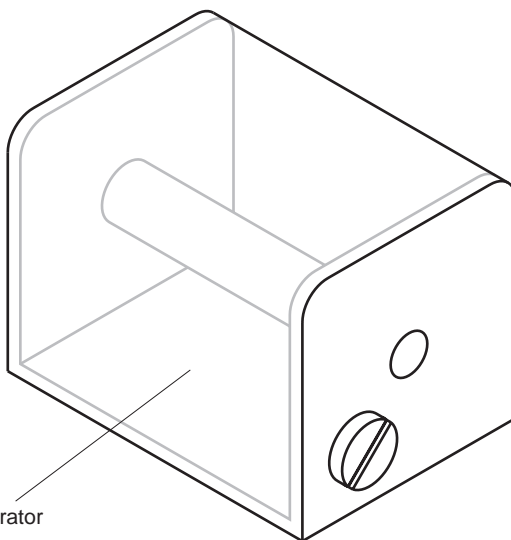


**Instruction Sheet
for the PASCO
Model SE-8603**

3-D MAGNETIC FIELD DEMONSTRATOR



3-D Magnetic Field Demonstrator

Introduction

The PASCO Model SE-8603 Three Dimensional Magnetic Field Demonstrator lets your students observe magnetic field lines in three dimensions. The clear acrylic vessel contained iron fillings suspended in paraffin. One or two cylindrical bar magnets (not included) can be inserted into the hole that runs through the axis of the vessel. The fillings will then line up along the field lines.

The magnets should be about 10mm on diameter and 4-5cm long.

Equipment

INCLUDED

- 3-D Magnetic Field Demonstrator

ADDITIONAL REQUIRED

- bar magnets

3-D Magnetic Field Demonstrator Usage

1. Shake the tank slowly and gently as shown in Figure 1 to distribute the fillings evenly. Vigorous shaking may produce bubbles in the paraffin making it difficult to observe the fillings.

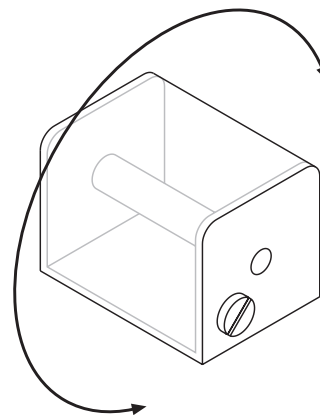


Figure 1: Shake the Vessel to Distribute Fillings

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2. Place one or more magnets into the demonstrator as shown in Figure 2. At first the fillings will arrange themselves along the lines of the magnetic field, then they will cluster around the magnetic poles.

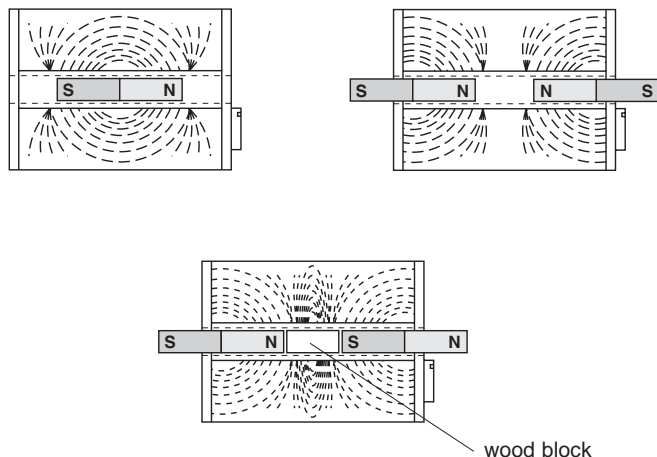


Figure 2: Magnet Position Inside Vessel

3. The 3-D Magnetic Field Demonstrator can also be used to observe the magnetic field lines around a current carrying wire. The wire can be wrapped around the vessel in either of the two ways illustrated in Figure 3. Use insulated copper wire. A direct current supply capable of delivering 40-50 amps is required.

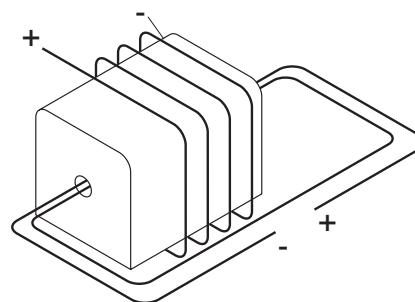


Figure 3: Wire Arrangement With the 3-D Magnetic Field Demonstrator

4. Since the acrylic vessel is clear, it can be placed on an overhead projector so demonstrations can be viewed by a group. The projected image of the demonstration may not be clear, but the general field outline can be observed.

Limited Warranty

PASCO scientific warrants the product to be free from defects in materials and workmanship for a period of one year from the date of shipment to the customer. PASCO will repair or replace, at its option, any part of the product which is deemed to be defective in material or workmanship. The warranty does not cover damage to the product caused by abuse or improper use. Determination of whether a product failure is the result of a manufacturing defect or improper use by the customer shall be made solely by PASCO scientific. Responsibility for the return of equipment for warranty repair belongs to the customer. Equipment must be properly packed to prevent damage and shipped postage or freight prepaid. (Damage caused by improper packing of the equipment for return shipment will not be covered by the warranty.) Shipping costs for returning the equipment after repair will be paid by PASCO scientific.

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The exclamation point within an equilateral triangle is intended to alert the user of important operating and safety instructions that will help prevent damage to the equipment or injury to the user.