

## Student Instructions for Performing the Magnetism Test



1. Hold up mineral A. Touch the magnet to it. Does the mineral stick to the magnet? Record your results in the space labeled "Magnetism" on the mineral profile sheet for mineral A.



2. Test each of the other 11 minerals with the magnet in the same way. Record the results on your mineral profile sheets.

## Reading Selection

## Lodestones Lead the Way

The magnetic compass is one of the most important inventions of all time. Before it was invented, sailors had only the sun, moon, stars, and local winds to guide them as they set out for faraway lands. The compass changed that. It pointed to the north pole. And once you know which way is north, you can figure out where south, east, and west are as well! A mineral called **lodestone**, which is a highly magnetized form of magnetite, makes the compass work.

Who discovered lodestone? No one really knows. According to some stories, it was discovered by shepherds in Asia, who noticed that the iron nails in their sandals sometimes clung to the ground as they walked across a field with rocks that contained lodestone.

The shepherds were amazed by this. They probably picked up some samples of the mineral and began to tell other people about their discovery. The news spread.

One of the first written references to the mysterious powers of the lodestone is in a book written in China. Around the year A.D. 1000, the Chinese began to use lodestones to guide ships at sea. They did this because of an amazing discovery. If you place a lodestone on a small piece of wood and float it in a cup of water, the lodestone always lines up in a north-south direction! And if you touch the lodestone to an iron needle for long enough, the needle, too, lines up in a north-south direction. The magnetic compass had been invented.





Sailors in Europe started to use the compass about 800 years ago. Then, they gave the lodestone its name. Lode meant “to lead.”

For centuries, people believed that the lodestone had secret powers. Magicians used it to tell fortunes. People thought it could cure illness. Sailors believed that onion and garlic would destroy the magnetic force, so they never ate these foods while they were at sea. Because so many seamen feared the powers of the magnetized needle, the ship’s pilot kept it hidden away in a special box.

Little by little, these fears disappeared. The compass was brought out on deck, where

all the sailors could use it. Christopher Columbus packed extra magnetic needles for his trips across the Atlantic Ocean in late 1400s. Ferdinand Magellan, the first person to sail around the world, carried 35 needles on his flagship!

What if those extra needles lost their magnetic power?

The captain always carried a precious piece of lodestone—to lead his crew safely to new adventures and new lands.