

# Winter Solstice Quiz: Answers

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## Section 1: Basic Concepts + bonus

1. B. The shortest day of the year.
2. C. The sun is at the furthest angle from the Earth.

*Discussion:*

*Grab a flashlight and turn off the room lights.*

*Find a blank wall. Flash your flashlight straight on at the wall. Notice the solid circle on the wall. Now, move your flashlight at an angle. Notice how the edges of the light are softer? This is how the light hits the earth in the winter.*

*When your position on the Earth is closer to the edge of the light, the sun will be lower in your horizon and you will see less light. It will be colder. The Earth gets less warmth from this angled light.*

3. Bellingham, WA Solstice Day: About 8 hours and 25 minutes.  
Kansas City Solstice Day: About 9 hours and 5 minutes

4. Bellingham, WA June 21st: nearly 16 hours  
Kansas City Summer Solstice: just under 14 hours

*Children Thinking it through:*

*How many hours are in a day? 24.*

*If there was an equal amount of day and night, how many hours of each would there be? 12*

**Bonus:** Sunrises 30 minutes later and goes down 40 minutes earlier. That's more than an hour less light on the Winter Solstice in Washington state than in Kansas City!

For the summer solstice, Kelsi's Washington State sun rises almost 50 minutes earlier and sets almost 30 minutes later! 1 hour 20 minutes more sunlight than in Kansas City!

## Section 2: Celestial Bodies + bonus

1. Planets: Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune. Pluto doesn't really count anymore. If we count Pluto then we'd have to go counting tons of other little orbiters.
2. Sun-like planets: Jupiter and Saturn (liquid hydrogen)
3. Mars and Venus. Uranus and Neptune are also rock, metal, and ice, but they have different compositions.
4. Moon

### **Bonus:**

When Earth got knocked, it settled in on a tilt. Earth now sits at **23.5 degree** angle through its North and South poles.

## Section 3: Seasons

1. B. Distance of the sun from Earth.
2. July 4th  
*Note: Earth is the closest to the sun in January.*
3. spring; fall
4. winter