

Movements of the Earth & Sun: Study Guide for Test

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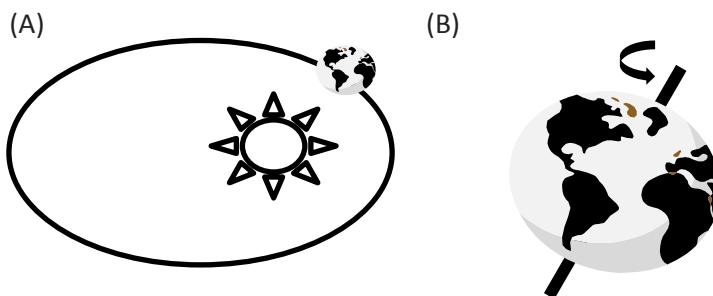
Test on THURSDAY OCTOBER 9th

Turn in your completed study guide on the day of test to receive extra credit points on your test.

Monday 9/29 – Movements of the Earth

1. The Earth _____ (spins) on its _____. The axis has a tilt of _____ degrees.
2. The rotation of the Earth creates an _____ bulge.
3. The Earth has four hemispheres: _____, _____, _____, and _____. We live in the _____ hemisphere.
4. The Earth completes one full rotation in _____ hours and _____ minutes. We calculate a 24 hour day by taking into account the Earth's motion around the Sun as the Earth rotates.
5. The Earth revolves around the Sun. The period of one revolution is _____ days.

6. Match the motion of the Earth with the proper diagram (not drawn to scale).



Rotation _____

Revolution _____

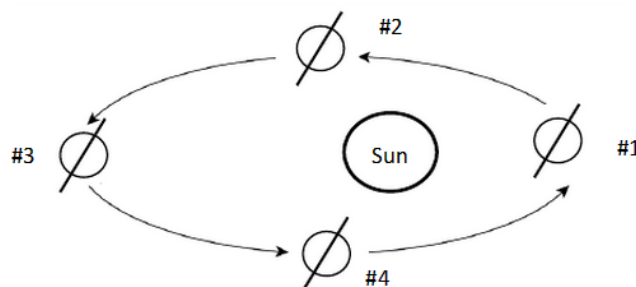
7. *The Day's Main Idea:*

Earth _____ (spin) is a day and its _____ (orbit) is a _____.

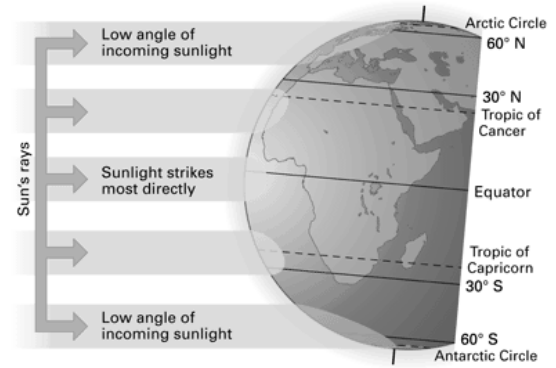
Tuesday 9/30 – Explore the Seasons Lab

8. Match the positions of the Earth with its Northern Hemisphere seasons.

- | | |
|----------|--|
| #1 _____ | a) March 21 – Vernal Equinox (start of spring) |
| #2 _____ | b) September 22 – Autumnal Equinox (start of fall/autumn) |
| #3 _____ | c) December 21 – Winter Solstice (start of winter) |
| #4 _____ | d) June 21 – Summer Solstice (start of summer) |



9. Why is there little change in climate at the equator?



10. Looking at the student data at the right. Which substance heated faster, sand or water?

| Time (seconds) | Temperature of Sand (Celsius) | Temperature of Water (Celsius) |
|----------------|-------------------------------|--------------------------------|
| 30 | 24 | 24 |
| 60 | 25 | 24 |
| 90 | 25 | 25 |
| 120 | 26 | 25 |

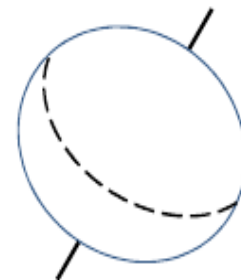
11. *The Day's Main Idea:*

Heat Energy received on the Earth is dependent on the _____ in which the sunlight _____ the Earth.

Wednesday 10/1 - Earth and the Seasons

12. On the diagram of the Earth to the right, the dotted line (- - -) represents the _____ and the diagonal line (/) represents the _____.

Label the Northern Hemisphere and Southern Hemisphere on the two lines provided on the diagram to the right of the Earth.



13. In the Northern Hemisphere the Earth is closest in distance to the Sun during the _____ season. (Refer to question 8 for help).

14.

The Summer Solstice happens when the Sun reaches its low / highest (circle one) point in the sky and provides the least/greatest (circle one) amount of daylight.

The Winter Solstice happens when the Sun reaches its low / highest (circle one) point in the sky and provides the least/greatest (circle one) amount of daylight.

15. The Vernal Equinox and the Autumnal Equinox have _____ hours of daylight and _____ hours of night. (Excluding the north and south poles.)

16. Low angle of incoming sunlight strikes the Earth at the _____ and _____ poles. With the most direct angle of incoming sunlight strikes at the _____.

17. The Winter Season has the _____ amount of direct angle of sunlight, while the Summer Season has the _____ amount of direct angle sunlight.

18. Northern and Southern Hemispheres experience _____ climates/seasons.

19. *Day's Main Idea:*

The Earth's seasons are related to Earth's _____ on its axis and its _____ around the Sun.

Thursday 10/2 – Articles on Time

20. The Earth travels around the Sun every _____ days, or what we call a _____ year.

21. Most of our calendar years last 365 days, but every four years we add one day to the month of _____. The years in which one day is added to our calendar year is referred to as _____ year.

22. Time changes as you move _____ to _____, so we divided the Earth into twenty-four time _____.

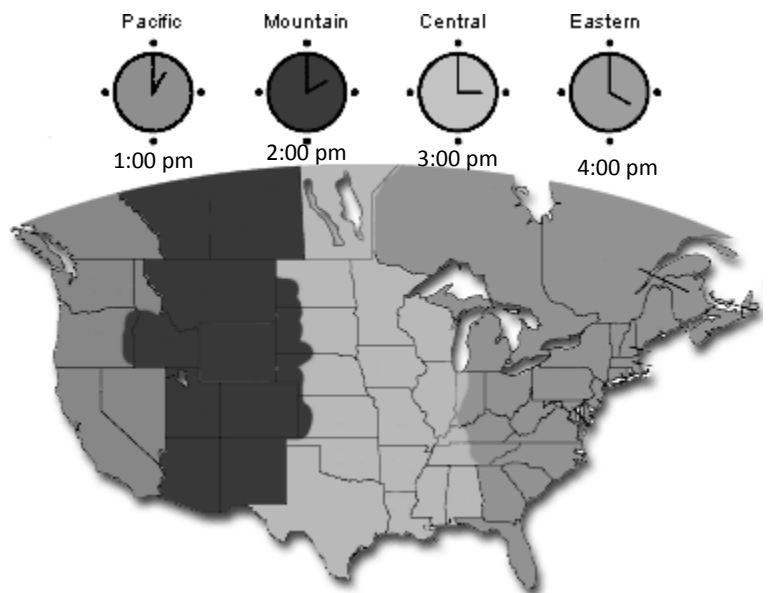
23. The Time along the Prime _____ is called Greenwich Mean Time or GMT.

24. The time zones in the continental United States are _____, _____, _____, and _____ time zones.

25. The idea of Daylight Saving Time was suggested to take advantage of the additional _____ in the summer months.

26. Most of the United States move the clock ahead one _____ from the second Sunday in the month of _____ to the first Sunday in the month of _____.

27. Using the map, if it is 7 pm in North Carolina (Eastern Time Zone) what time is it in California (Pacific Time Zone)?

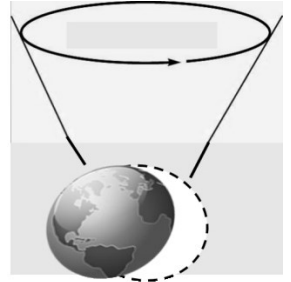


Friday 10/3 – Rotating Earth

28. The shape of the Earth is called _____ Spheroid.
29. The Earth bulges due to _____ force created by the Earth _____ at speed of about 1,000 miles per hour.
30. Water (oceans) is drawn away from the _____ creating the _____ bulge.

31. Like a spinning top, as the Earth rotates its axis traces out a small circle.

The wobbling of the axis along the circle path is called _____.



32. Precession is caused by the _____ bulge of the Earth.
33. It takes _____ years to make one complete Precession circle. *SO SLOW!!*

34. During Precession:

The direction of the Earth's axis Does / Does Not (circle one) change.

The 23.5 degree tilt of the Earth axis Does / Does Not (circle one) change.

The Earth's seasons Are or Are Not (circle one) affected.

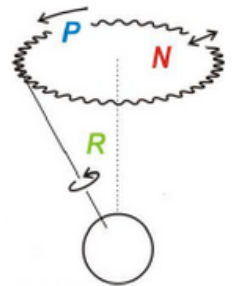
The north star that we see at the north pole Does or Does Not (circle one) change.

35. A nodding motion on the Precession circle is called _____.

R = Rotation

P = Precession

N = _____



36. Nutation is caused by the gravitational pull from the _____ and _____.

37. During Nutation:

There is a change in the Earth's axis by a _____ degree

18 year "nod" period due to the moon's _____

Very slight increases or _____ seasonal effects

Monday 10/6 - Differential Heating & Barycenter

Different substances absorb and retain heat at different rates.

38. Land (soil, rock, sand) heats slow / fast (circle one) and cools slow / fast (circle one).
39. Water (lakes, oceans) heats slow / fast (circle one) and cools slow / fast (circle one).

Both the Earth and the Sun are moving in our Solar System.

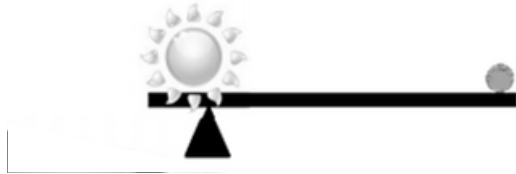
40. The Sun has two main motions. The first motion is the Sun & Solar System's orbit around our _____ Galaxy. The second motion is our Sun's orbit around the solar system's _____ center.

41. The time it takes for our Solar System to orbit once around the center of the Milky Way galaxy is called a _____ Year. (225 – 250 million Earth years.)

42. The Sun moves as _____ tug on it. This causes the Sun to orbit our Solar Systems' _____.

43. *Day's Main Idea*

The _____ is the point in space around which two objects orbit and can vary slightly in its location.



44. The barycenter (represented above as a triangle) will be located more towards the object with smaller/greater (circle one) mass.

Tuesday 10/7: Lunar and Solar Eclipses will not be included on this test