EPS 200 (Stapleton) Name: Key

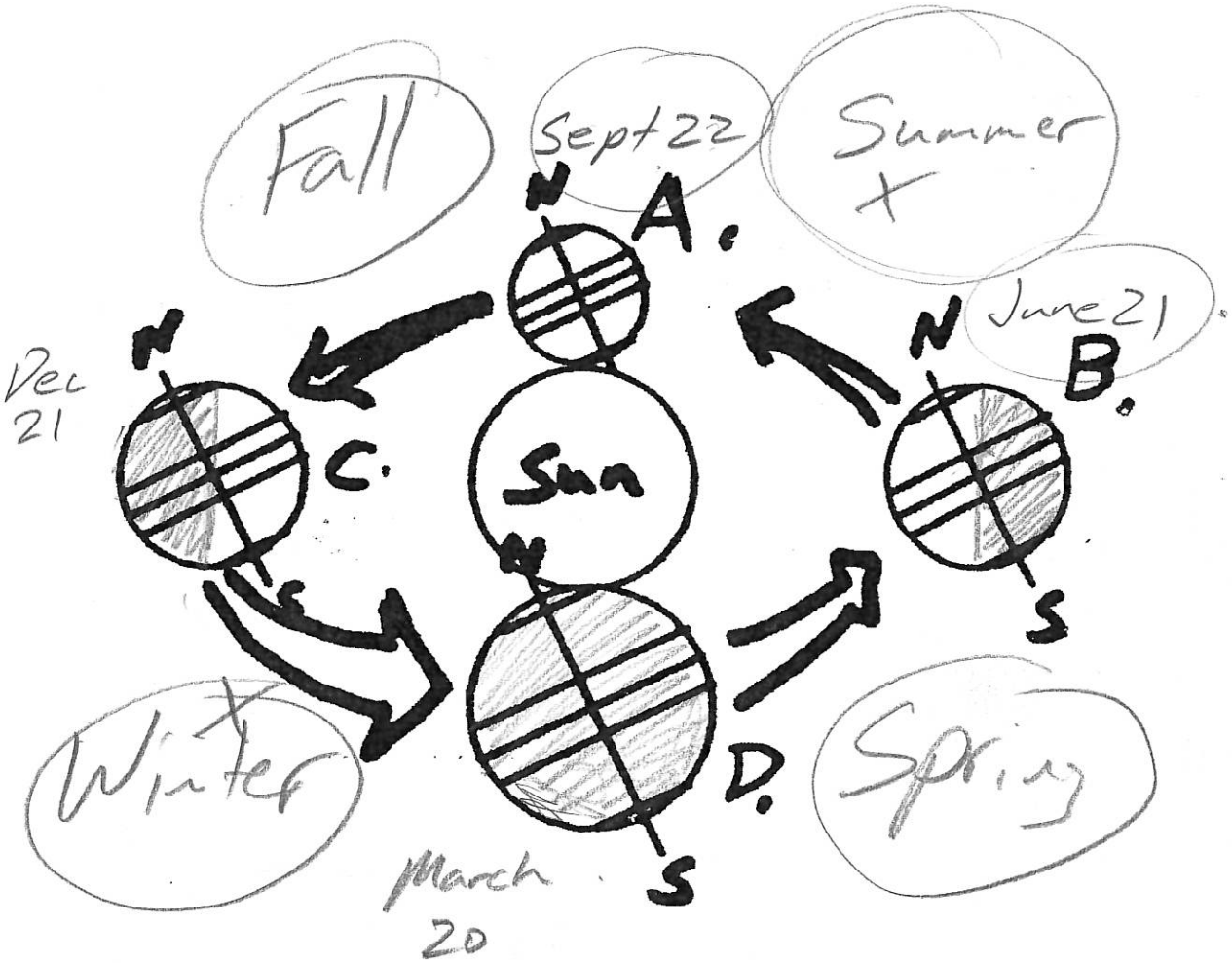
Climate

Seasons and Seasonal Climates

1 Identify each of the following dates for the Northern Hemisphere during 2018:

- The first day of Summer – Summer Solstice (2018): June 21
- The first day of Winter – Winter Solstice (2018): Dec 21
- The first day of Spring – Spring Equinox (2018): March 20
- The first day of Fall -- Fall Equinox (2018): Sept 22

2. Shade the dark side of each Earth below. Then label each Earth with the date. Also label the seasons.



3. How many time zones are there on the Earth? In the diagrams on the back of this sheet, how many time zones can be seen at one time?

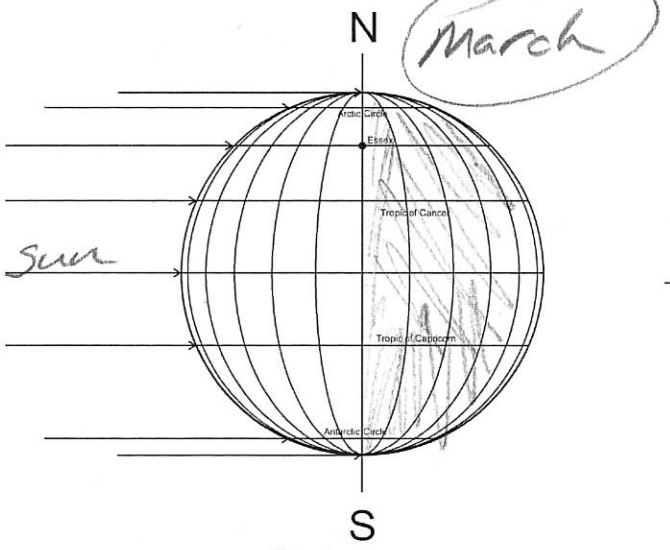
24

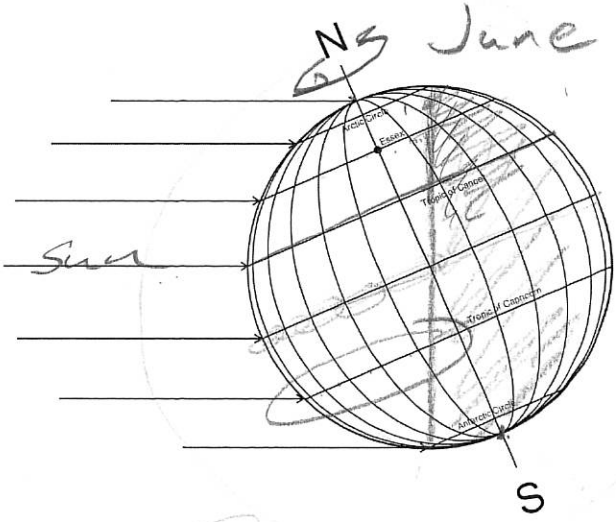
12

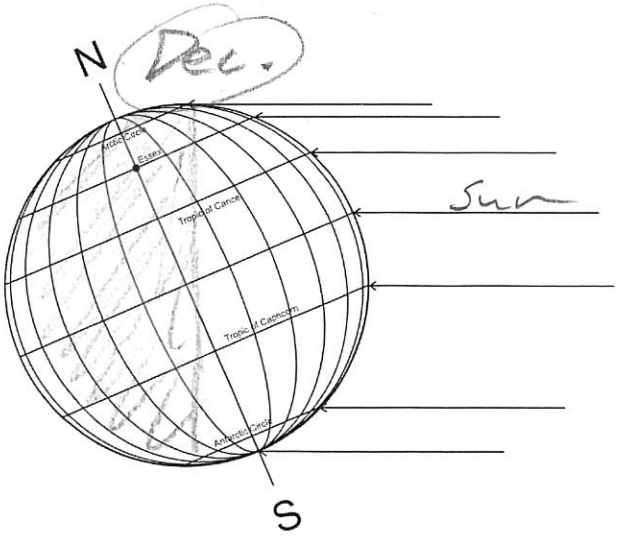
4. Shade the Earths in the diagrams below. Label each Earth with the correct date from the table below. Then choose the correct hours of daylight and directness of sunlight in all of the cells below.

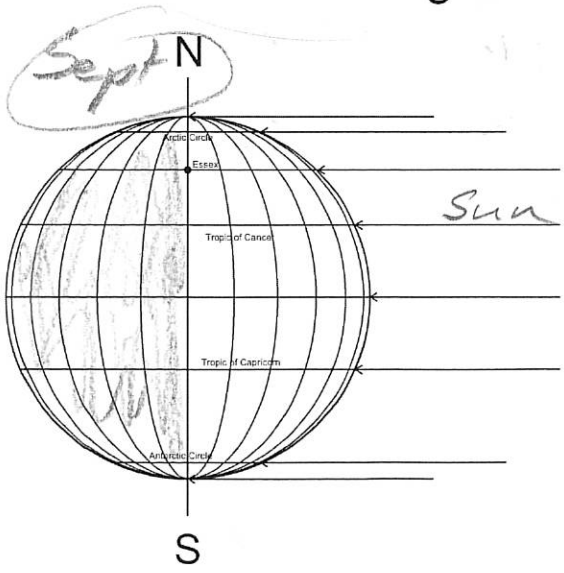
		Approximate Hours of Daylight			
Hemisphere	Location	June 21	September 22	December 21	March 20
Northern Hemisphere	North Pole	24			
	Tropic of Cancer	13 1/2			
	Equator	12			
Southern Hemisphere	Tropic of Capricorn	11			
	South Pole	0			

		Directness of Sunlight	
Hemisphere	Location	Date When Sun is Most Direct (Sun is "highest in the sky" at noon)	Date When Sun is Least Direct (Sun is "lowest in the sky" at noon)
Northern Hemisphere	North Pole		
	Tropic of Cancer		
	Equator		
Southern Hemisphere	Tropic of Capricorn		
	South Pole		

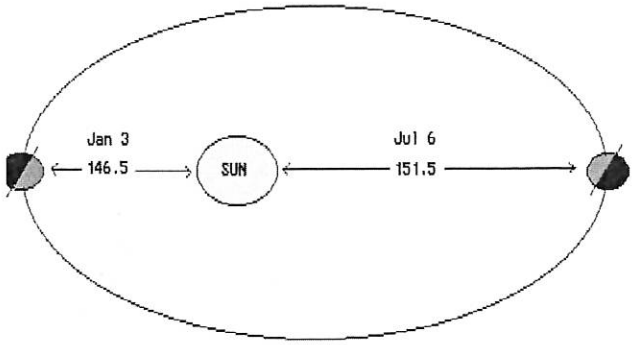








Earth's Elliptical Orbit:



THE ELLIPTICAL ORBIT OF THE EARTH (in millions of Kilometres)

5. During what month is the Earth closest to the sun?

January

6. During what month is the Earth farthest from the sun?

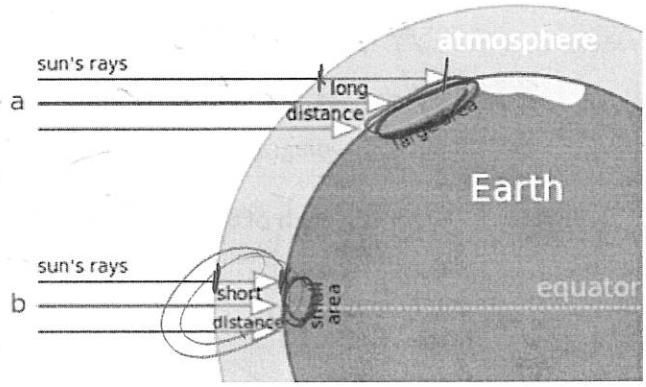
July

7. True or False: Summer is hotter than winter because we are closer to the sun during summer

Angle of Sunlight:

8. In the diagram on the right, letter A shows sunlight that is spread over a larger area. Does this spreading cause the effect of that sunlight to be more intense or less intense?

9. Also in the diagram, letter B shows rays that travel through a thinner amount of atmosphere. Compared to letter A, does this shorter passage through the atmosphere make the sunlight more intense or less intense when it reaches Earth's surface?



10. Why do we have seasons? (There are two important components to include)

Component 1: The Earth's axis is tilted

Component 2: The Earth orbits the sun.

11. How do the two components of the previous answer cause temperatures to change?

Due to its tilt and orbit, sometimes the Earth's N. Hemisphere is tilted toward the sun. This makes the daylight hours longer and the angle of sunlight more direct.

12. During what month(s) does the Northern Hemisphere receive the most energy from the sun? During what month is the Northern Hemisphere hottest? Why are these dates different?

Month of most energy: June Months of highest average temperature: July/August

Why these dates are different:

It takes time for the Earth to heat + cool

Seasonal Climates

1. The diagrams below represent the Earth at its equinoxes and solstices. Assuming that the correct sequence of the pictures is 1,2,3,4, label each Earth with its correct approximate date (Month is okay).

2. For each Earth below, decide which season is beginning in the each hemisphere. Write the name of that season next to each hemisphere.

3. Label the location on each earth that is receiving the most energy from the sun. Circle the letter

4. The Earth's below appear to tilt back and forth due to the Earth's revolution around the sun and and its axis tilt. In the diagrams, the pattern of rising and sinking air appears to remain unchanged. Why doesn't the pattern of rising and sinking air change?

Air rises at the location where sunlight is most direct, and that is based on the Sun's position, not Earth's tilt.

5. In every diagram, label each of the letters with a W (for wet) or a D (for dry).

6. Identify each of the following locations as either "rainforest," "desert," "summer dry/winter wet", or "summer wet/winter dry," SW/WD SD/WW

A. SD/WW B. Desert C. SW/WD

D. Rainforest E. SW/WD F. Desert G. SD/WW