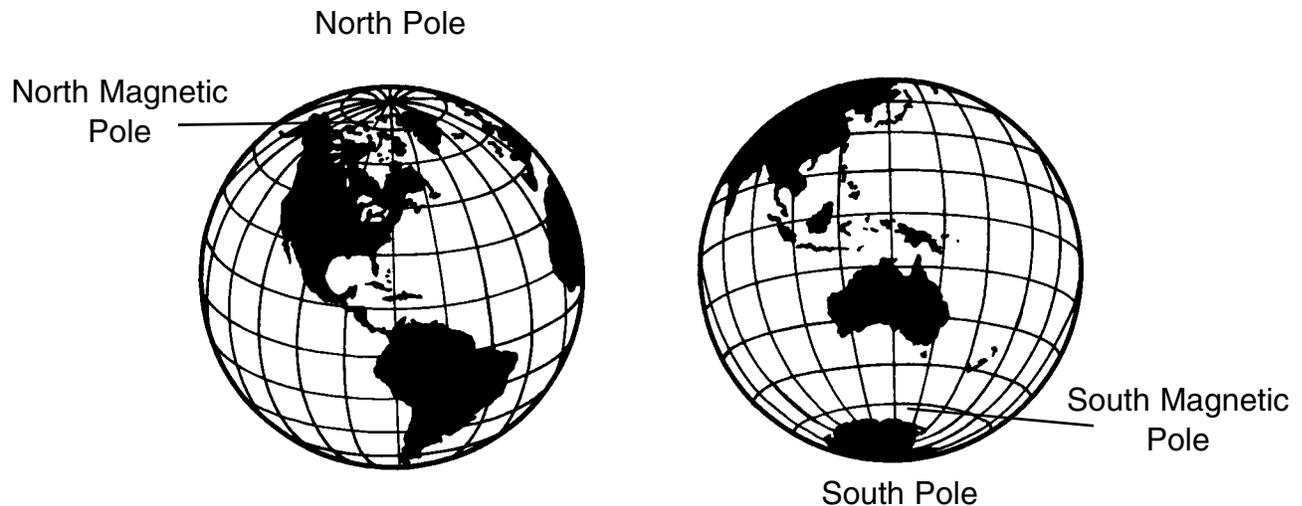
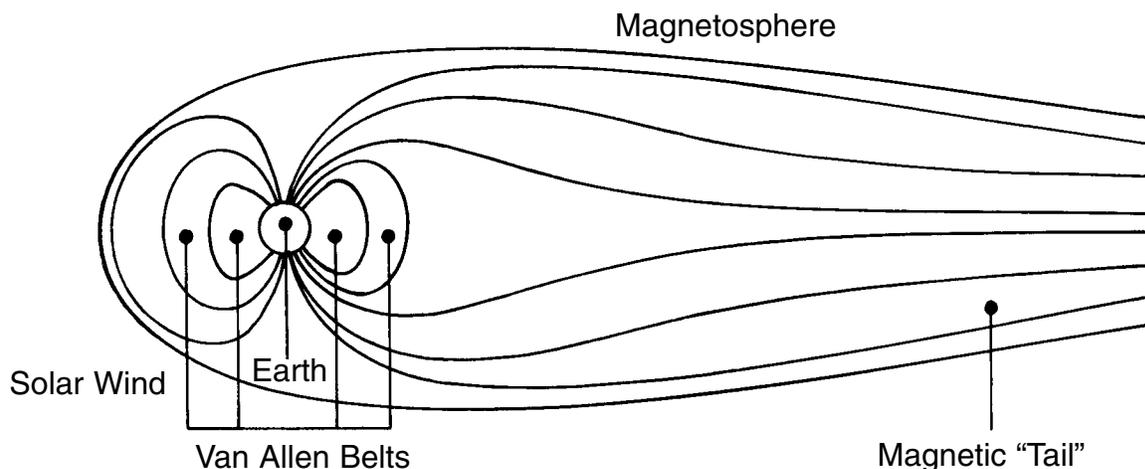


# The Geomagnetic Field *(cont.)*

## Earth's Poles



The geographic North and South Poles are at the ends of the axis around which Earth spins. The geomagnetic poles are inclined at an angle of about  $11.5^\circ$  from these North and South Poles. The North geomagnetic pole is near Ellef Ringnes Island, Canada, about 870 miles (1,392 km) from the North Pole. The South geomagnetic pole is off the coast of Wilkes Land in Antarctica and is about 1,710 miles (2,736 km) from the South Pole. The geomagnetic poles move over time.



## Earth's Magnetic Tail

The magnetism around Earth is called the *magnetosphere*. Radiation from the sun (*solar wind*) blows the magnetosphere into a long tail. An area which consists of large numbers of electrons and protons from the sun is trapped by the magnetism in the *Van Allen Belts*. The aurora occurs in this area 60–620 miles (97–1,000 kilometers) above Earth.

# Aurora Research Cards

## Aurora Legends

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information your team is to report is located at a Web site in Fairbanks, Alaska.

- Go to the Web site: <http://gedds.pfrr.alaska.edu/aurora/english/Legend1.htm>
- Read the information on pages 5–8 and take notes. If possible, make prints of the pictures to use these in your presentation. Set the printer to the horizontal position to keep the pictures from the overlapping.
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.

## The Aurora and Polar Explorers

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information your team is to report is located at a Web site in Fairbanks, Alaska.

- Go to the Web site: <http://gedds.pfrr.alaska.edu/aurora/english/Explor1.htm>
- Read the information on pages 9–13 and take notes. If possible, make prints of the pictures to use in your presentation. Set the printer to the horizontal position to keep the pictures from overlapping.
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.

## ★ How High in the Sky Are the Aurora? Where on Earth Can You See the Aurora?

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information your team is to report is located at a Web site in Fairbanks, Alaska.

- Gather your information from two Web sites listed below.  
How High: <http://gedds.pfrr.alaska.edu/aurora/english/Height1.htm> (pages 14 and 15)  
Where on Earth: <http://gedds.pfrr.alaska.edu/aurora/english/Where1.htm> (pages 16–21)
- Read the information and take notes. If possible, make prints of the pictures to use in your presentation. Set the printer to the horizontal position to keep the pictures from overlapping.
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.

# Aurora Research Cards *(cont.)*

## ★ Space Weather and Predicting Answers

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information will come from two Web sites shown below.

- Go to the Web site: <http://rigel.rice.edu/~freeman/dmb/spwea.html> Read the information and write a brief summary. If possible, print the pictures.
- Go to: [http://www.exploratorium.edu/learning\\_studio/auroras/seethem.html](http://www.exploratorium.edu/learning_studio/auroras/seethem.html) Current information and predictions of aurora sightings are given here.
- Click on Custom Maps and then click on your location. A map of the North American continent will appear, showing the range predicted for viewing the aurora.
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.



## Aurora Light

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information your team is to report is located at the following Web sites.

- **What Kind of Light Does the Aurora Emit?**  
<http://gedds.pfrr.alaska.edu/aurora/english/Light1.htm> (pages 22–24)
- **What Makes Aurora Happen?**  
[http://www.exploratorium.edu/learning\\_studio/auroras/happen.html](http://www.exploratorium.edu/learning_studio/auroras/happen.html)
- **How Is the Aurora Discharge Powered?**  
<http://gedds.pfrr.alaska.edu/aurora/english/Power1.htm> (pages 25–29)
- **Why Are They Different Colors?**  
[http://www.exploratorium.edu/learning\\_studio/auroras/difcolors.html](http://www.exploratorium.edu/learning_studio/auroras/difcolors.html)
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.



## Aurora Motion and the Sun?

**To the Team:** You are a team of astronomers who have been asked to be part of a group of scientists who will explain the aurora to a class of students. The information your team is to report is located at the following Web sites.

- **Why Does the Aurora Move?**  
<http://gedds.pfrr.alaska.edu/aurora/english/Motion1.htm> (pages 30–32)
- **How Does the Sun Affect the Aurora?**  
<http://gedds.pfrr.alaska.edu/aurora/english/Sun1.htm> (pages 33–39)
- Prepare your report, including interesting information, pictures from the Web site, or your own drawings to make your presentation exciting.