Technology and Society Now and in the Future

Maglev is short for magnetic levitation, meaning floating on magnets. Experiments are being conducted all over the world to find ways to make trains that "float" on a magnetic field instead of rolling on wheels. This method of travel reduces friction. Therefore maglev vehicles can travel much faster and quieter than conventional trains. Speeds of over 300 mph are not uncommon.

Why do we have a need for maglev technology?

- increasing traffic congestion
- dwindling energy resources
- pollution in the environment
- long travel times

The construction of this project would provide New York with:

- 74,000 construction jobs
- 1,400 jobs relating to operating and maintaining the system
- less noise pollution
- improved mobility and convenience
- reductions in congestion
- improved air quality
- improved energy efficiency and flexibility
- reduced dependence on foreign oil
- technological leadership
- defense diversification
- revitalization of our cities
- increases in tourism

Basic Principles of Maglev Technology

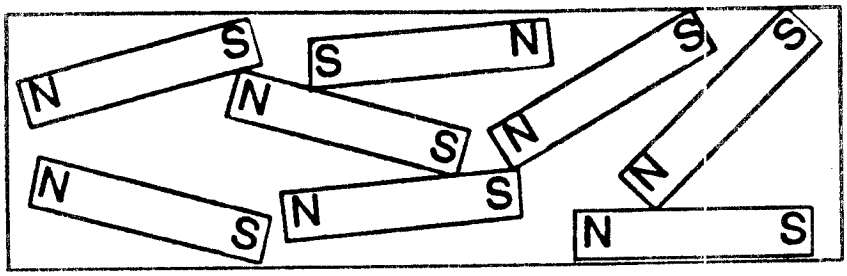
3 Types of Magnets:

- natural
- artificial
- electromagnetic

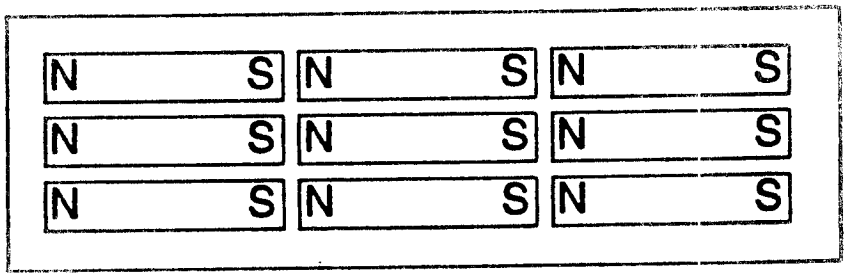
Natural magnets - elements such as iron, nickel, cobalt and magnetite are natural magnets because all their electrons spin in the same direction. Electrons of other elements do not all spin in the same direction.

Artificial magnets - rubbing an iron bar (nail) with a natural magnet will align the bar's particles or placing the iron object (nail) in an insulated coil of wire and applying DC (direct current) will magnetize it. Demagnetize an artificial magnet by applying heat, hitting it with a hammer or placing the iron object in an insulated coil of wire and applying AC (alternating current).

BEFORE



AFTER



Electromagnets - created when electric current flows through the wire.

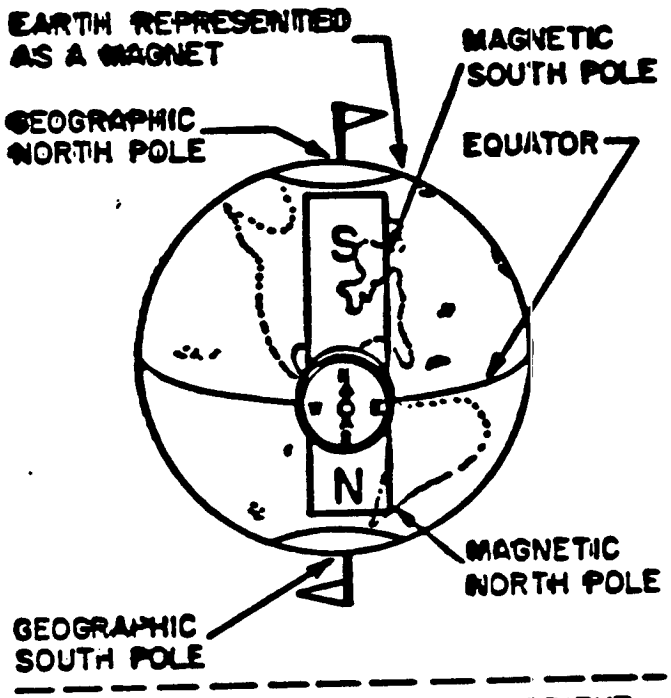
Magnets can be permanent or temporary:

Permanent magnets - maintain their properties over time

Temporary magnets- lose their magnetic properties over time

Rules of Magnetism

1. Unlike poles attract each other
2. Like poles repel each other



THE COMPASS WILL ALWAYS ORIENT ITSELF IN A NORTH-SOUTH DIRECTION FROM ANY POINT ON THE EARTH'S SURFACE