

Name \_\_\_\_\_

# What Does a Magnet Attract?

<b>Object Tested</b>	<b>Will it be attracted to the magnet?</b>	<b>Attracted</b>	<b>Not attracted</b>
1. aluminum nail (light gray)			
2. balloon (deflated)			
3. button			
4. can lid (steel)			
5. copper strip			
6. cork stopper			
7. metal washer			
8. paper clip			
9. paper fastener (brass)			
10. plastic foam			
11. plastic spoon			
12. scallop shell			
13. steel nail (dark gray)			
14. wooden cube			

# Can the Force Go Through It?

<b>Object Tested</b>	<b>Do you think it will block the force?</b>	<b>Did it block the force?</b>
1. aluminum foil square		
2. aluminum nail (light gray)		
3. balloon (deflated)		
4. button		
5. can lid (steel)		
6. cloth square (flannel)		
7. copper strip		
8. cork stopper		
9. finger		
10. metal washer		
11. paper fastener (brass)		
12. plastic bag		
13. plastic foam		
14. plastic spoon		
15. scallop shell		
16. steel nail (dark gray)		
17. wooden cube		

# How Strong Is the Force?

Magnet	Guess	Number of paper clips lifted			
		Trial 1	Trial 2	Trial 3	Average
rod magnet, dotted end					
rod magnet, undotted end					
small magnet, dotted end					
small magnet, undotted end					

1. Which end (dotted or undotted) of the rod magnet is stronger?

\_\_\_\_\_

2. Which end (dotted or undotted) of the small magnet is stronger?

\_\_\_\_\_

3. Which magnet is stronger?

\_\_\_\_\_

Name \_\_\_\_\_

# How Strong Is the Force?

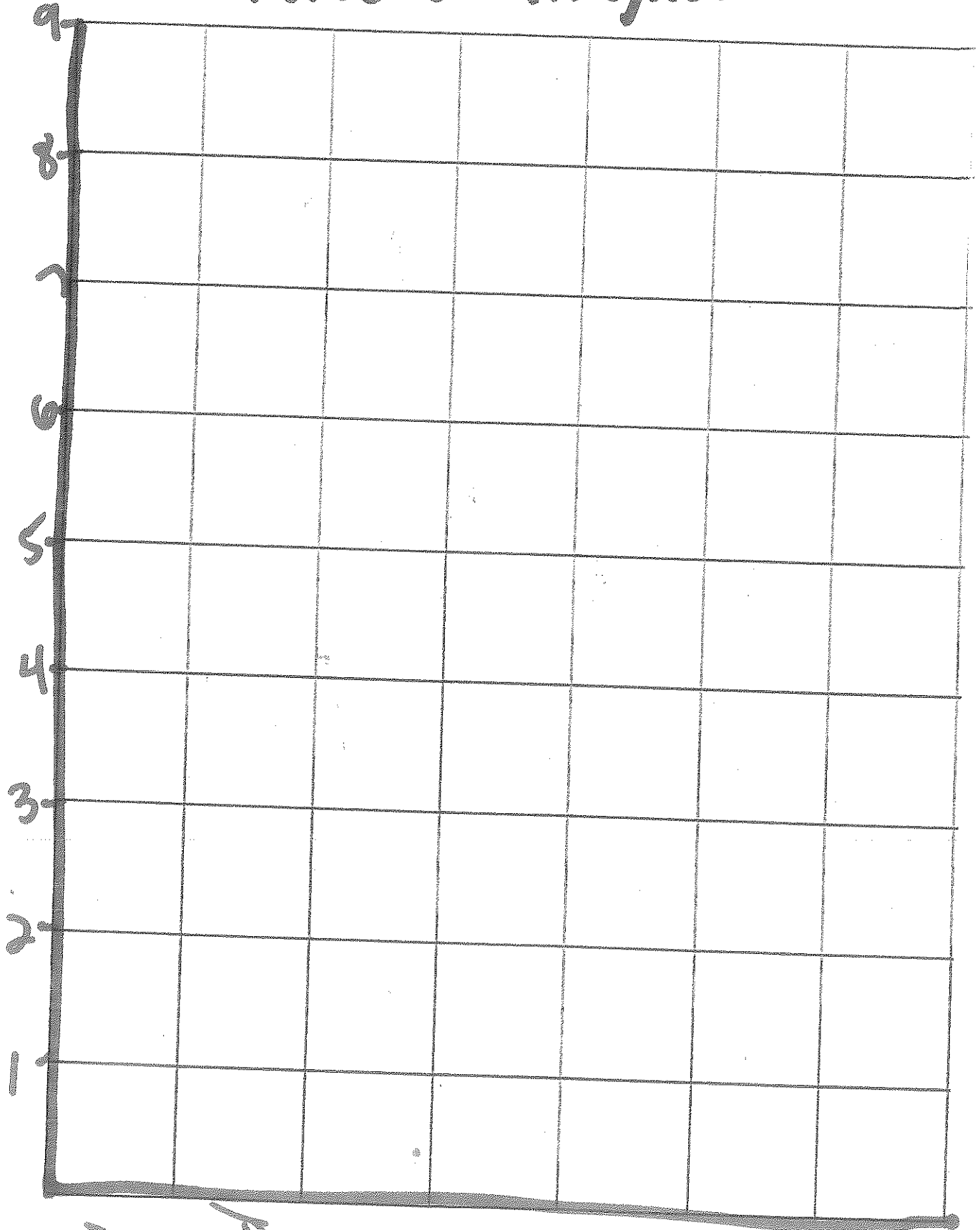
Magnet	Guess	Number of paper clips lifted			
		Trial 1	Trial 2	Trial 3	Average
rod magnet, middle					
small magnet, middle					

4. Did the ends or the middle hold more paper clips?

\_\_\_\_\_

# Force of Magnets

# of paper clips

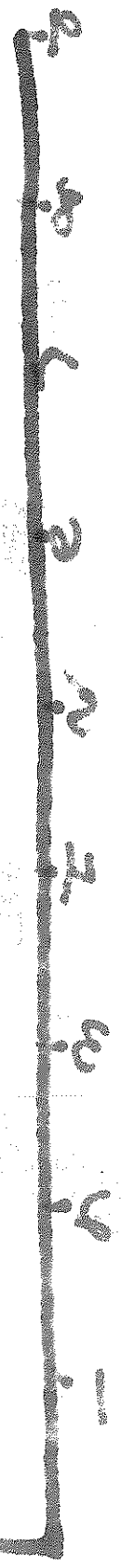


Rod-dotted

Rod-undotted

Force of Moments

29113 10509 78 47



10-10-10

10-10-10

10-10-10

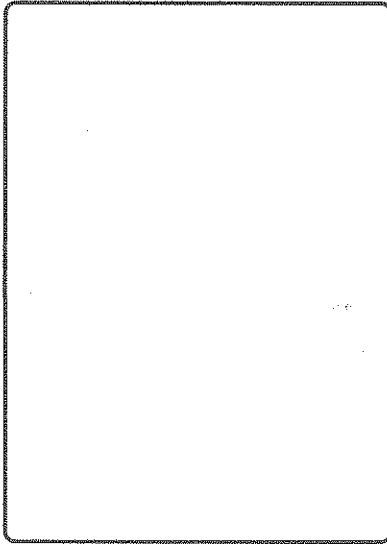
Name \_\_\_\_\_

# Magnetic Fields

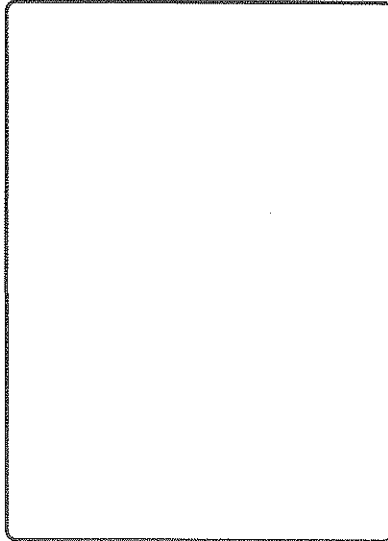
For each magnet, make three sketches of the patterns made by the iron filings. Compare your sketches with those of other students. Put an X in the box that shows the most common pattern.

## Small Magnet

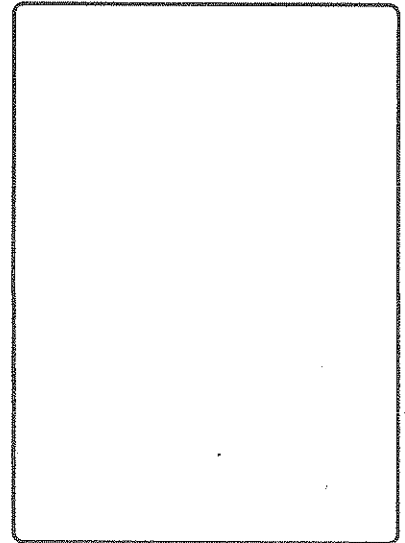
Picture 1



Picture 2

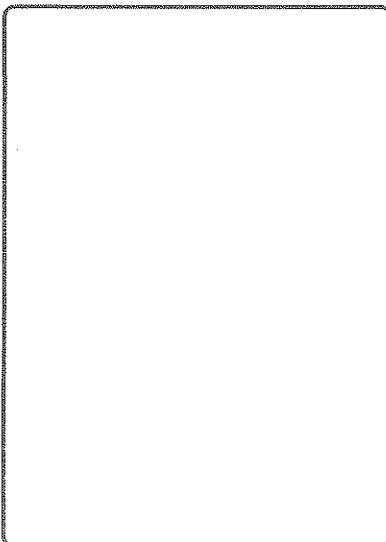


Picture 3

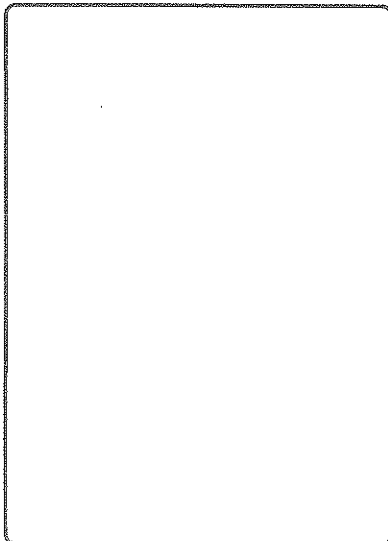


## Rod Magnet

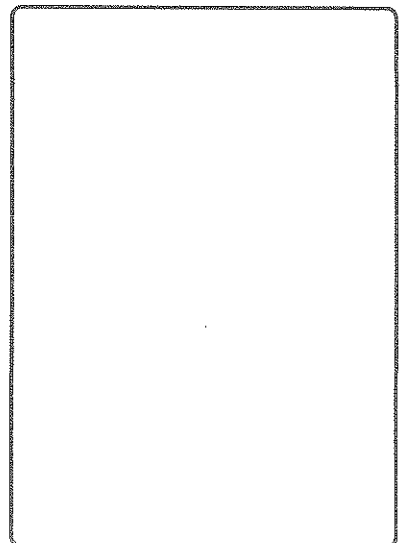
Picture 1



Picture 2



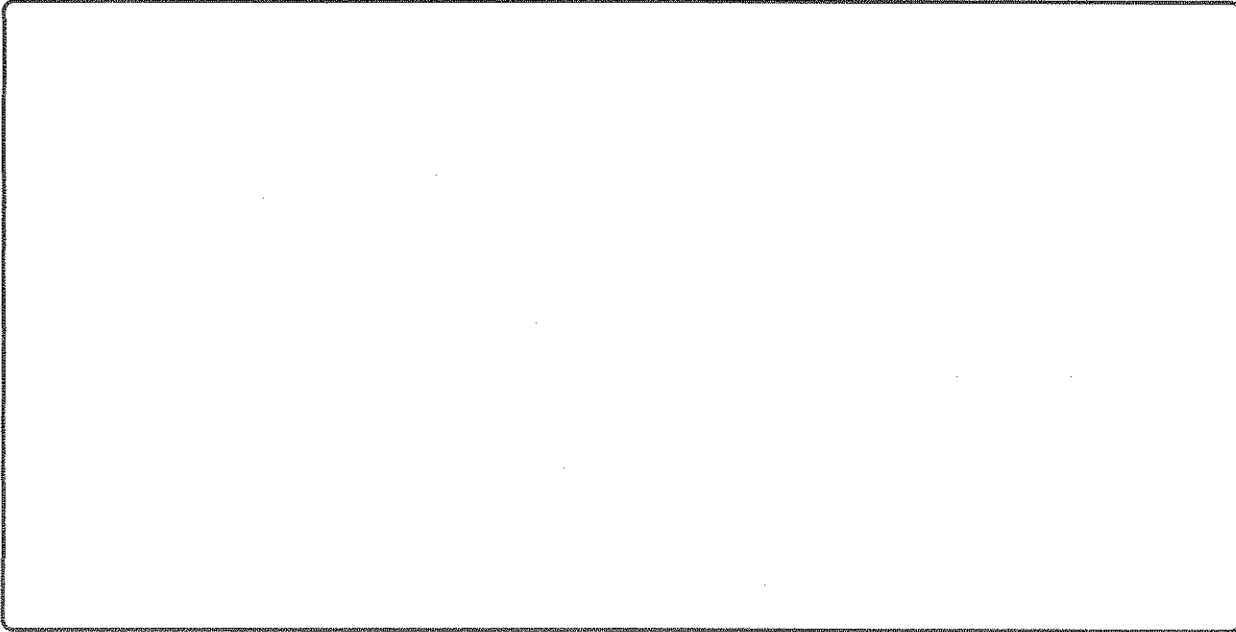
Picture 3



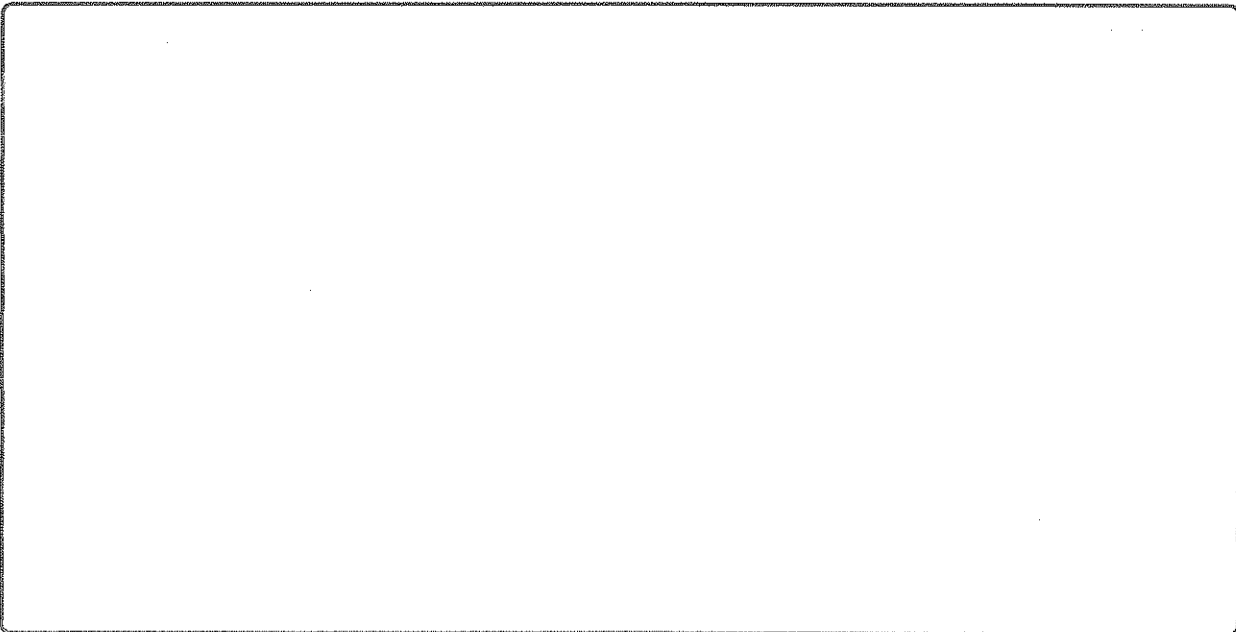
Name \_\_\_\_\_

# Magnetic Fields

1. Sketch the pattern made by two magnets.



2. Turn one magnet around, tape it down again, and sprinkle the filings. Sketch the pattern you see.





# Investigating Magnetic Poles

1. What is the Law of Magnetic Attraction?

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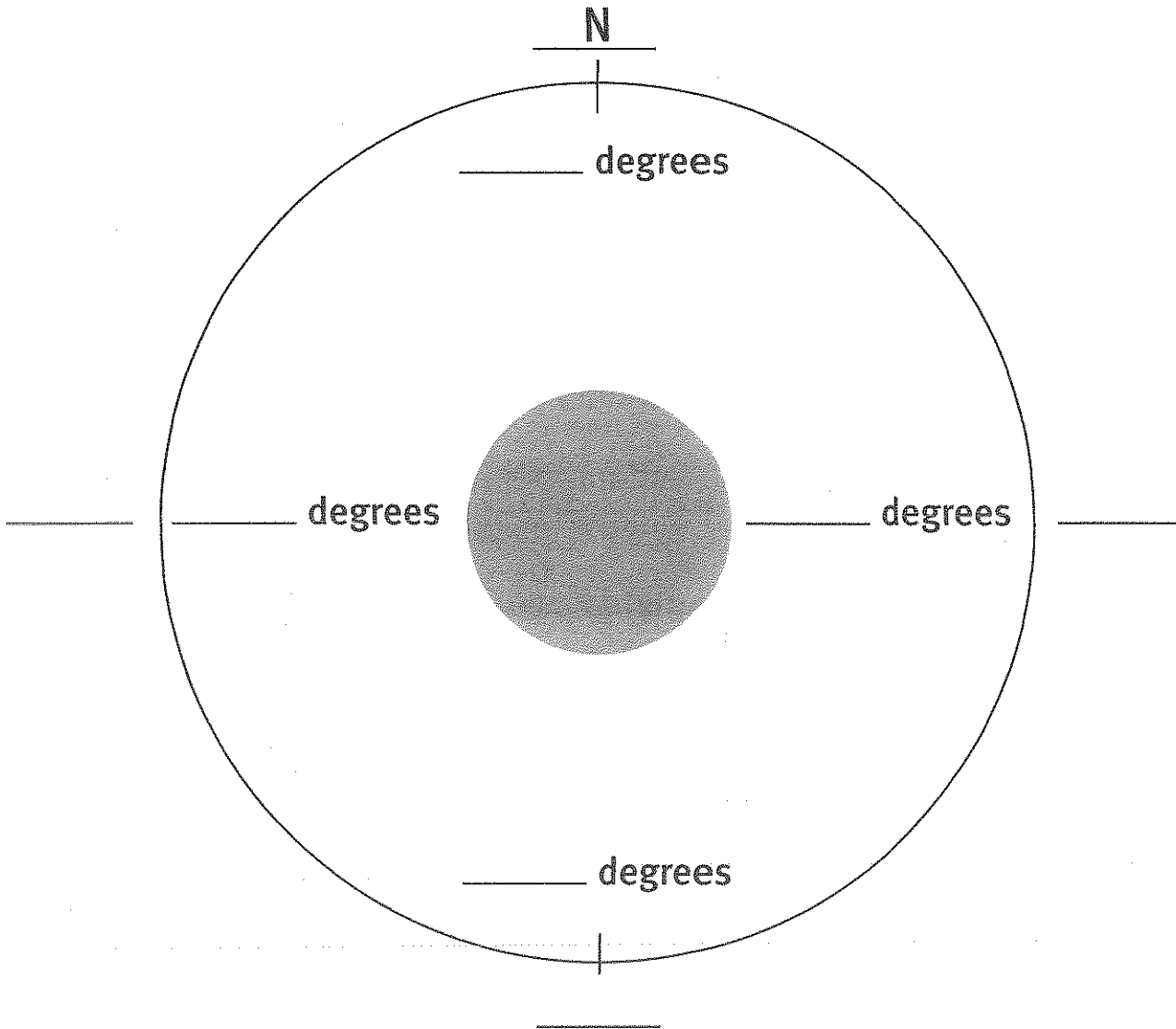
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Circle the correct answer based on your observations.

2. When the dotted end of the rod magnet was brought close to the magnet in the cart, the cart was **pulled/pushed**.
3. This means that the two magnets **repelled/attracted** each other.
4. Think about the Law of Magnetic Attraction. The poles of the magnets were **like/unlike**.
5. When the undotted end of the rod magnet was brought close to the magnet in the cart, the cart was **pulled/pushed**.
6. This means that the two magnets **repelled/attracted** each other.
7. Think about the Law of Magnetic Attraction. The poles of the magnets were **like/unlike**.

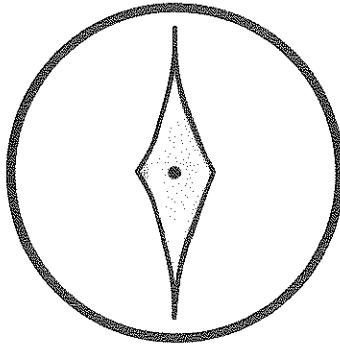
# Making a Compass



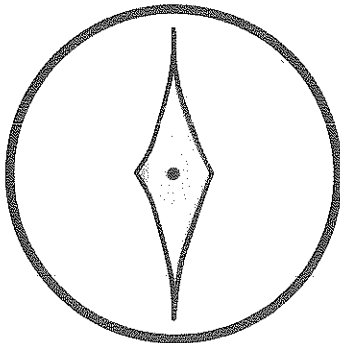
1. Place the plastic dish of water in the large circle. Place the magnet boat in the dish above the dark circle. Let the magnet boat float until it stops turning.
2. Turn the paper under the dish until the dotted pole of the magnet points to the *N* outside the large circle.
3. Carefully remove the dish with the magnet boat in it. Place the compass in the dark circle. Does the colored end of the compass needle point to *N*? \_\_\_\_\_ If not, what could be happening?  
  
\_\_\_\_\_
4. Label the *E*, *S*, and *W* directions and the degrees. Use the face of the compass as a guide.

# A Different Kind of Magnet

1. Draw the direction and amount of deflection of the compass needle with one loop of wire.

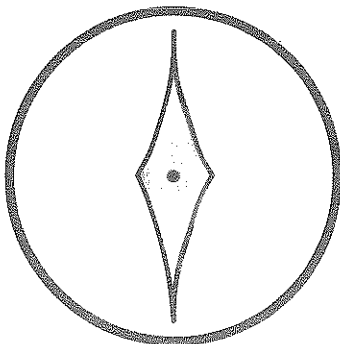


2. Draw the direction and amount of deflection of the compass needle with 11 loops of wire.



3. Why did the compass needle deflect farther?  
\_\_\_\_\_  
\_\_\_\_\_

4. Reverse the battery in the battery holder. Draw the direction and amount of deflection of the compass needle.

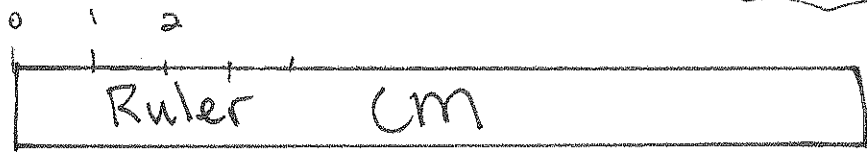


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# Making an Electromagnet

Number of coils	Number of clips picked up
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

# Ruler Activity



Large



Predict: \_\_\_\_\_ cm


Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

2) Flip the Rod Magnet around. Predict: \_\_\_\_\_

Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

3) Put Rod magnet aside, and use small rectangular magnet.  Predict: \_\_\_\_\_

Attract or Repel

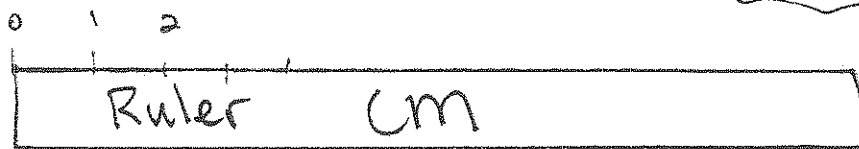
\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

4) Flip small magnet around. Predict: \_\_\_\_\_  
Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm



# Ruler Activity



Large



Predict: \_\_\_\_\_ cm


Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

2) Flip the Rod magnet around. Predict: \_\_\_\_\_

Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

2) Put Rod magnet aside, and use small rectangular magnet.  Predict: \_\_\_\_\_

Attract or Repel

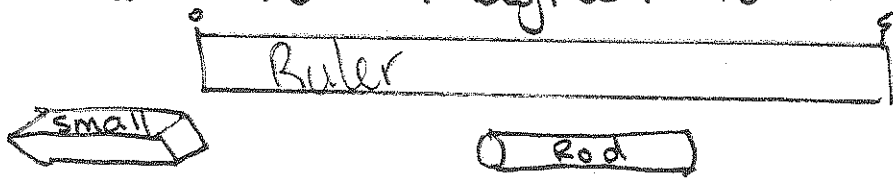
\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

2) Flip small magnet around. Predict: \_\_\_\_\_

Attract or Repel

\_\_\_\_\_ cm    \_\_\_\_\_ cm    \_\_\_\_\_ cm

5) Replace Large magnet @ small magnet, and use rod magnet towards it.



Attract or Repel

\_\_\_ cm \_\_\_ cm \_\_\_ cm

6) Flip Rod magnet around.  
Attract or Repel

\_\_\_ cm \_\_\_ cm \_\_\_ cm

Summary of Activity:





