Winter Solstice

Why Do We Have Seasons

This is a great activity for a day before break . It can be easily modified to be part of a larger unit, be a whole group activity, independent lab, or computer activity. It is also a good way to review such a commonly confused topic.

Winter Solstice

1. Read the Winter Solstice from http://www.cbc.ca/news/world/winter-solstice-celebrating-the-shortest-day-of-the-year-1.1071746
   (alternative links include: http://news.yahoo.com/dec-21-winter-solstice-explained-141545782.html http://www.couriermail.com.au/news/queensland/chilly-time-heralds-winter-solstice-shortest-day-of-the-year-as-the-moon-prepares-for-a-big-appearance/story-fnihsrf2-1226666424927)

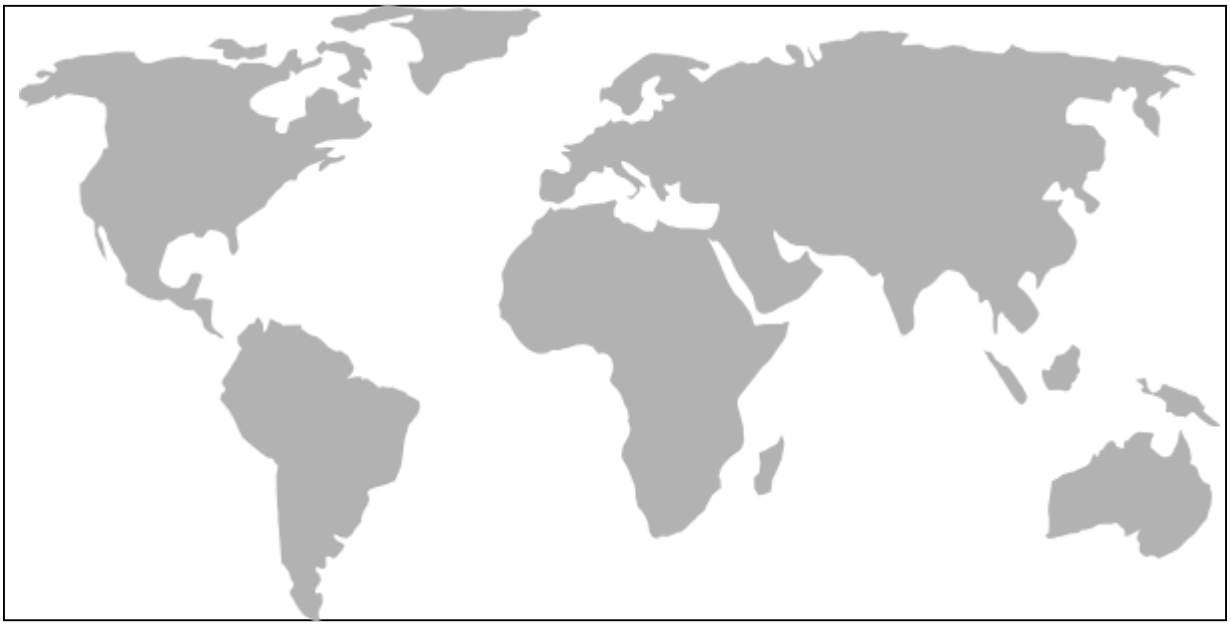
2. Observe today's sunlight pattern on www.daylightmap.com noting the shape and position of the day/night boundary. (alternatives are http://www.timeanddate.com/worldclock/sunearth.html OR http://aa.usno.navy.mil/data/docs/earthview.php)
3. On the world map, draw the day/night boundary and shade in the area of the Earth experiencing night.
4. Label Day and Night, and complete the map with today's date and time.
5. Explain the reason for the seasons.

6. Describe the sun's noon position in the sky today, compared to the rest of the year.

7. State what will be happening to the number of daylight hours from the winter solstice until June 21.

8. Explain the origin of the word 'solstice.'

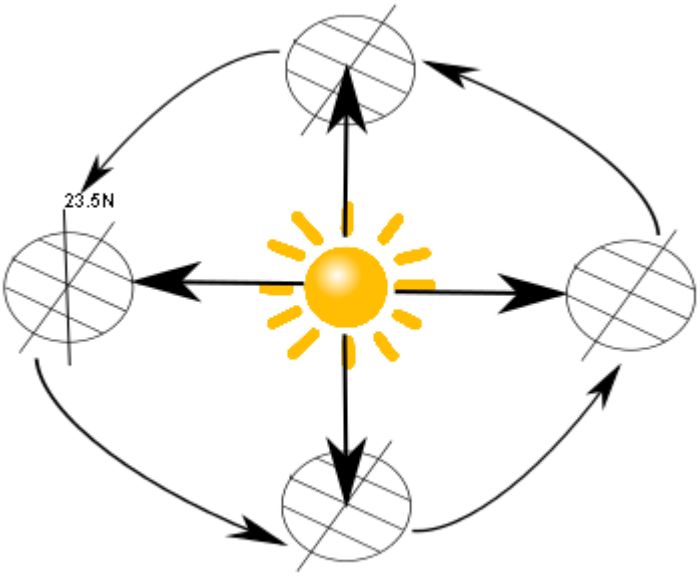
9. Complete the diagram on the back titled "Daylight hours and Direct Rays."



Daylight Hours and Direct Rays

Carefully examine the diagram that shows the Earth's position in its orbit at the start date of each season. The diagram also has a data table showing the number of daylight hours at various latitudes on the start dates of each season.

Latitude	*June 21st: Summer Solstice (N. Hemisphere)*	*March 21/Sept 21; Equinoxes*	*December 21st; Winter Solstice (N. Hemisphere)*
90° N;	*24-hour day*	*12-hour day all latitudes*	*0h*
90° N	*18 h 27 min*		*5h 33min*
30°N	*13h 56 min*		*10h 4 min*
0°	*12 h*		*12 h*
30°S	*10h 4 min*		*13h 56min*
60°S	*5h 33 min*		*18h 27min*
90°S	*0h*		*24h day*



On the diagram:

- Label North Pole with an N.
- Label South Pole with an S.
- Label the latitudes.
- Shade in the side of the Earth experiencing night.
- On the line near each diagram write the latitude experiencing the sun's direct rays.

Winter Solstice

1. Read the Winter Solstice from http://www.cbc.ca/news/background/forcesofnature/winter-solstice.html
2. Observe today's sunlight pattern on www.daylightmap.com noting the shape and position of the day/night boundary.
3. On the world map below, draw the day/night boundary and shade in the area of the Earth experiencing night.
4. Label Day and Night, and complete the map with today's date and time.
5. Explain the reason for the seasons.

The seasons happen because of the angle of sunlight hitting earth. The most direct angle produces the warmest seasons, and longest days. This is affected by the earth's tilt as it orbits.

6. Describe the sun's noon position in the sky today, compared to the rest of the year.

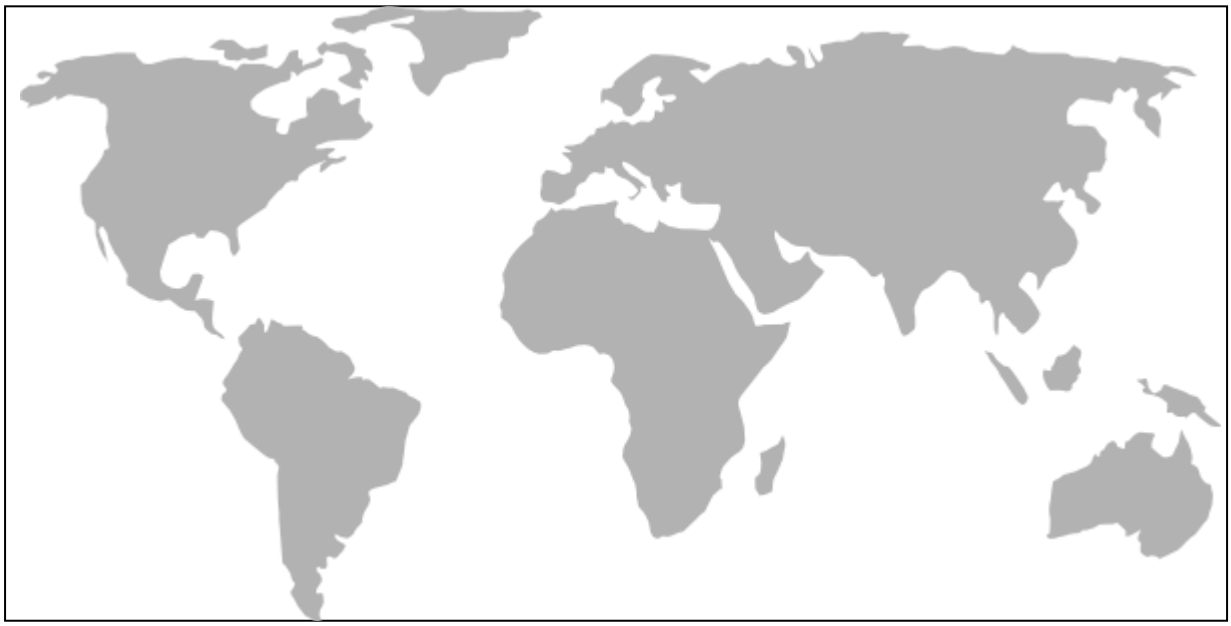
Today the sun is lowest in the sky

7. State what will be happening to the number of daylight hours from today until June 21.

The number of daylight hours will get longer from now until June 21.

8. Explain the origin of the word 'solstice.'

9. Complete the diagrams on the back titled "Daylight hours and Direct Rays."



Date _____ Time _____

Carefully examine the diagram that shows the Earth's position in its orbit at the start date of each season. The diagram also has a data table showing the number of daylight hours at various latitudes on the start dates of each season.

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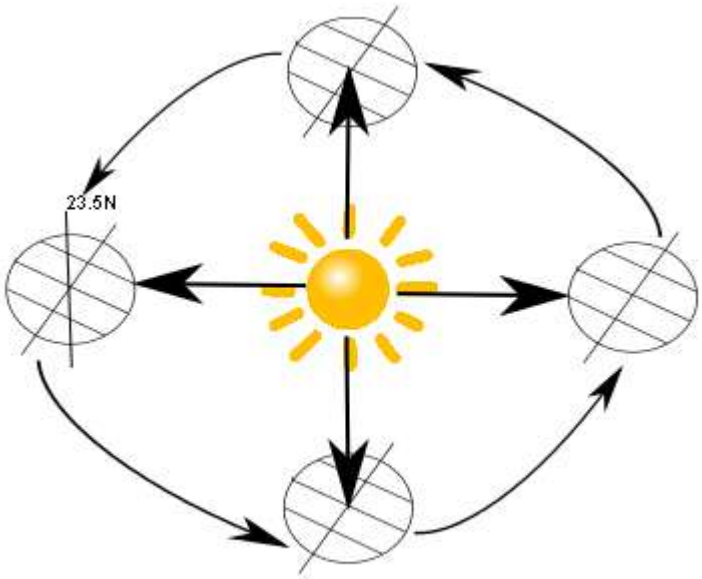

On the diagram:

- Label the latitudes.
- Shade in the side of the Earth experiencing night.
- Label North Pole with an N.
- Label South Pole with an S.
- On the line near each diagram write the latitude experiencing the sun's direct rays.
- Latitudes are 0 (equator), and 23.5 N and S.

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Tara Spitzer-List

To see more associated vocabulary, lessons for each solstice and equinox, and other teaching ideas to use with this, there is a more extensive product available at http://www.teacherspayteachers.com/Product/Solstice-and-Equinox-Hours-of-Daylight-and-Seasons-Lessons