



Name: _____ Date: _____ Class: _____

Title: Space Weather Forecast with Rainbow Bite-Sized Candies
Student Sheet

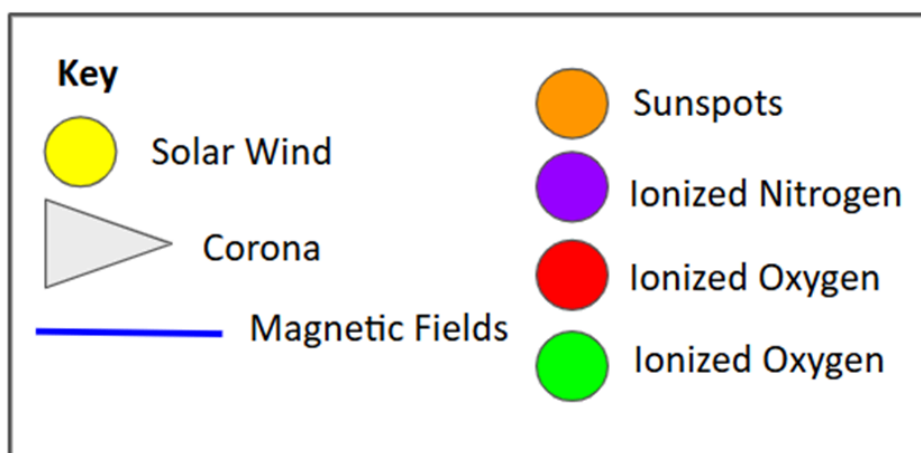
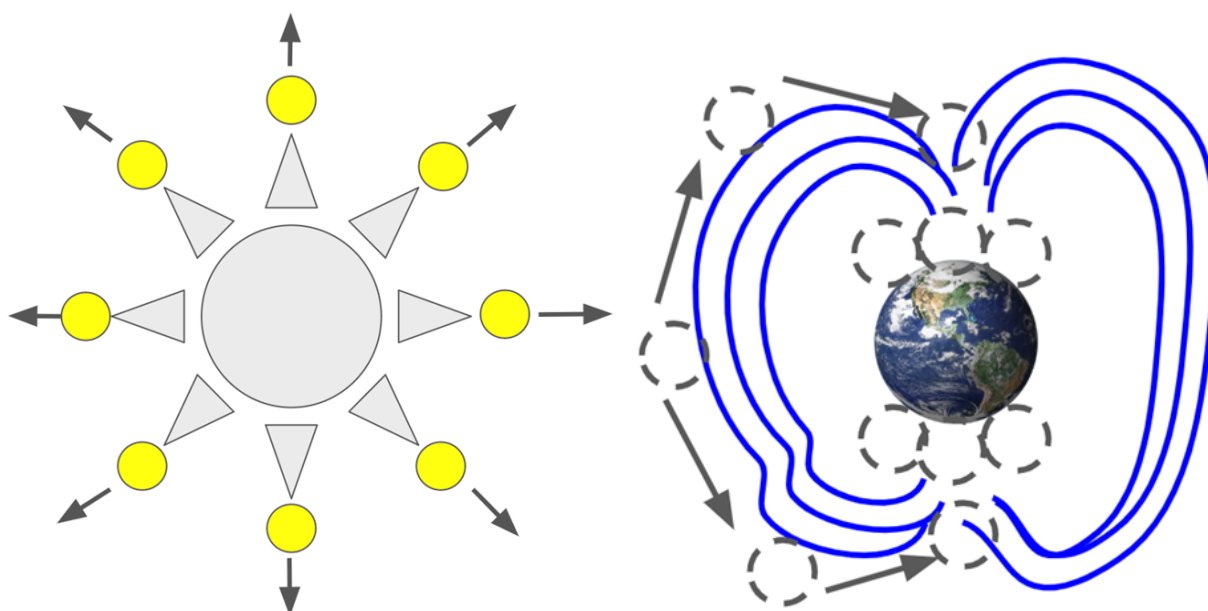
Forecast 1 Map: Solar Minimum

1. The solar wind is constantly flowing outward from the Sun's upper atmosphere, the corona, in all directions. The yellow circles on the points of the corona represent the solar wind. Arrows on the map show the movement of the solar wind outward from the Sun in all directions.
2. The solar wind is deflected by Earth's magnetic field. Because of the shape of Earth's magnetic field, some of the solar wind interacts with Earth's atmosphere at the poles.
3. When the solar wind interacts with Earth's atmosphere, the atoms in the atmosphere become excited, or ionized, and give off light. Oxygen atoms in the atmosphere glow green and red; nitrogen atoms glow purple. We call this the aurora. During solar minimum, aurora can be seen at Earth's poles.



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4. Place five yellow candies around Earth's magnetic field to represent the solar wind being deflected. Arrows on the map show the movement of the solar wind around Earth's magnetic field toward Earth's poles.
5. Place one red, one green, and one purple candies at Earth's north and south poles to show aurora activity at the poles.





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Forecast 2 Map: Solar Maximum

1. The yellow candies on the points of the corona represent the solar wind. More arrows show the increase in intensity of the solar wind outward from the Sun toward Earth due to the CME.
2. When the Sun is experiencing “stormy weather,” it is because there is an increase in magnetic energy on the Sun. Sunspots and solar storms, like solar flares and coronal mass ejections (CME) increase, causing the solar wind to intensify.
3. When the solar wind intensifies and is deflected by Earth’s magnetic field, the magnetic field on the night side of Earth is stretched, causing the magnetic field lines to snap and reconnect, causing more solar wind to enter Earth’s atmosphere at the poles.
4. The intensity of the solar wind at the poles, causes the aurora to be visible from lower latitudes, closer to the equator. The more intense the solar wind, the closer to the equator aurora can be seen.



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5. Place two orange candies on the Sun to show an increase in the number of sunspots. The magnetic loops coming off of the Sun are a CME.
6. Place eight yellow candies around Earth's magnetic field to represent the solar wind being deflected. Arrows show the movement of the solar wind around Earth's magnetic field toward Earth's night side and then back toward the poles.
7. Place one red, one green, and one purple candies at Earth's north and south poles to show auroral activity. Add two extra red, green, **or** purple candies to each pole to show increased auroral activity. Arrows show the aurora moving from the poles toward the equator.

