

# STUDENT DATA SHEET

## DATA SHEET - EARTH POSITION 1

NAME: \_\_\_\_\_

### STUDY QUESTION:

When the Earth is in this position (see picture below), which hemisphere has longer days? North or South?

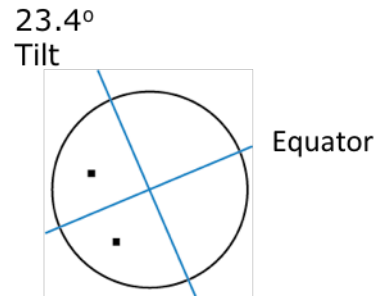


Figure 1. Earth Position 1

Hemisphere	Time (seconds)	Notes
Pushpin in the Northern Hemisphere		
Pushpin in the Southern Hemisphere		

**Hypothesis:** \_\_\_\_\_

### Test your hypothesis:

1. Position the flashlight "Sun" and the styrofoam ball "Earth" as you see in figure 1.
2. Slowly spin the Earth one full rotation while observing which pushpin (north or south) stays in the light longer with the Earth tilted.
3. Using two timers, measure the amount of time, during one full rotation, that each pushpin stays in the light. Be sure to measure both pushpins simultaneously to ensure that the speed of "Earth's" rotation remains the same when testing for both pushpins.
4. Record your findings in the data table.

NAME: \_\_\_\_\_

## DATA SHEET - EARTH POSITION 2

### STUDY QUESTION:

When the Earth is in this position (see picture below), which hemisphere has longer days? North or South?

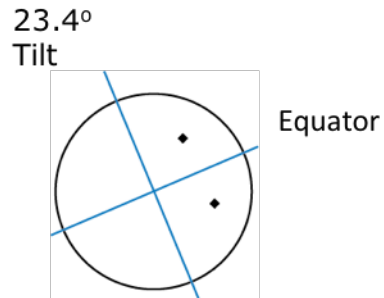


Figure 2. Earth Position 2

Hemisphere	Time (seconds)	Notes
Pushpin in the Northern Hemisphere		
Pushpin in the Southern Hemisphere		

**Hypothesis:** \_\_\_\_\_

### Test your hypothesis:

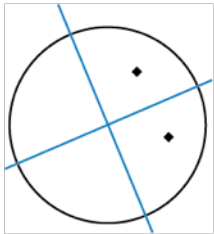
1. Position the flashlight "Sun" and the styrofoam ball "Earth" as you see in figure 2.
2. Slowly spin the Earth one full rotation while observing which pushpin (north or south) stays in the light longer with the Earth tilted.
3. Using two timers, measure the amount of time, during one full rotation, that each pushpin stays in the light. Be sure to measure both pushpins simultaneously to ensure that the speed of "Earth's" rotation remains the same when testing for both pushpins.
4. Record your findings in the data table

**NAME:**

## CONCLUSIONS

1. Does the Earth's tilt ever change? Explain. \_\_\_\_\_
2. If the Earth is in this position (Figure 1.) during its revolution around the Sun, and you live in the USA (northern hemisphere), are you experiencing summer or winter? Explain your answer.

23.4°  
Tilt



Equator



Figure 1.

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3. What are two main reasons for differences in sunrise and sunset times between each hemisphere? Explain.

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4. Hawaii is close to the equator. How do you think length of daylight during summer in Hawaii would compare to length of daylight in Alaska, which is further from the equator? Would there be a difference? Why or why not? What about during winter? Move the pushpins in your model to the approximate locations of Hawaii and Alaska to test your hypotheses.

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