

## 28.2: Introduction

A material exhibits magnetic properties when electrons align in a particular way within the material. Each electron is basically a tiny magnet and when the magnetic fields of the electrons are aligned within a material, the magnetic moments of the electrons add together making the entire material magnetic. All magnets have both a north seeking pole and a south seeking pole which are based on the magnetic moment positioning of the electrons. Opposite poles are attracted together, while like poles repel. A magnet can induce magnetism in a ferromagnetic material. Iron filings are a ferromagnetic material, and thus, exhibit magnetic effects when they are near a magnet, and align themselves with the magnetic field of the magnet.

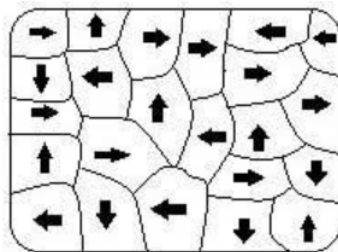


Figure 28.2.1: Unmagnetized

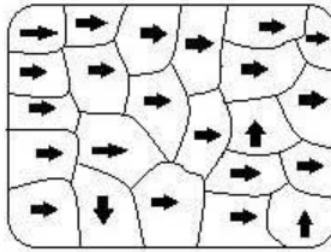


Figure 28.2.2: Magnetized

### Contributors and Attributions

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