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Lodestone: A Natural Magnet

Explore how the magnetic qualities of lodestone helped early navigation.

Lodestone is a naturally magnetized piece of magnetite. Magnetite is a metallic mineral that is black or brown, opaque, and has a Mohs hardness between 5.5 and 6.5. It can be found in igneous, metamorphic and sedimentary rocks. Normal magnetite is attracted to a magnet but lodestone acts as a magnet, attracting iron particles. Lodestone is one of only two minerals that are naturally magnetized; the other, pyrrhotite, is only weakly magnetic.

The process by which lodestone becomes magnetized has long been a question in geology. Only a small amount of the magnetite on Earth is found magnetized as lodestone. Lodestone must be exposed to magnetism to become magnetic. One theory suggests that lodestones are magnetized by the strong magnetic fields surrounding lightning bolts. This is supported by the fact that lodestone is mostly found at the surface of the Earth; not buried at a great depth.

Ancient people first discovered the magnetic qualities in lodestone. Pieces of lodestone, suspended so they could turn, were the first magnetic compasses. Their importance to early navigation is indicated by the name lodestone, which in Middle English means 'course stone' or 'leading stone'.



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