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Research Paper

Magnetism is a force that is caused by invisible magnetic fields. Magnets can work at a distance, moving things without actually touching them. So, ancient people thought that magnetism was magic (“Magnets for Kids,” Woodford). When people started understanding more, they started using magnetism for their own uses. The Greeks, Romans, and Chinese made and used magnets thousands of years ago, even though they did not actually understand how the magnets worked (Woodford).

Magnetism is a force in which some things attract each other (are pulled together) and some things repel each other (are pushed apart). A magnet has two ends—the north pole and the south pole. Two north poles repel each other and two south poles repel each other, but a north pole and a south pole attract each other (Magnets for Kids,” “Physics for Kids,” Woodford).

Magnetic substances have molecules in which all their electrons spin in the same direction. Iron is an element that has electrons that can become lined up that way. If iron is rubbed a few times with a magnetic substance like the rock lodestone, the electrons line up and the iron becomes magnetic. Steel is a metal that is made mostly of iron, so it can also be magnetized. Therefore, most magnets are made of iron or steel (“Magnets for Kids,” “Physics for Kids,” Woodford).

Part of the Earth’s core is liquid iron. When the Earth spins on its axis, the spinning liquid iron creates a magnetic field. So the Earth acts like a giant magnet. There is a magnetic north pole near Earth’s actual North Pole—620 miles away. The magnet in a compass points toward the magnetic north pole, so people can use a compass to tell direction and navigate (“Magnets for Kids,” Woodford). Migrating birds and whales also use the Earth’s magnetic field to tell direction (“Physics for Kids”).

Magnets can be very useful to people. Besides being used in compasses for navigation, “they are used in microwaves, electric fans, earphones, speakers, in medical equipment, electronics and in nearly all electric machines that use motor engines to make them work” (“Magnets for Kids”). Using electromagnetism can make electric motors. “By wrapping a wire around an iron bar and running current through the wire, very strong magnets can be created. This is called electromagnetism” (“Physics for Kids”).

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