

Monday, January 28, 2019

Your Learning Goal: Students will observe magnetic fields with the aid of a compass and iron filings making connections between that and the magnetic field on Earth.

Table of Contents:

Spatial Attraction- 29L + R

Catalyst (29L): What are your experiences with magnets/magnetism? What causes something to be magnetic?



Homework:
Complete the LEAF paragraph



Agenda:

1. Catalyst
2. Magnetic Field Lines
3. Iron Filings
4. LEAF

Table of Contents

<u>Date</u>	<u>Assignment</u>	<u>Pg #</u>
1/22/19	A Planet is Born	27L + R
1/24/19	Scaling the Planets	28L + R
1/29/19	Spatial Attraction	29 L+ R

1/28/19

Catalyst:

What are your experiences with magnets/magnetism?

What causes something to be magnetic?

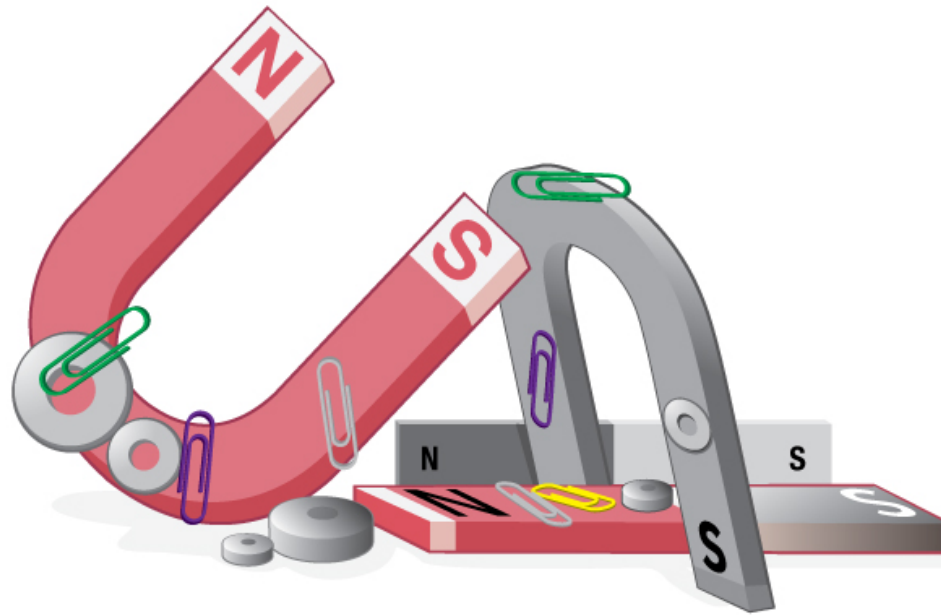
Spatial Attraction

Item	Magnetic / Not Magnetic
Tin Foil Ball	
Bull Clip	
Washer	
Paper Clip	
Penny	
Nickel	

29L

29R

What types of things are magnetic?



29R

Item	Magnetic / Not Magnetic
Tin Foil Ball	
Bull Clip	
Washer	
Paper Clip	
Penny	
Nickel	

1/28/19

Catalyst:

What are your experiences with magnets/magnetism?

What causes something to be magnetic?

29L

Spatial Attraction

Item	Magnetic / Not Magnetic
Tin Foil Ball	
Bull Clip	
Washer	
Paper Clip	
Penny	
Nickel	

What were some patterns you noticed about what objects were magnetic and which were not?

29R

What is a Compass & How does it work?



Place your compass near different parts of the bar magnet and observe the changes to your compass.



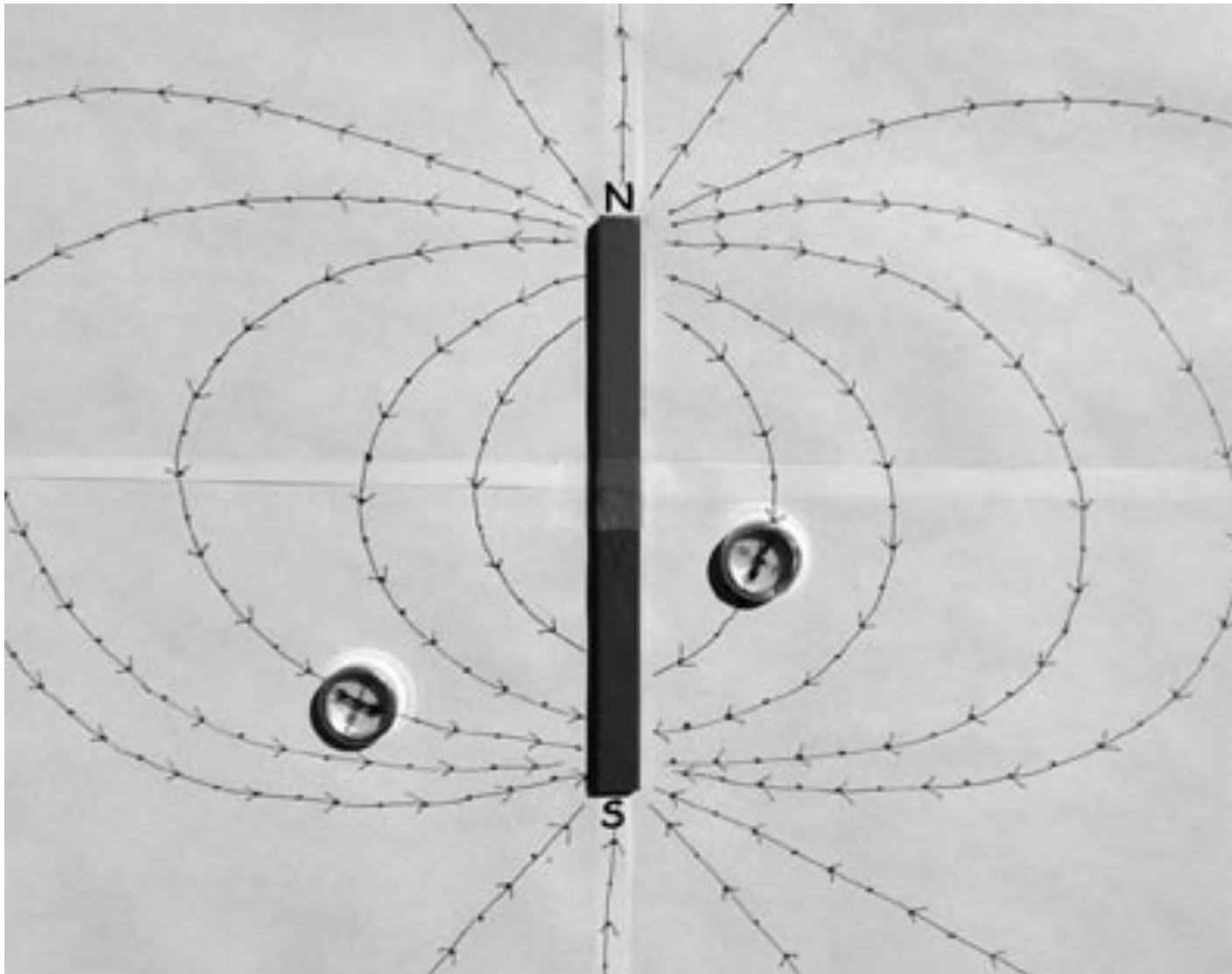
Discovering Magnetic Fields

- **Place Bar Magnet in the center of your paper.**
- **Trace your magnet and Label N and S.**
- **Draw a dot somewhere on your paper near the magnet and place the center of your compass over the dot.**
- **Draw a NEW dot where the N is pointing on your compass.**

Discovering Magnetic Fields

- 1. Move the compass to the center of the new dot**
- 2. Draw a NEW dot at the location of the compass needle head or tail.**
- 3. Draw lines connecting the dots with arrows indicating the direction that the compass points.**
- 4. Continue steps 1 -4 until the lines meet the magnet or the edge of the paper.**

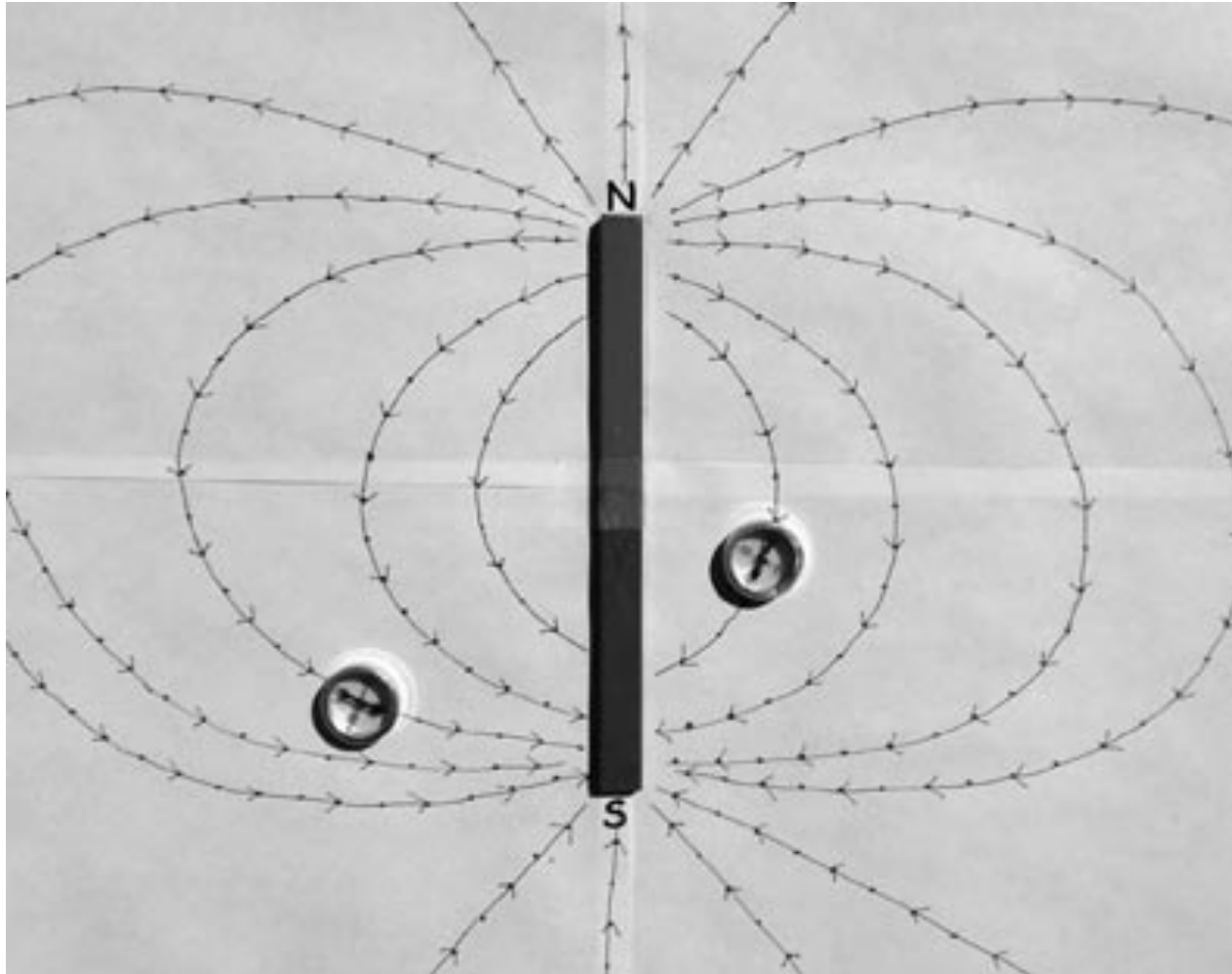
Did you See Something Like This?



These are Magnetic Field Lines

Try It Out

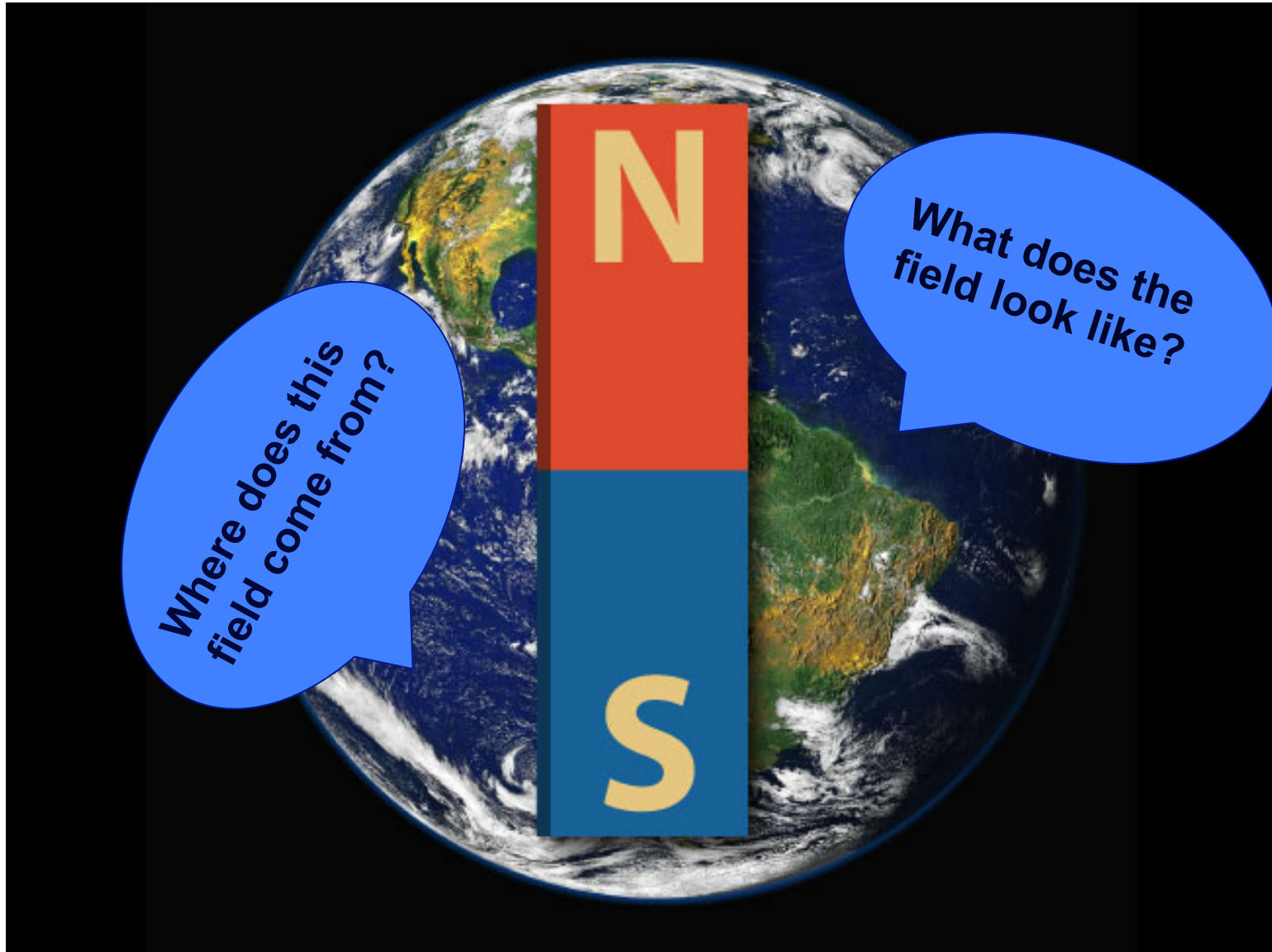
Place two magnets on the Sheet of Paper, sprinkle on Iron Filings



Draw what you see!

29R

Earth is like a magnet!



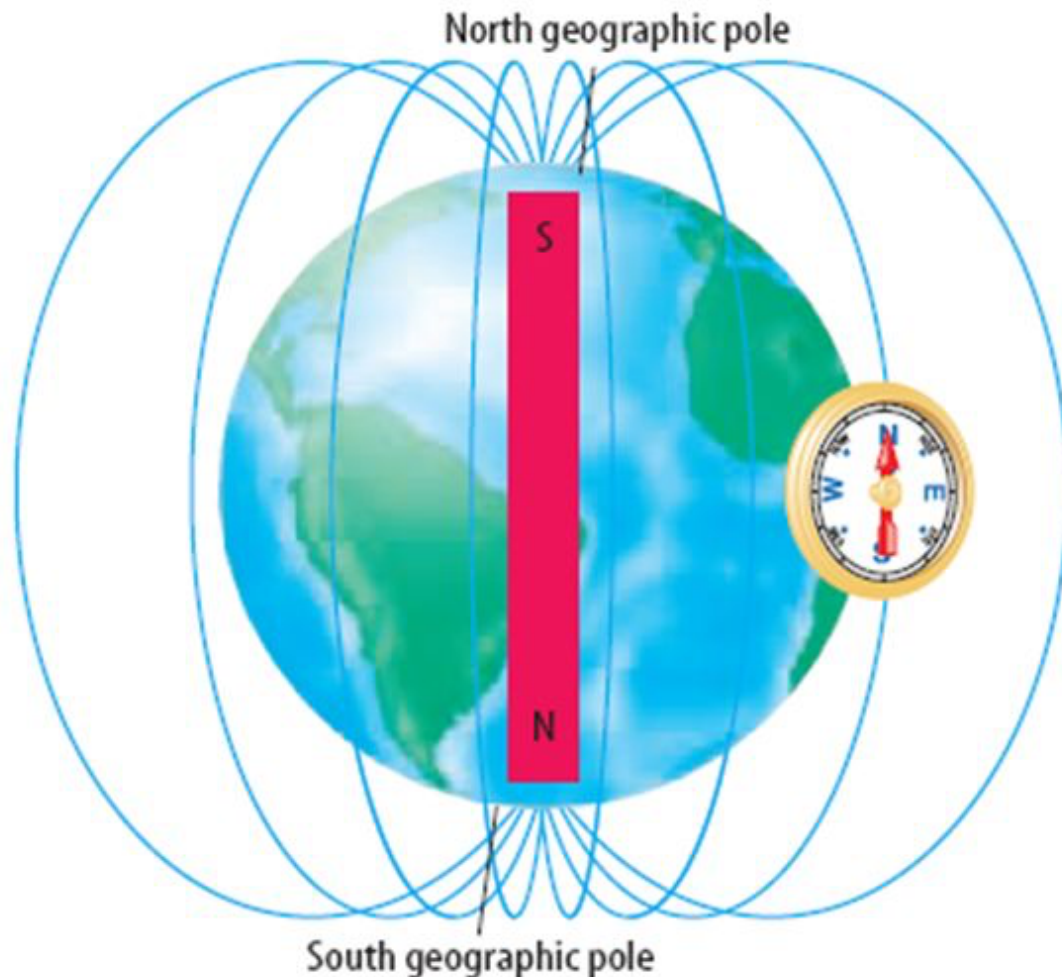
Earth Has a Magnetic Field



- On Earth, flowing of liquid metal in the outer core of the planet generates electrical currents.
- The rotation of Earth on its axis causes the electrical currents to form a magnetic field.

The earth is like a giant magnet!

The nickel iron core of the earth gives the earth a magnetic field much like a bar magnet.



Because the Earth's magnetic North Pole attracts the "north" ends of other magnets, it is technically the 'south pole' of our planet's magnetic field.

How do compasses work?

Catalyst:

What are your experiences with magnets/magnetism?
What causes something to be magnetic?

1/28/19

Spatial Attraction

Object	Magnetic?
1.	
2.	
3.	

What patterns do you notice in the objects that were magnetic vs those that were not?

Catalyst:

What are your experiences with magnets/magnetism?

What causes something to be magnetic?

LEAF:

How were your sketch of the magnetic field lines with the compass similar to the image created with your iron filings? How does this relate to our Earth's magnetic field?

29L

1/28/19

Spatial Attraction

Object	Magnetic?
1.	
2.	
3.	

What patterns do you notice in the objects that were magnetic vs those that were not?

29R