



Slightly more quantitativeN• A vector quantity
• Symbolized by \vec{B} •• Direction is given by the direction a
north pole of a compass needle points
in that location•

• *Magnetic field lines* can be used to show how the field lines, as traced out by a compass, would look



Magnetic Field Lines, Bar Magnet • Iron filings are used to

- If on hings are used to show the pattern of the magnetic field lines
- The direction of the field is the direction a north pole would point





Magnetic Fields

- When a charged particle is moving through a magnetic field, a magnetic force acts on it
 - This force has a maximum value when the charge moves perpendicularly to the magnetic field lines
 - This force is zero when the charge moves along the field lines







A Few Typical B Values

- Conventional laboratory magnets 25000 G or 2.5 T
- Superconducting magnets 200000 G or 20 T
- Magnet lab (Tallahassee) about 1000000 G or 100 T
- Earth's magnetic field 0.5 G or 5 x 10⁻⁵ T