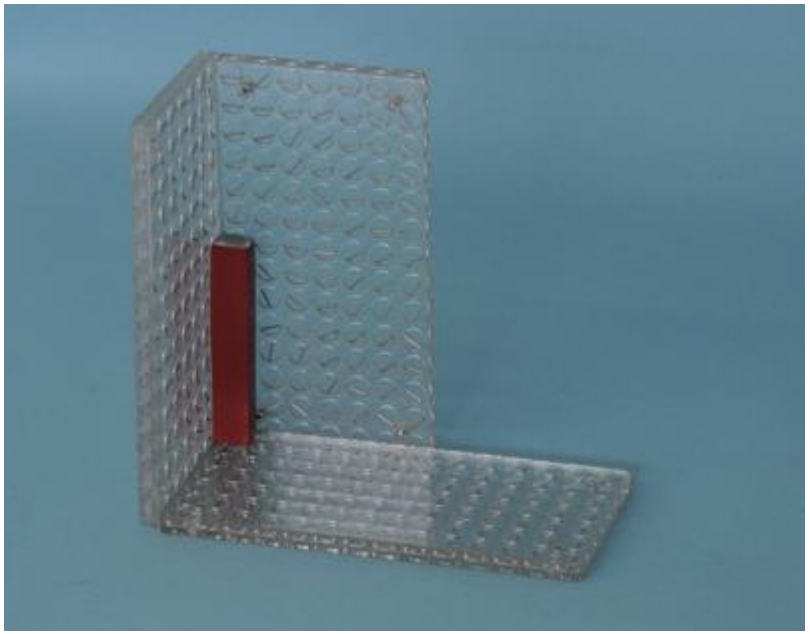

VISUALIZADOR DE CAMPOS MAGNÉTICOS 3D

MAGNETIC FIELD DEMONSTRATION

REF: QLL006

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VISUALIZADOR DE CAMPOS MAGNÉTICOS 3D

Descripción

Conjunto de 4 placas transparentes de tamaño 155x76x6 mm que presentan una matriz de pequeñas cámaras circulares 14x7 mm cada una de ellas conteniendo una varilla de hierro y que actúan como brújulas. Las placas pueden ser colocadas en distintas posiciones por ejemplo como una superficie grande bidimensional o como las caras de un cubo y de esta manera es posible mostrar la configuración de un campo magnético en dos o tres dimensiones con las propiedades de atracción y repulsión de los imanes. La naturaleza transparente de las placas las hace también adecuadas para ser utilizadas con un proyector. El conjunto se completa con un imán rectangular.

Operaciones

1. Ponga una de las placas horizontalmente en la mesa.
2. Ahora ponga el imán rectangular en el centro.
3. Las cámaras que contienen varillas de hierro se magnetizan y forman líneas de fuerza. Cuando se quita desaparecen.
4. Ahora ponga otra placa junto con la primera.
5. Ponga de nuevo el imán y observa el patrón.
6. Ahora ponga el imán de forma perpendicular.
7. Ponga una placa horizontal y la otra creando un ángulo de 90. Pon el imán y observa las líneas de fuerza en las dos placas.
8. Ponga las tres placas de tal forma que una este horizontal y dos verticales haciendo un ángulo recto como un cubo. Ponga el imán en la primera placa luego en la segunda y por último en la tercera y observa las líneas en las tres placas.

Discusión

Las varillas de hierro dentro de las cámaras actúan como brújulas y crean líneas curvas desde el polo norte del imán hasta el polo sur.

Nota

Puede incorporar más imanes de distintos tipos para ver sus campos magnéticos.

MAGNETIC FIELD DEMONSTRATION

Description

A set of two transparent plates of size (155x76x6) mm has a matrix of small (14x7) circular chambers, each chamber containing a piece of iron rod and functioning effectively as a plotting compass. We can arrange the plates in various ways e.g. single large two dimensional surface and as the faces of cube, so in this way it may be used to show the configuration of a magnetic field in one or two dimensions with the attraction and repulsion properties of magnets. The transparent nature of plates also makes them suitable for use on an overhead projector. A set of bar magnet is also provided with the kit.

Operations

1. Place one of the plates horizontally on the table
2. Now put a bar magnetic in the middle of the plate
3. The iron rods in the chambers get magnetized and form magnetic lines of force. When the magnet is removed, the iron rods slowly drop.
4. Now place another plate attached horizontally with the first plate.
5. Put bar magnets on the plates facing each other and observe the pattern of the lines of force.
6. Now put the magnets perpendicular each other and observe the pattern of lines of force.
7. Place one plate horizontally and another plate at right angle to the first plate. Put one bar magnet on the horizontal plate and observe the pattern of the lines of force in both the plates.
8. Place on plate horizontally and another plate at right angle to the first plate. Put one bar magnet vertically touching the second plate and observe the pattern of the lines of force in both the plates.
9. Now place the three plates in such a way that one plate is horizontal, second plate is vertically attached with the first plate and the third plate is also attached in such way that it makes 90 with other vertical plate. Put one bar magnet on the horizontal plate and observe the pattern of the lines of force in all the plates.
10. Now place the three plates in such a way that one plate is horizontal, second plate is vertically attached with the first plate and the third plate is also attached in such a way that it makes 90 with the other vertical plate. Put one bar magnetic vertically touching the second plate and observe the pattern of the lines of force in all the plates.
11. Now place the three plates in such a way that one plate is horizontal, second plate is vertically attached with the first plate and the third plate is also attached in such way that it makes 90 with the other vertical plate. Put one bar magnet vertically touching the third plate and observe the pattern of the lines of force in all the plates.

Discussion: the iron rods inside the chambers act like a compass needles and arrange themselves along the curved lines leading from the north pole of the bar magnet to the South Pole. The compass needle sets itself parallel to the magnetic line of force through its center.

Note: you may wish to incorporate more magnets or different types of magnets in your demonstrations and have students determine the direction of the magnetic lines of force around each magnet.