Dangling Magnet

Key Words:
Magnet
Magnetic field
Liquid
Solid

Materials:
- Round donut magnet
- 500 mL beaker (a mason jar will also work)
- Water
- Soda
- Salt Water
- Metal paper clips
- Six-sided pencil
- 8 inch piece of string
- Water
- Scissors
- Tape
- Paper upon which to write predictions/hypotheses and observations/conclusions
- Pen/Pencil
Instructions:
1. Tape the end of the string to the middle of the pencil so that it will wind as the pencils turns. Tie the other end of the string to the magnet. Spin the pencil so that the magnet is wound all the way up to the top.
2. Place the paper clip inside of the beaker and hold the pencil on top of the beaker so that the magnet is hanging inside the beaker. (If you want to take some silly putty/clay and put 2 little pieces on either side of the pencil by the rim (to keep the pencil from rolling away), that’s an option). Ask the students to write on their paper what they think will happen when you lower the magnet into the beaker. Then field a few answers from the class and write some answers on the board.
3. Slowly turn the pencil so that the magnet is lowered into the center of the beaker. Keep unwinding until the paperclip is attracted to the magnet. Tell the students to record their observations on their papers. (For example: what happened to the paper clip? How strong is the magnetic attraction?)
4. This time, do the same thing but with the beaker half full of water. Before you do the experiment ask the students what they think will happen and write up their options on the board. You can also ask them to vote for which option they think will most likely happen.
5. Go ahead and lower the magnet.
6. Have students record their observations on their papers now. Pay particular attention to any changes.
7. This experiment can be repeated several times, each time using a different liquid and observing changes. Try using salt water, clear soda, juice, etc.
8. Split the students into smaller groups. Ask them to create a way to quantify the results. One way is to mark the string in equal units, and observe the magnet in different liquids.