Name: _____

FUN WITH MAGNETS

A Magnet that Drips:

MAKING FERROFLUID

A ferrofluid is a special liquid with tiny magnetic particles floating around inside. Since these particles are attracted to each other, they must be coated with a special substance that prevents them from sticking together (so that the ferrofluid remains fluid). What makes ferrofluid so special is that in the presence of an outside magnetic field, each of the tiny particles becomes magnetized and the ferrofluid condenses into a solid. **In this activity you will be able to make and play with your own ferrofluid and see how it behaves in the presence of a magnetic field.**

WHAT YOU NEED:

A bar magnet

A napkin or sponge

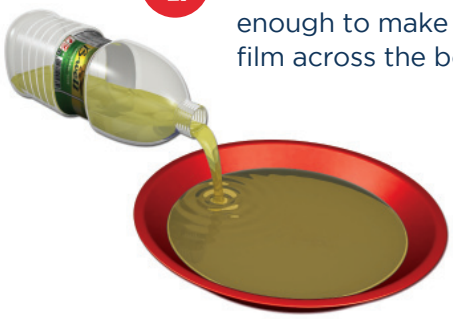
Vegetable oil

Iron filings
(from the hardware store)

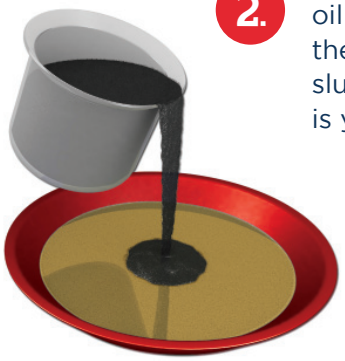
A shallow dish

WHAT YOU'LL DO:

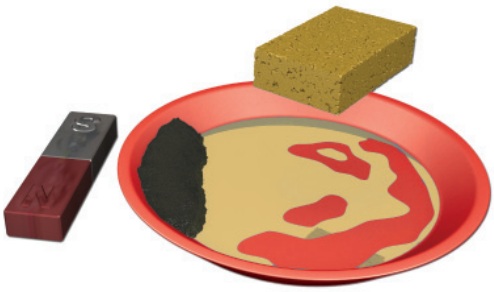
1. Pour a bit of vegetable oil into a shallow dish, just enough to make a thin film across the bottom.



2. Pour iron filings into the oil and mix the two until they have become a thick, sludge-like material. This is your ferrofluid!



3. Use a napkin or sponge to absorb any excess oil and allow the ferrofluid to become thicker. A good way to do this is to attach a magnet to the outside of the dish. This will solidify the fluid and let you dab away extra oil.



Turn over ---→

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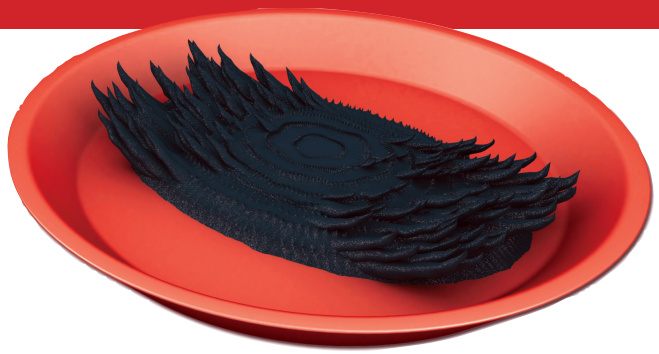
4. Attach a magnet to the dish containing the ferrofluid; the fluid will solidify and take the shape of the magnetic field it is in! Removing the magnetic field will allow the ferrofluid to flow like a liquid again.



The pattern that a ferrofluid makes depends on the amount of fluid used, the shape of the container it's in and the strength of the magnetic field used.

CAUTION!

When disposing of your ferrofluid, do not pour it down the drain; this could lead to clogged pipes!

THINK QUICK!

What's another word for magnetized?

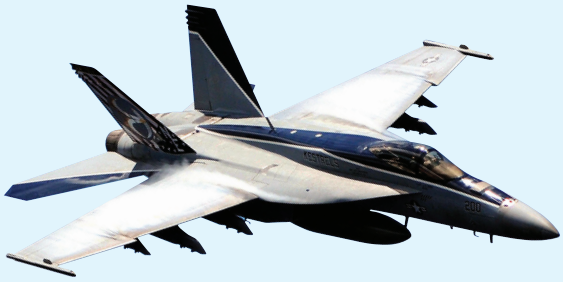
A. Polarized

B. Ferrofied

C. Ionized

ANSWER: Polarized! (A) It's a reference to the north and south poles of the magnet. "Ionize" means to turn an atom into an ion by adding or removing an electron. "Ferrofied" isn't actually a word – but it sounds pretty cool, doesn't it?

Did you know?



- Ferrofluids are used by the military to coat aircraft; this helps them elude radar.
- Ferrofluid comes to you courtesy of the same folks who brought you Tang and freeze-dried ice cream: NASA scientists. They came up with the idea in order to confine liquids in space.