

Name\_\_\_\_\_ Date\_\_\_\_\_

## Auroras - Party in the Sky

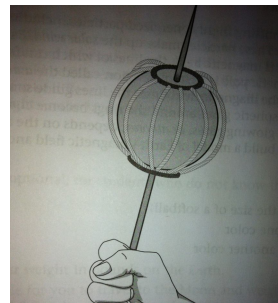
The sun is constantly emitting highly energized particles including electrons and positively charged ions. These particles make up the solar wind. Earth is protected from the solar wind by its magnetic field, the lines of which run from pole to pole. Surrounding each magnetic pole is a circular region called the auroral oval. When the solar wind reaches the magnetic field lines, the lines guide some of the particles toward the rings. Atmospheric gases around the rings become charged and glow. The brightness of these glowing gases, or auroras, depends on the activity of the Sun.

Materials: paper (to make a ball the size of a softball), Two pipe cleaners of one colour, eight pipe cleaners of another colour, two pencils taped together.

Step 1) Pierce the paper ball with the pencils. The ball represents the Earth, and the pencil emerging from each side of the paper ball represents the north and south magnetic poles.

Step 2) Use the two pipe cleaners of one colour to represent the auroral rings. Shape one pipe cleaner into a circle that will fit on top of the paper ball, like a cap. Place the ring on the ball, with one end of the pencil in the center of the ring, and glue it in place. Turn the paper ball over and glue the second pipe cleaner ring around the other end of the pencil.

Step 3) Use the eight pipe cleaners of another colour to represent the lines of the Earth's magnetic field. Glue one end of each pipe cleaner to one of the auroral rings. Glue the other end of each pipe cleaner to the other auroral ring. The lines of the magnetic field will form large C-shaped structures around the paper ball.



1) Where on planet Earth do you think people are best able to view the auroras?

**Auroras are best viewed near the poles.**

2) In the year 2012, the Sun is expected to be very active. How do you think this activity will affect the auroras?

**The auroras will be brighter.**

3) If you were on a space ship over the North Pole, what would you expect to see when you looked down at Earth?

**A glowing oval caused by ionized gases around the pole will be visible.**