



Earth's Layers

Name: _____

Date: _____

Grade: Grade 5

Part A: Multiple Choice

Circle the best answer for each question.

1. What produces Earth's magnetic field?

- A) The spinning of solid rock inside the mantle.
- B) The rotation of tectonic plates on the surface.
- C) The movement of liquid iron and nickel flowing in the outer core.
- D) The extreme heat of the solid inner core radiating outward.

2. A compass needle always points toward magnetic north. Which layer of Earth is responsible for this?

- A) The crust, because it contains magnetic rocks on the surface.
- B) The mantle, because its convection currents pull the needle.
- C) The outer core, because its flowing liquid metal creates a magnetic field around the planet.
- D) The inner core, because solid iron is naturally magnetic.

3. Mars does not have a global magnetic field today. Based on what you know about Earth, what does this suggest about Mars?

- A) Mars never had any iron inside it.
- B) Mars likely does not have a flowing liquid metal core like Earth does.
- C) Mars is too close to the Sun for a magnetic field to form.
- D) Mars has too many volcanoes, which block the magnetic field.

4. Scientists discover that ancient lava flows on the ocean floor show reversed magnetic patterns. What does this evidence tell us?

- A) The lava flows came from different volcanoes on opposite sides of the ocean.
- B) Earth's magnetic field has flipped direction many times throughout its history.
- C) The ocean floor was once above water and faced the opposite direction.
- D) The outer core stops moving for short periods and then restarts.

Part B: Fill in the Blank

Write the correct answer on each line.

1. Earth's magnetic field extends far into space and forms a protective shield called the _____.

2. The colorful _____ borealis, or northern lights, occurs when solar particles interact with Earth's magnetic field.

Part A: Multiple Choice

Circle the best answer for each question.

1. What produces Earth's magnetic field?

- A) The spinning of solid rock inside the mantle.
- B) The rotation of tectonic plates on the surface.
- C) The movement of liquid iron and nickel flowing in the outer core.**
- D) The extreme heat of the solid inner core radiating outward.

2. A compass needle always points toward magnetic north. Which layer of Earth is responsible for this?

- A) The crust, because it contains magnetic rocks on the surface.
- B) The mantle, because its convection currents pull the needle.
- C) The outer core, because its flowing liquid metal creates a magnetic field around the planet.**
- D) The inner core, because solid iron is naturally magnetic.

3. Mars does not have a global magnetic field today. Based on what you know about Earth, what does this suggest about Mars?

- A) Mars never had any iron inside it.
- B) Mars likely does not have a flowing liquid metal core like Earth does.**
- C) Mars is too close to the Sun for a magnetic field to form.
- D) Mars has too many volcanoes, which block the magnetic field.

4. Scientists discover that ancient lava flows on the ocean floor show reversed magnetic patterns. What does this evidence tell us?

- A) The lava flows came from different volcanoes on opposite sides of the ocean.
- B) Earth's magnetic field has flipped direction many times throughout its history.**
- C) The ocean floor was once above water and faced the opposite direction.
- D) The outer core stops moving for short periods and then restarts.

Part B: Fill in the Blank

Write the correct answer on each line.

1. Earth's magnetic field extends far into space and forms a protective shield called the magnetosphere.
2. The colorful aurora borealis, or northern lights, occurs when solar particles interact with Earth's magnetic field.