

Solar Wind Among the Planets

Overview:

Students create artwork that depicts the solar system and the solar wind.

Objectives:

The student will:

- determine which planets in the solar system have an aurora; and
- create a painting of the solar system including aurora ovals above the magnetic poles of appropriate planets.

Materials:

- *Aurora Alive* multimedia video playlist
- Heavy white paper suitable for watercolor paints
- Crayons
- Watercolor paints
- STUDENT WORKSHEET: “Solar Wind Among the Planets”

Activity Procedure:

1. Hand out the STUDENT WORKSHEET: “Solar Wind Among the Planets.”
2. Students answer the questions on the worksheet and use their answers to make an accurate crayon drawing of the solar system and the solar wind, showing which planets have an aurora and which do not.
3. Encourage students to be creative as they use crayons to draw the solar system. Crayons are used first, and then a wash of watercolor paint is applied over the whole surface to depict the solar wind. The watercolor will not cover the crayon.

Teacher’s Note—The Status of Pluto: In August 2006, the International Astronomical Union (IAU) General Assembly agreed on the definition of “planet.” A planet is a celestial body that (a) is in orbit around the sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighborhood around its orbit. According to this definition, Pluto is no longer classified as a planet. Pluto is now considered a dwarf planet. *Information Source: “IAU0603: IAU 2006 General Assembly: Result of the IAU Resolution Votes.” 24 August 2006. <http://www.iau.org/iau0603.414.0.html>. Accessed 11 January 2007.*

Answers to Student Worksheet:

1. A. Mercury, B. Venus, C. Earth, D. Mars, E. Jupiter, F. Saturn, G. Uranus, H. Neptune, I. Pluto
2. A. Earth, B. Jupiter, C. Saturn, D. Uranus, E. Neptune
3. Yes
4. Jupiter and Saturn
5. Mercury and Pluto

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Directions: Answer the following questions. Use these answers to draw an accurate picture of the solar system. Label each planet or dwarf planet with the correct name, and include auroras for those that have them. Use crayons to draw the solar system, and then paint the solar wind with watercolor paints. The watercolor will not cover up the crayon, so the solar system drawing will still be visible after the paint is applied.

1. List all eight planets and one dwarf planet, beginning with the planet closest to the sun.

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|----------|----------|
| A. _____ | F. _____ |
| B. _____ | G. _____ |
| C. _____ | H. _____ |
| D. _____ | I. _____ |
| E. _____ | |

2. Name the five planets that have an atmosphere and a magnetic field.

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|----------|----------|
| A. _____ | D. _____ |
| B. _____ | E. _____ |
| C. _____ | |

3. If a planet has both an atmosphere and a magnetic field, will it have an aurora during an active solar storm? _____

4. Name the two largest planets.

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|----------|
| A. _____ |
| B. _____ |

5. Name the smallest planets or dwarf planets.

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| A. _____ |
| B. _____ |