

ELECTRONIC INK DEMO

GOAL: Show things on a micro scale can effect what we see on a macro scale. Show that research is not just a result it's also a process.

MATERIALS:

Micro scale: E-Ink sign

Macro-scale: Egg tray

Bag of Black/white balls

Flashcards with patterns

PROCEDURE:

Set-up:

1. Have e-ink and macroscale demo out.

During the demonstration:

1. Show visitors the E-ink sign. Ask them what they think it is. Have them look under the microscope to see what's happening. Explain that the people who make this hope it will be used just like paper – maybe even instead of paper. Ask the visitors “What else do the researcher's need to figure out to do before gyricon can replace paper?”

2. Bring out the Magna –doodle. Explain that each ball they see under the microscope is filled with tinier white balls(with a and black balls. The tiny black balls get pulled to the top just like the iron filings an it makes it look dark. A curcuit with a charge is actually what brings the balls up.

3. Have kids try to make different designs with the balls. Have them make their first initial.

Clean-up:

1. Return all items to storage.

EXPLANATION:

Really tiny microcapsules the diameter of a human hair have both black and white particles in them. The white particles have a positive charge so when you put a negative charge on the top they rise up while the black molecules sink. The black particles have a negative charge and get pulled up with a positive charge run over the top. Al the micro capsules are put on a piece of plastic and laminated to sheet of circuitry. It's the circuitry that changes the polarity and moves the particles to change the color. Eventually a printer should be able to print the microcapsules on the circuitry paper and you could make anything you want.

WHAT COULD GO WRONG?

The worst thing here is that the batteries could go dead but they should last a year.