## How to Make a Magnet

The methods by which an ordinary piece of any magnetic material, like iron or steel, can be made a magnet are single touch method, double touch method and electrical method. Let us study each method separately.

(A) Single Touch Method: A piece of any magnetic material, like iron or steel (a nail, knitting needle, bolt, etc.), is taken and placed on a bench or a tale. A bar magnet is brought close to the magnetic material (say an iron piece AB). One end of the bar magnet is stroked against it, moving from end A to end B of the iron piece.

When the bar magnet reaches end B, it is lifted and the stroke repeated from end A to end B, it is lifted and the stroke repeated from end A to B. This procedure is repeated several times, keeping two things in mind.

- The same pole of the bar magnet should be used every time.
- Strokes should be in the same direction.

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By Stroking the iron piece with the north pole of the bar magnet, end A becomes the North Pole and end B the South Pole.

(B) Double Touch Method: The iron piece to be mangetized, says AB, is placed on a bench and two bar magnets of equal strengths are taken. Here, the opposite poles of both the magnets are stroked, at the same time, from the centre to the opposite ends of the iron piece being magnetized. This step is repeated may times.



Then, the end A of the iron piece becomes the North Pole and end B becomes the South Pole.

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**(C)** Electrical Method: Hans Christian Oersted, a Danish scientist, discovered in 1819 that a wire carrying electric current behaves like a magnet. This discovery provided the best method to make magnets by using an electric current.

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A long, insulated copper wire is taken. About 300 or more turns of the wire are wound around a glass or cardboard tube. The turns of the wire are kept as close together as possible. The ends of the wire are connected to a source of electric current and a switch. A knitting needle is put inside the tube and the current switched on for a short period of time. When the needle is removed from the tube, it behaves like a magnet.