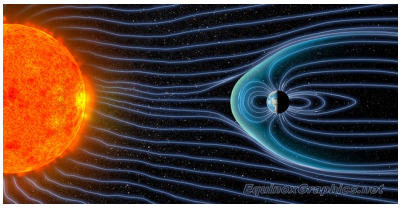
1

EARTH'S MAGNETIC FIELD

2

Introduction Video

- What is the Earth's Magnetic Field?
  https://www.youtube.com/watch?v=yEYy_nVC4L0
- Earth's Magnetic Field extends from Earth's interior and has two poles (north and south).



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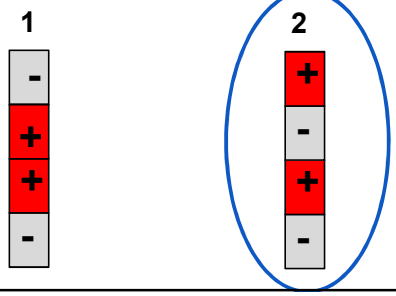
Magnets

- Which picture shows the correct attraction between two magnets?



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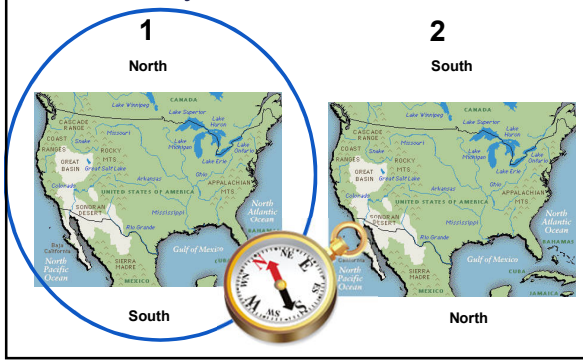
Which Way is North?



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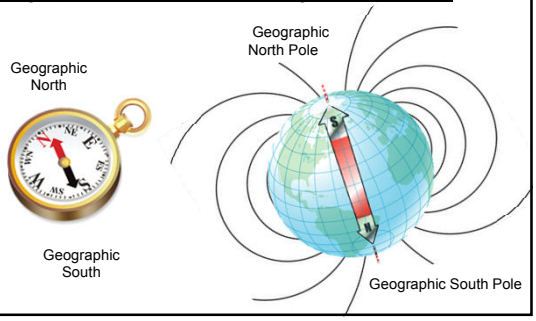
Back to Our Compass….

- Geographic North Pole is at the magnetic South Pole



6

How does it work?

- Scientists are unsure how the Earth's magnetic field works.
- Current Hypothesis:
  - Forms due to rotational motion of the Earth and convection of liquid iron core.
- Convection is similar to a lava lamp.

7

Why do we need it?

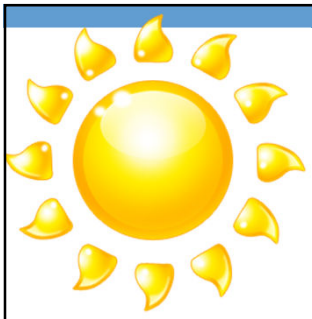
- Review: What was the role of Earth's atmosphere in relation to electromagnetic radiation?
  - Protect/filter the radiation from the Sun
- The Sun and other events such as exploding stars can also emit cosmic radiation
- Cosmic Radiation are very energetic particles

8

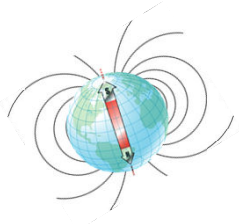
Today's Main Idea

Earth's magnetic field protects the planet from harmful effects of radiation, especially cosmic radiation.

9



Lines of Defense



1. First Line of Defense = Magnetic Field
2. Second Line of Defense = Atmosphere

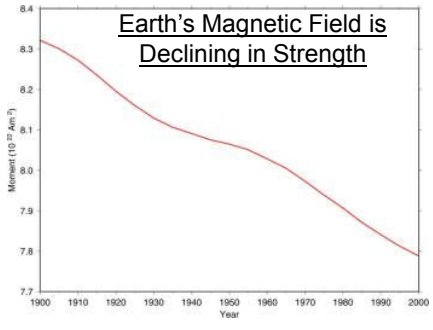
10

How long will it last?

- Magnetic Field Reversal: https://www.youtube.com/watch?v=igGsuDYxhEA

11

Earth's Magnetic Field: What Trends Do You See?



12

Let's Apply…

- What effects do you think will happen when Earth's field vanishes temporarily for a few decades or centuries before it reverses direction?

Think about it to yourself
Discuss your ideas with your partner
Share with the class

13

Homework

2. Explore today's main idea with this question:
   How is an aurora formed?

Helpful Textbook Page: 807

Vocabulary for Next Time

- Photosynthesis
- Glucose

Helpful Textbook Pages: 683 and Dictionary