



# 3D Magnetic Field Observation Box

P8-1180

## BACKGROUND:

This apparatus enables the 3-dimensional observation of magnetic field lines (magnetic lines of force), which is normally only seen on a 2-dimensional plane. Fine iron powder and silicone oil solution are enclosed in the transparent box. Operation is so easy that anyone can understand what magnetic lines of force are. It can also be used on an overhead projector for 2-dimensional observations.

## PRECAUTIONS:

Handle the observation box with care. If dropped, it may be damaged and begin to leak. Clean the box with a mild cleanser; do not use benzene or paint thinner.

## SPECIFICATIONS:

**Observation box:** Transparent acrylic resin with transparent screw. 3x3x3" cube

**Observation box contents:** Contains silicone oil and needle iron powder.

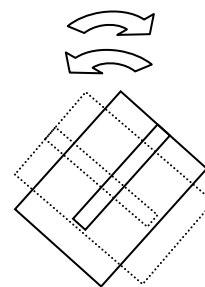
**Magnet hole:** 3/4" diameter

**Alnico Magnet:** 5/8" x 1 1/2"

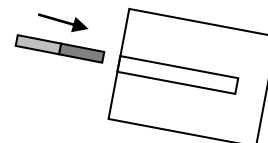
**Weight:** .87lbs

## OPERATIONS:

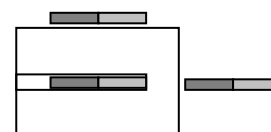
1. Before the demonstration, scatter the iron powder by rotating the box as shown.



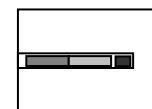
2. When the iron powder is scattered uniformly, insert the supplied bar magnet slowly. (Inserting it forcefully could damage the box.)



3. Lay the box down. The iron powder is magnetized and forms magnetic lines of force. When the magnet is removed, the iron powder slowly drops.



4. Scatter the powder again and insert the magnet. Bring another magnet close to the box (side or end). The iron powder is magnetized in two areas showing attraction and repulsion of magnetic forces. Try placing like poles near each other and placing opposite poles near each other.



5. Try adding a spacer such as a bit of iron screw, iron nail, wood chip, etc..., before inserting the magnet. Different types of magnetic fields can be observed.

## RELATED PRODUCTS:

**Magnetic Chips** (P8-1140). These pieces of reusable zinc-plated iron wire replace the messy, rust-prone iron powder typically used in demonstrations of magnetic fields.

**Clear Compasses** (P8-1170). Place these small, transparent compasses around different magnets to map the fields.

**Magnaprobe** (P8-8005). Gimbal-mounted bar magnet serves as a 3-D compass for investigating magnetic fields around objects.

