Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_ Hour\_\_\_\_\_\_\_\_

**Electricity and Magnetism Extra Credit**

1. Get your ASSIGNED Chromebook and on my blog you will find a link for “Electricity and Magnetism”. Click on the link <https://www.nde-ed.org/EducationResources/HighSchool/Magnetism/magnetismintro.htm>

2. Each page and answer the questions using complete sentences with a restate

Introduction to the Mystery of Magnetism

A. What are three common items that rely on magnetism to work?

-

-

-

Magnetic Behavior

A. What is the simulation showing you?

B. What is a magnet?

C. What are materials that can become magnetized called?\*\*

D. What is magnetism?\*

Magnetic Properties

A. Use the scissors to cut the magnet

B. How many cuts can you do before the magnet no longer acts like a magnet?

C. Read the discussion; Why do you think copper keys or aluminum soda cans cannot be magnetized?\*\*

Review of the Atom

A. Has the model of the atom always been the same? Explain\*

B. How is the Earth similar to and different from an atom? \*

C. What is Quantum theory? \*\*

D. Draw a labeled picture of an atom

Creation of Magnetic Fields

A. Define a magnetic field

Electron Pairing

A. What are paired electrons?

B. What are diamagnetic materials?\*\*

Magnetic Domain

A. Click and Drag the magnet across the metallic strip.

B. What is happening to the piece of metal?

C. What do the arrows represent when before and after you drag the magnet across?\*\*

D. Could you turn a paperclip into a magnet? Explain.

The Two Ends of A Magnet

A. Click “start Animation” on experiment 1

B. Describe or draw what happened

C. Click “start Animation” on experiment 2

D. Describe or draw what happened

E. Click on “start Animation” on experiment 3

F. Describe or draw what happened

G. What is the needle of a compass? \*

H. How are the Earth and a magnet similar\*

I. Describe what you are seeing in the last picture\*

Magnetic Lines of Force

A. Review the picture and go on to the next slide

B. What is the magnetic lines of force? \*\*

Magnetic Fields

A. Read the description above Box A

B. Read the descriptions for each Box and review the pictures.

C. What patterns do you notice about each picture?

D. Are the iron particles magnetized? How do you know? \*

E. Explain the difference between Box B and Box C.\*\*

Ferromagnetic Materials

A. Review the demonstration and move on

Electromagnets

A. Click on the “Raise/Lower” lever to start the animation

B. Describe an electromagnet.

Electricity and Magnetism

1. What happens to the compass needle as the compass moves around the wire carrying electrical current?

2. Why do you think this happens?

More on Electricity and Magnetism

1. If electricity produces magnetism, can magnets produce electricity?

2. Why is electromagnetic induction important to us?

3. How does a magnet help a generator convert mechanical energy into electrical energy?

Magnetism and the Direction of Current Flow

1. What happens each time you reverse the electrical current in the wire?

2. What would happen if we used alternating current (AC) instead of direct current (DC) in the wire?

The Electric Motor and Magnetism

1. How does magnetism make an electric motor operate?

The Use of Magnetism in NDT

1. How is magnetism used in NDT?