

615-0025 (20-160) Polar Reversal Model

Operation: Geomagnetic reversal is a curious and still poorly understood phenomenon. Most of your students will know there is a magnetic North and South Pole; some will even know that these are distinct entities from the geographic north and south poles. What many of them won't know is that the magnetic poles are not fixed in place; they wander about, and from time to time even swap positions.

Evidence for pole reversal was first documented in the 1920's, but didn't become of significant scientific interest until the continental drift era. Areas of the Atlantic seafloor were observed to have magnetic 'stripes', areas in which the iron particles in basalt were aligned opposite to their neighbors. As basalt cools, iron forms crystals which align themselves according to the Earth's magnetic field. Thus, these basalt formations act as an imprint of the magnetic field at the time they were formed. Subsequent study of these formations has indicated that the magnetic poles have switched many times. Often the poles will remain stable for millions of years, but occasionally they will reverse in tens of thousands. A controversial find indicates the poles may have reversed in only four years! The magnetic north pole is moving about 40km (25mi) west each year, and the rate is accelerating.

The reasons for the reversal and the seemingly random time frame are still not understood. Some scientists believe it arises due to inherent instabilities in the planet's core. Others think it may be caused by external forces, such as increased solar activity or very large impact events.

Operation: Your polar reversal model requires a small compass to show fields. Place this compass on the small indent opposite the arrow near the edge of the board. Slide the compass in the direction of the arrow, paying close attention to the orientation of the needle. When the compass reaches the center of the board, the needle will suddenly deflect and point in the opposite orientation.

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.