615-0000 (20-115) Magnetic Needle

Warranty and Parts:

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.

Description:

Demonstrate the action of a compass and the earth's magnetic field. Our magnetic needle, 145 mm long, has north marked in red and pivots on a sensitive brass and nylon bearing. Non-magnetic support is 9.9 cm high with 5.9 cm round base.

How to Teach with Magnetic Needle:

Concepts Taught: Magnetism

Curriculum Fit: Magnetism

Additional Materials Recommended:

- Bar magnet (north and sole poles marked)
- Pocketknife

Theory:

What is a compass? It can be defined as: *a magnetized needle, mounted on a pivot, which points in a north direction.*

Demonstration: Poles of a Magnet

Note: Demonstration should be performed a distance away from other magnetic objects.

1. Assemble the apparatus by sticking the black semi-cylindrical rod into the base and remove the red safety protection cap on the needle. Place the north (red)/south (white) compass on the tip of the needle.
2. Using your bar magnet, with designated north and south poles, bring the N pole of the magnet near the N pole of the compass and watch how the needle is deflected. The two north poles repel each other.
3. Try step 2 with the S pole of the magnet by bringing it near the S pole of the compass. The same deflection will occur.
4. Now, try bringing the N pole of the bar magnet near the S pole of the compass. They will attract because opposite poles attract.

Optional Demonstration: How Magnets Are Made
Additional materials needed: Bar magnet; pocketknife

1. You can make a permanent magnet by stroking a piece of hard steel over one pole of a permanent magnet.
2. Stroke the pocketknife blade in a circular motion about the N pole of the bar magnet. You are producing an induced pole.
3. Bring the newly magnetized pocketknife blade near the S pole of the compass and watch how the two react to one another. Are they attracted?
4. What happens if you bring the handle of the pocketknife near the S pole of the compass? Are the two pieces attracted?