8th Grade Science Round 2

Week of: 4/13 - 4/17	Hi-Tech: Science	Lo-Tech: Science	No-Tech: Science
Monday (April 13, 2020)	1. Watch https://youtu.be/Rv7zT953290 2. Respond to one of the following questions using Flipgrid. 1. Discuss How Earth's Magnetic Field is formed. 2. Discuss How Earth's magnetic field changed over time. 3. Discuss how Earth's magnetic field protects the earth. Join in on the **Zoom meeting** with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.	1. Watch the https://youtu.be/Rv7zT953290 2. Respond to one of the following questions in a complete paragraph. Submit your paragraph to canvas, or email to your science teacher. 1. Discuss How Earth's Magnetic Field is formed. 2. Discuss How Earth's magnetic field changed over time. 3. Discuss how Earth's magnetic field protects the earth. Join in on the **Zoom meeting** with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.	1. Complete a KWL chart for the Earth's Magnetic Field. 2. Read and Respond. https://docs.google.com/document/d/1nFkK813rVBHWeX_qdufmlcp1eeWtcvX2x-FTB5wrUcE/edit?usp=sharing Join in on the **Zoom meeting** with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.

Thursday April 16, 2020	1. Look at the following website and get some ideas for what an infographic looks like. a. https://visual.ly/community/Infographics/science/how-big-and-powerful-really-sun 2. Your task: create an infographic about the Earth's magnetic field. 3. You may use the website https://piktochart.com/formats/infographics/ or a website like Canva to create your infographic if you would like. a. Your infographic needs to include the following: i. Title ii. Image of the Earth's Magnetic field ii. Who discovered the Earth's magnetic field v. At least 5 facts about the Earth's magnetic field v. Min of 2 images related to the Earth's Magnetic	1. Look at the following website and get some ideas for what an Infographic cover looks like. a. https://visual.ly/community/Infographics/science/how-big-and-powerful-really-sun 2. Your task: create a infographic for the Earth's Magnetic Field" 3. Write a paragraph explaining: a. At least three facts on the scientist who discovered the Earth's Magnetic Field. b. Why is the Earth's Magnetic Field Important? c. What would Earth be like without a magnetic Field? Join in on the Zoom meeting	1. Look at the examples of infographics on the attached page. 2. You have two options: Option 1: Write a paragraph explaining: a. At least three facts on the scientist who discovered the Earth's Magnetic Field. b. Why is the Earth's Magnetic Field Important? c. What would Earth be like without a magnetic Field? Option 2: Draw your own infographic on a sheet of paper and turn it in, containing: a. Infographic Title b. Image of Earth's magnetic Field c. At least two facts about the Earth's Magnetic Field.

	Field. Join in on the **Zoom meeting** with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.	with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.	Join in on the **Zoom meeting** with your teacher to ask questions and dig deeper into the Earth's Magnetic Field.

Hello!

Thank you for working so diligently on our Astronomy unit. For the next week, we are focused on furthering your understanding of the importance of the Earth's Magnetic Field. Attached you will find the activities and readings to go with this week's lesson. You will begin Monday by completing a KWL chart on Earth's magnetic field and then reading an article on the Earth's Magnetic Field. Finally, you will answer a couple of questions. You will end the week by creating an infographic for the Earth's Magnetic Field. We encourage you to get creative. Please do not stress about the assignments. Just do your best. Do not hesitate to reach out to your 8th Grade Science teachers with any questions or concerns.

Have a great week!

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Thursday: Core 2 (10:00)
Core 4 (10:30)

Wednesday by appointment

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Wednesday by appointment

Monday April 13, 2020

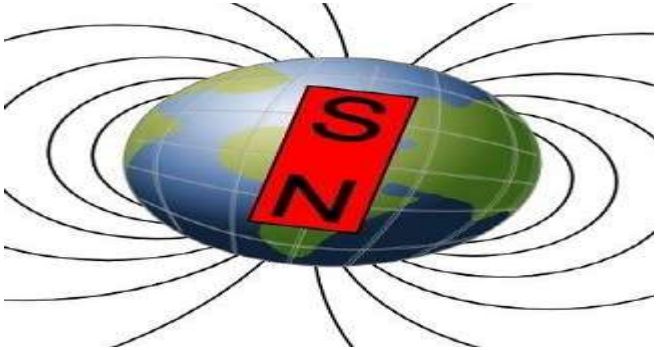
I. Complete the KWL chart

K (What you know about Earth's Magnetic Field) ****Before reading the article****	**W** (What you want to know about Earth's Magnetic Field) ****Before reading the article****	**L** (What you learned about Earth's Magnetic Field) ****After reading the article****

II. Complete the Read and Respond Activity.

Earth's Magnetic Field

Did you know that what we call the North Pole is also near the South Pole? Confusing, but true. The North Pole is a geographic place, and the South Pole I am talking about is the Earth's southern magnetic pole. Opposite ends of magnets attract each other, and the north end (usually red) of compass points north towards Earth's southern magnetic pole. In addition, the North Pole is in the Arctic Ocean and is aligned with the North Star. Earth's south magnetic pole is drifting around somewhere in Northern Canada.



Some might think that there is a giant bar magnet deep down in the Earth which isn't the case as far as we know, but it serves as an analogy in explaining the magnetic field lines. Let's learn more about Earth's magnetic field.

Formation

Studying earthquakes and seismic waves has led to the discovery that the Earth has different layers: the crust, mantle, outer and inner core. The two cores are the innermost layers, and the outer core is responsible for the formation of the Earth's magnetic field.

The outer core is predominantly composed of molten iron while the inner core is solid iron, and nickel. The intense mass of material above the inner core is responsible for its solid state. The pressure on the outer core isn't enough to make it solid. We know the Earth is spinning because we experience daytime and nighttime. The outer core spins too, but it may spin at a different rate the rest of the earth.

Also, radioactive decay adds to the extreme heat at this depth causing convection currents. Convection currents are all about density differences caused by heat differences. Think of see-through pot on the stove. Pour in water, some small, frozen vegetable cubes, and turn on the heat. When the water boils you see the vegetables cycling from the bottom of the pot to the top, and then sinking.

The movement of liquid iron in the outer iron core generates an electric current, which induces a magnetic field.

Changes in Magnetic Field

Evidence exists in the rocks formed at the Mid-Atlantic Ridge indicating that Earth's magnetic field reverses roughly 200,000 years, but it is not at constant intervals. The Mid-Atlantic Ridge is a divergent plate boundary where molten rock high in iron content reaches the surface and solidifies. The iron particles align with the Earth's magnetic field before the lava solidifies. The newly formed rocks get pushed away leaving room for more lava to solidify, and a banding pattern is formed. Some rocks indicate the North Magnetic Pole was the North Geographic Pole, and others show the North Magnetic Pole was the South Geographic Pole.

Answer the following questions:

1. Where is the Earth's Magnetic field thought to be generated?
    a. The crust of the Earth
    b. The outer Core
    c. The sun
    d. The Upper Mantle

2. What is a convection current?
    a. Radiation absorption from the sun
    b. A process in fluids whereby cold fluid rise, and warmer fluid sinks
    c. Reversal of magnetic fields
    d. A process in fluids whereby warm fluid rise, and cooler fluid sinks

3. What serves as proof that Earth's magnetic field reverses?

a. The rock record from the Mid-Atlantic Ridge
b. The chemistry of the outer core
c. The color of the Auroro Borealis
d. The change in radioactive decay in the core

4. How does the Earth's magnetic field protect the Earth? (Respond with 1-3 complete sentences).

Thursday April 16, 2020

Earth's Magnetic Field Infographic

Your task: create an infographic for the Earth's Magnetic Field Choose one of the options below.

Option 1: Write a paragraph explaining:

a. At least three facts on the scientist who discovered the Earth's Magnetic Field.
b. Why is the Earth's Magnetic Field Important?
c. What would Earth be like without a magnetic Field?

Option 2: Draw your own infographic on a sheet of paper and turn it in, containing:

a. Infographic Title
b. Image of Earth's magnetic Field
c. At least two facts about the Earth's Magnetic Field.

Infographic Examples