

Seasons Lab Worksheet

model and illustrate how the tilted Earth revolves around the Sun, causing changes in seasons

Work through the lab at keslerscience.com/seasons-lab, then answer these. You can go back to any step at any time.

STEP 1: BUILD THE YEAR

1. Earth revolves around the Sun once a year. Name the four positions marked in the lab.
2. Look at the four Earths in the model. What do you notice about the four axes?
3. In one sentence, what causes Earth to have seasons?
4. At the December solstice, which pole tilts away from the Sun? What season does that make it in the Northern Hemisphere?

STEP 2: WHY TILTING TOWARD THE SUN MAKES IT WARM

5. Two pictures show the SAME bundle of sunlight, once with the Sun high and once with it low. When the Sun is high, does that light land on more ground or less ground? Why does that matter?
6. At the June solstice the noon Sun is about 81 degrees above the horizon in Texas. In December it is about 35 degrees. Give the TWO reasons June is warmer.
7. On the globe, more than half of the Texas line of latitude is in sunlight at the June solstice. What does that tell you about the length of the day?

STEP 3: TWO HEMISPHERES

8. It is the June solstice. Fill in the season for each place.
Texas (Northern Hemisphere): _____ Sydney (Southern Hemisphere): _____
9. Earth is actually CLOSEST to the Sun in early January, and farthest in early July. In Texas, January is winter. Explain why this shows that distance is not what causes seasons.

CHALLENGE

10. A student draws Earth orbiting the Sun but re-aims the axis at every position, so the North Pole always points straight at the Sun. What would that model predict, and why is it wrong?
11. The equator gets about 12 hours of daylight every single day of the year. Using what you saw in the model, explain why.