Chapter 9

ENRICHMENT

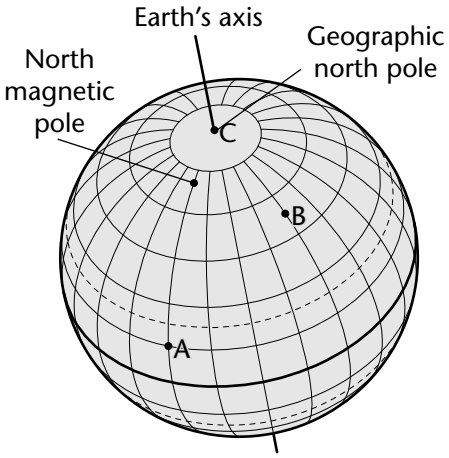
Use with Section 2

• Electricity and Magnetism

Magnetic Earth

Earth itself is a huge magnet, and, like any magnet, it has poles. The places that we call the north and south poles are not Earth's magnetic poles, however. The north and south poles are the geographic, or true, poles, which are in line with the axis that Earth spins around. The magnetic poles are shifting points near the true poles. Currently, the magnetic poles are located several hundred kilometers from the true poles.

When you use a compass, the compass needle points to the magnetic poles. A compass is a magnet with north and south poles and is attracted by Earth's magnetism. For centuries, people have used compasses for navigation.



Refer to the diagram and use what you have read and what you know about magnets and their poles to answer these questions.

1. Imagine you are standing at point A. Which way would the north needle of your compass point?

2. The markings on a map that indicate north point to the true north pole. Why does this present a problem for making a compass reading at point B?

3. What would your compass read if you were standing at point C, the true north pole?

Challenge Question

4. The north pole (north-pointing needle) of a compass points to Earth's north magnetic pole. The north magnetic pole is actually the south pole of Earth's magnet. Explain why this must be so, based on what you know about magnetic attraction.