MIND TREKKERS
Ferrofluid Lesson Plan

Amount of time Demo takes: 1-3 min
# times per hour: 25
Container: large container

Materials:
1. Rare Earth Magnet (1)
2. Nalgene Bottle with ferrofluid-(1)
3. Small plastic cup
4. Latex gloves (wear when handling )
5. plastic wrap and tape to cover top of cup

Set up instructions:
1. Fill cup up with ferrofluid
2. Set out the magnet

SAFETY!
1. Rare earth magnets are extremely strong; extra care should be taken to ensure the safety of volunteers from getting fingers squished etc. Keep magnet away from other magnets. Magnet can cause issues with electronic devices including pacemakers.
2. Do not allow anyone to touch the ferrofluid
3. Wear latex gloves while handling ferrofluid

Lesson’s big idea bullet points
   ● This demo shows the magnetic fields created in a magnetic liquid.

Instructional Procedure
1. Move magnet around the cup to show the magnetic field of the magnet.
2. Keep ferrofluid in the bottom of the cup and do not allow the magnet to go into the cup or get on the plastic over the top. (won’t be able to see anymore)
3. Keep people from touching and putting their hands in the ferrofluid

Clean Up
Clean up between demonstrations if needed. When completely finished gather all materials listed for this demonstration and make sure everything is accounted for. If something was used up, broken or damaged. Let someone know so it can get replaced or fixed. LEAVE ferrofluid in the cup during the day then let it drain back into the nalgene bottle. Wipe out cup. Use latex gloves when handling ferrofluid. There is extra if needed to refill nalgene.

**National Standards**
K-4 Content Standard B, Physical Science, Light heat, electricity and magnetism
5-8 Content Standard B, Physical Science, Motions and forces
9-12 Content Standard B, Physical Science, Motions and forces, Interactions of energy and matter

**References :**
http://mrsec.wisc.edu/Edetc/background/ferrofluid/index.html