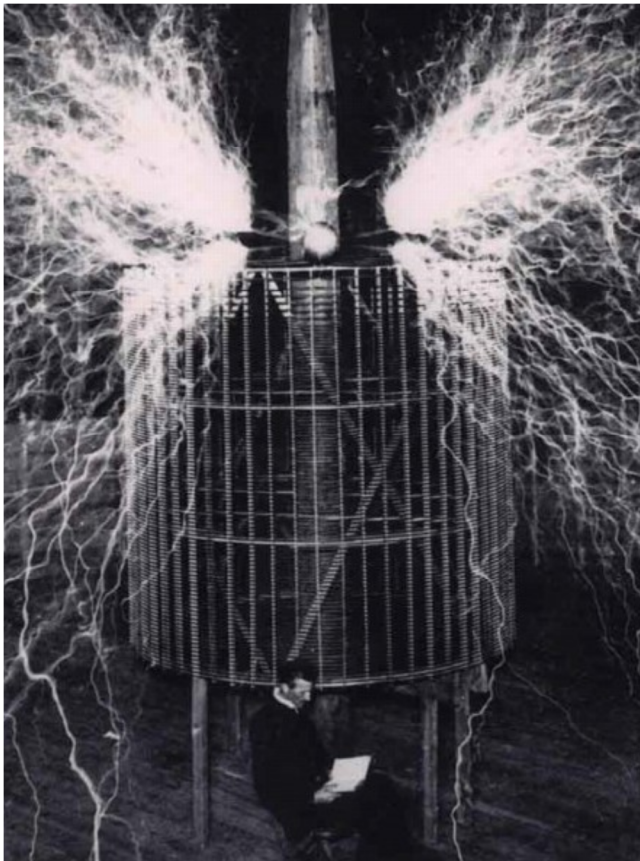
a. Who is he?

b. Where was he born?

c. Where did he die?

d. What US city is home to the rock band that bears his name?

E. Identify the "Magnetic Person" in each illustration, portrait, or photograph. (Hints: choose from Ampere, Edison, Faraday, Gilbert, Maxwell, Oersted/Ørsted, Peregrinus, and Tesla. Only five are shown below.)



• **Places** •

All. a. What name was given to naturally occurring magnets in earlier times?

b. What was the principal constituent of the ore that such magnets were composed of?

AF. a. Where does the name "magnet" come from? This is the historical name of a geographical location.

b. In what modern day country is this place?

BG. a. What's the difference between true north and magnetic north?

b. What name is given to difference between true north and magnetic north as measured by a compass?

c. What does a dip needle measure?

CD. Draw a diagram of the world. Label the North and South Poles, the Equator, Magnetic North and Magnetic South. Correctly identify the magnetic polarity of each magnetic pole.

DH. a. What has happened to magnetic north throughout the history of the earth?

b. How do we know this?

All. Animals with strong navigational abilities have been found to have a certain mineral in their bodies that allows them to sense the earth's magnetic field.

a. What is the name of this mineral?

b. Which animals possess it?

• Things • Permanent Magnets and Poles

CE. Natural magnets were once worth their weight in gold. What made them so valuable?

FG. a. What is a magnetic domain?

b. Are stronger magnets the ones with more domains or the ones with fewer? Explain.

BD. What happens if you break a bar magnet in half (at its midpoint)?

AH. What are magnetic monopoles? When was the first monopole observed and by whom?

• Things • Electromagnetism

DF. Why are some materials magnetic?

CG. Why aren't all materials magnetic?

BH. What is the nature of electron spin in ferromagnetic materials?

AE. How do electrons account for magnetism in rare-earth magnets?