COMPASS

A simple dry magnetic pocket compass

A compass is a navigational instrument for determining direction relative to the Earth's magnetic poles. It consists of a magnetized pointer (usually marked on the North end) free to align itself with Earth's magnetic field. The compass greatly improved the safety and efficiency of travel, especially ocean travel. A compass can be used to calculate heading, used with a sextant to calculate latitude, and with a marine chronometer to calculate longitude. It thus provides a much improved navigational capability that has only been recently supplanted by modern devices such as the Global Positioning System (GPS). A compass is any magnetically sensitive device capable of indicating the direction of the magnetic north of a planet's magnetosphere. The face of the compass generally highlights the cardinal points of north, south, east and west.

Often, compasses are built as a stand alone sealed instrument with a magnetized bar or needle turning freely upon a pivot, or moving in a fluid, thus able to point in a northerly and southerly direction. The compass was invented in ancient China around 247 B.C., and was used for navigation by the 11th century. The dry compass was invented in medieval Europe around 1300.[1] This was supplanted in the early 20th century by the liquid-filled magnetic compass.[2]

Other, more accurate, devices have been invented for determining north that do not depend on the Earth's magnetic field for operation (known in such cases as true north, as opposed to magnetic north). A gyrocompass or astrocompass can be used to find true north, while being unaffected by stray magnetic fields, nearby electrical power circuits or nearby masses of ferrous metals. A recent development is the electronic compass, or fibre optic gyrocompass, which detects the magnetic directions without potentially fallible moving parts. This device frequently appears as an optional subsystem built into GPS receivers. However, magnetic compasses remain popular, especially in remote areas, as they are cheap, durable, and require no electrical power supply.

Source: http://web.ua.es/docivis/magnet/compass.html