Magnetosphere Watercolor Activity

Overview:

Students review vocabulary and the details of Earth's magnetosphere using a multisensory approach (visual, auditory and kinesthetic).

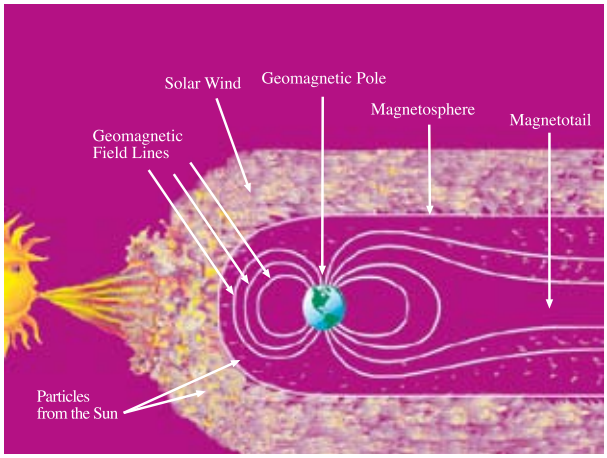
Objectives:

The student will:

- identify Earth's magnetosphere, geomagnetic poles, geomagnetic field lines, and magnetotail through a student-created watercolor art project; and
- examine how particles from the sun reach Earth's geomagnetic poles.

Materials:

- Crayons and blue watercolor paints
- 12" x 18" white construction paper
- Containers for water
- VISUAL AID: "Bar Magnet Earth"
- VISUAL AID: "Solar Wind Particles"
- VISUAL AID: "Particles Travel Magnetotail"
- VISUAL AID: "Particles Travel Magnetotail (Arrows)"
- STUDENT WORKSHEET: "Magnetosphere Watercolor Activity"



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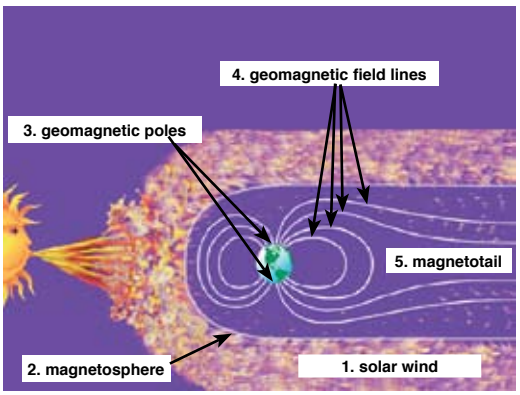
Activity Procedure:

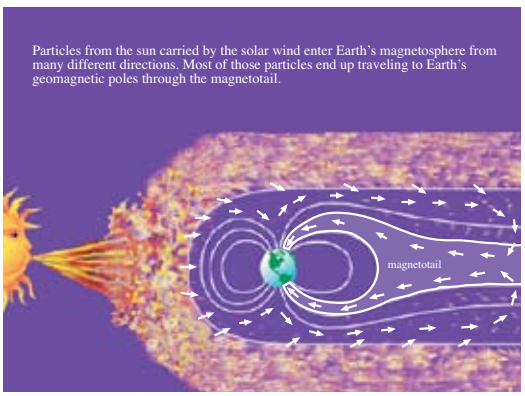
1. Show VISUAL AID: "Bar Magnet Earth." Explain Earth behaves like a giant magnet. Show what Earth's field lines would look like if they were not affected by the solar wind.
2. Show VISUAL AID: "Solar Wind Particles." Explain Earth's magnetic field (or magnetosphere) is always being stretched out by solar wind. Identify different parts of the magnetosphere. Locate the following vocabulary words: *solar wind, magnetosphere, geomagnetic poles, magnetic field lines,* and *magnetotail.*
3. Demonstrate for students how to draw Earth with a bar magnet near the geomagnetic poles, and how to draw Earth's magnetosphere after it has been stretched out by solar wind. Explain that students will use crayons and watercolors to draw Earth's magnetosphere.
4. Hand out construction paper, crayons, watercolor paints and the STUDENT WORKSHEET: "Magnetosphere Watercolor Activity." Ask students to draw a circle for Earth with a bar magnet inside. Then ask students to use a white crayon to draw field lines stretched out by solar wind on the night side.
5. Paint over the magnetosphere picture with blue watercolor paint.
6. Once the artwork has dried, ask students to label each part of the Sun/Earth generator. Be sure to include the following words: *solar wind, magnetosphere, geomagnetic poles, geomagnetic field lines*, and *magnetotail.*
7. After they have labeled their drawing, show VISUAL AID: "Particles Travel Magnetotail." Explain that most solar particles get to Earth's geomagnetic poles through the magnetotail.
8. Show VISUAL AID: "Particles Travel Magnetotail (Arrows)." Ask students to draw arrows on their diagrams showing how most particles from the sun reach the poles. Explain that it takes 1-3 days for solar particles to reach Earth.

Answers to Student Questions:

1.-5.



6.



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Name:_____ **Student Worksheet**

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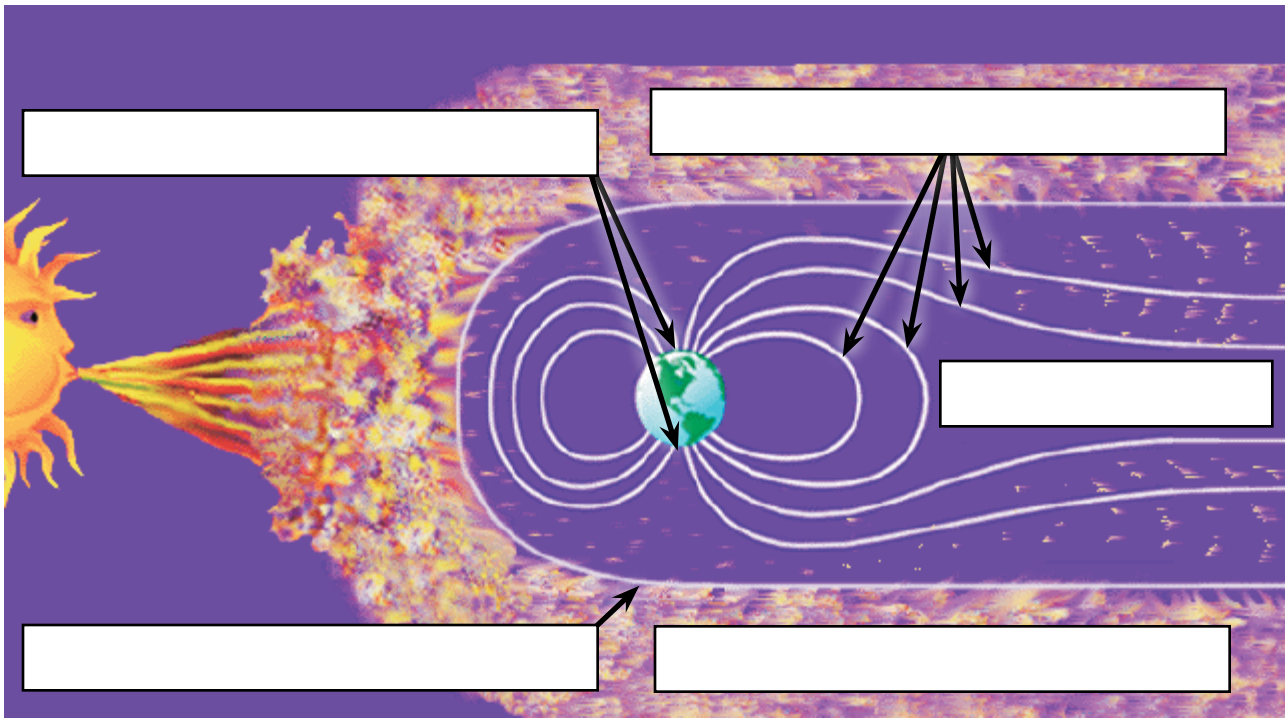
On the diagram below, label:

1. solar wind
2. magnetosphere
3. geomagnetic poles
4. geomagnetic field lines
5. magnetotail



6. On the diagram above, use arrows to show the direction most particles from the sun travel to reach Earth's geomagnetic poles.

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