

Navigation with Magnets

A. Choose the correct answer:

1. What is the primary function of a magnet in navigation?
 - a) To generate electricity
 - b) To attract metallic objects
 - c) To help determine direction
 - d) To store energy
2. Which of the following is true about the Earth's magnetic poles?
 - a) Thermometer
 - b) Barometer
 - c) Compass
 - d) Altimeter
3. What will happen if you break a bar magnet into two pieces?
 - a) The outer casing
 - b) The glass cover
 - c) The magnetic needle
 - d) The dial markings

B. Fill in the Blanks:

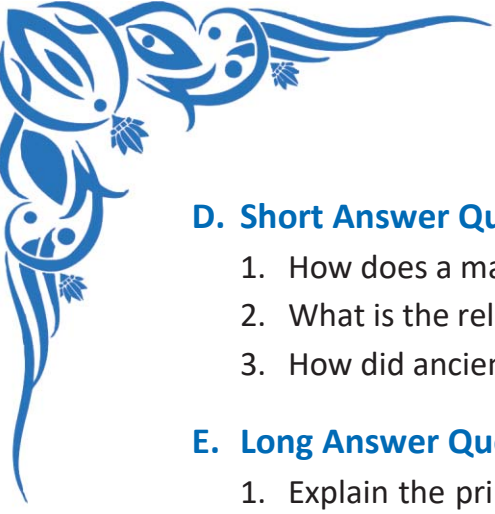
1. A _____ is a device that uses a magnetized needle to indicate direction.
2. The Earth acts like a giant _____ with a magnetic field that influences compasses.
3. Navigators have historically used the _____ star along with magnetic compasses for finding direction.

C. Case Study:

An expedition team traveling through a dense forest relied on traditional navigation tools. They carried a magnetic compass, a GPS device, and a set of maps. During their journey, the GPS malfunctioned due to poor signal reception. The team then used the magnetic compass to determine the correct direction and successfully reached their destination.

Questions & Answers:

1. What tool did the expedition team use when their GPS failed?
2. Why did the GPS device malfunction in the forest?
3. How does a magnetic compass help in navigation?
4. What is the advantage of using a magnetic compass over electronic devices?



D. Short Answer Questions:

1. How does a magnetic compass work?
2. What is the relationship between Earth's magnetic field and navigation?
3. How did ancient sailors use magnets for navigation?

E. Long Answer Questions:

1. Explain the principle behind magnetic navigation and how it has evolved over time.
2. Describe the advantages and limitations of using a magnetic compass for navigation.
3. Discuss how Earth's magnetic field influences navigation and how modern technology integrates it with GPS systems.